



The health of Queenslanders 2014

Fifth report of the Chief Health Officer Queensland



The health of Queenslanders 2014.
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Contents

About this report	ii
From the Chief Health Officer	iii
At a glance	vi
The health of Queenslanders 2014	viii
What does the future hold?	ix
Summary	x

Chapter 1

Indicators of progress	1
------------------------------	---

Chapter 2

Queensland's population	7
-------------------------------	---

Chapter 3

Health outcomes	13
Life expectancy	14
Health expenditure	16
Burden of disease	18
All causes	24
Chronic disease	27
Avoidable deaths	30
Potentially preventable hospitalisations	32
Cancer	34
Cardiovascular disease	39
Diabetes	44
Mental health	48
Suicide and self-inflicted injury	52
Injury	54
Respiratory conditions	58
Dental disease	62
Musculoskeletal conditions	64
Dementia	66
Vision disorders and hearing loss	68
Communicable diseases	70

Chapter 4

Risk and protective factors	73
Multiple risks	74
Overweight and obesity	76
Food and nutrition	86
Physical activity	96
Smoking	101
Alcohol consumption	108
Illicit drug use	116
Blood pressure and cholesterol	118
Cancer screening	122
Sun safety	125
Oral health and fluoride	129
Immunisation	131

Chapter 5

Population groups	133
Maternal and infant	134
Children	138
Young people	140
Older people	142
Males	144
Females	148
Socioeconomically disadvantaged	150
Indigenous Queenslanders	154
Regional Queenslanders	158
Other population groups	170

Appendix

Population health in Hospital and Health Service areas of Queensland	172
--	-----

End matter	173
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Data sources and methods	173
Terminology, definitions and abbreviations	174
Guidelines	177
References	180

About this report

This is the fifth report from Queensland's Chief Health Officer. The series *The health of Queenslanders* began in 2006 and is released every two years to report on the health status and burden of disease of the Queensland population.

Data and terminology

The most recent data is included in this report. Data sources are cited and statistical methods summarised on page 173 with definitions and abbreviations on page 174. Unless otherwise indicated, all data refers to the total population of Queensland. All rates for deaths, hospitalisations, cancer incidence and burden of disease are age standardised (reference population: Australia 2001). Disease prevalence, notifications, risk and protective factor prevalence are not age standardised, although for comparative purposes, age standardised rates are used where available.

Aboriginal and Torres Strait Islander peoples: These populations are referred to as Indigenous Queenslanders or Indigenous Australians throughout this report.

Burden: a frequently used term with two meanings, usually evident from the context:

- technical use — burden of disease analyses using the disability adjusted life year (DALY)
- general use — for example, health burden or disease burden or relative burden.

Hospital and Health Services (HHSs): 16 geographically defined HHSs and one specialist population based HHS (Children's Health Queensland) were established in July 2012. Subsequently, in July 2014 the separate entities of Torres Strait–Northern Peninsula HHS and Cape York, were amalgamated. This report is based on the 16 original geographically defined HHSs.

Median age of death: This metric is more widely used in the 2014 report than in previous reports. The median age of death within sociodemographic populations and HHSs is reported. It is a metric subject to limitations—the age distribution and size of the population in a selected area may influence the median age of death, and its comparability with other areas. Unusual and unexpected events such as a bus accident may result in a larger than average number of deaths and this would have a greater impact on estimates from areas with smaller populations than others. In this report, median age of death is based on year of death to ensure comparability with Indigenous Queensland death statistics and aggregated years are reported to minimise year-to-year variability.

Premature death: a term used in two contexts:

- a category in burden of disease analyses — this refers to years of life lost (YLL).
- deaths that occur before the age of 75 years — a term consistently used in chapters 3 and 5.

Significance: Within this report, the term significant is used to reflect a level of importance as well as the statistical difference. However, the reporting of difference between categories is only noted when the difference is statistically significant (based on non-overlap of 95% confidence intervals).

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From the Chief Health Officer

This is my fifth report on the health of Queenslanders and it comes at a time when we, as a state, stand at the cross-roads of choosing change or potentially losing the battle with our greatest health challenge.

I'm talking about obesity—arguably the most confronting public health issue of this century. A global pandemic of a different kind: the by-product of prosperous times, technological advances, convenience and poor lifestyle choices.

While there are many factors as to why people become overweight or obese, including the environment we live in overwhelmingly the evidence points to Queenslanders eating too much of the wrong food and moving too little. However, the simplicity of this statement belies the gravity of the situation.

The evidence is clear that obesity is fuelling the prevalence of other chronic diseases, some of which can't be turned back. Conditions like stroke, hypertension, heart attack, some cancers and a rapid escalation of type 2 diabetes.

In truth, Queenslanders have a much distorted view of their weight, particularly as big, bigger and huge is now our norm.

Tellingly, you would be hard pressed to find a Queenslanders who doesn't have someone in their family, or someone they know, if not themselves, who is overweight or obese. It's not surprising, when you consider Queensland now has the sad mantle of being the 'heaviest' state, spending about 42 cents in the dollar on eating food outside the home. The cost factor aside, takeaway food and eating out often means bigger portions and more calorie dense foods, high in fat and sugar.

On current trends, about three million Queenslanders will be overweight or obese by 2020.

Frankly, the situation has surpassed being a crisis. It's devastating. Whether you look at this public health dilemma from a global perspective, a national one or even at the state level, it's bleak.

Australia's obesity rates have skyrocketed in the past 20 to 30 years with the OECD now placing Australia in the top five most obese developed nations. Just as disturbing, Queensland's obesity rates are now approaching those of the US.



“...obesity—arguably the most confronting public health issue of this century.”

Already there are Queensland hospitals equipped with beds to hold patients weighing 250kg, as opposed to the 150kg maximum capacity beds of the past. Our student doctors and nurses are being trained on the world's largest bariatric dummies to get them used to working on larger patients of ever increasing dimensions. Bigger ambulances are being built and equipment, like hoists and blood pressure cuffs, are also being super-sized.

Obesity is one of the key contributors to Queensland's rising rates of type 2 diabetes. Every day, about 50 Queenslanders are diagnosed with this insidious disease for which there is no cure.

Type 2 diabetes has traditionally been regarded as an adult condition, but more children are now being diagnosed, putting them at earlier risk of serious complications. In the US, where the increase in adolescent type 2 cases is of particular concern, sedentary lifestyles and poor food choices, including too much junk food, are blamed as major factors.

“...within the pages of this report lies the evidence to generate momentum for much-needed change...”

Therefore, we must act now. However, to succeed the fight can't be for health professionals alone, or just left to governments for that matter. Everyone—absolutely everyone—has a role to play. We need conscripts from every corner of the community. Decision-makers, politicians, governments of all levels, planners, food producers, retailers, transporters, builders, businesses, social commentators and educators—all have a stake. We can't be passive.

I believe that within the pages of this report lies the evidence to generate momentum for much-needed change and evidence to affirm why obesity can't be an issue lost in the 6pm news cycle.

And while the current situation might be bleak, I don't believe for a minute that it can't be won if we're all committed to a shared goal. Take heart from the good things already happening here and elsewhere in the world. Take for example, the emergence of activity-based workplaces as more and more employers understand the importance of stepping up to ensure staff move throughout the day to counter increasingly sedentary lifestyles. This means moving not just before or after work, as highlighted by the Australian Medical Association in its policy statement released in June this year.

We're seeing great initiatives through workplace wellness programs (exercise breaks, staff gyms) and structural change (non-designated work stations, standing desks and even under-desk elliptical exercise devices). It's also encouraging that many workplaces have replaced 'junk food' vending machines with healthier choices like fruit bowls and better equipped staff kitchens.

The sky really is the limit when it comes to workplace change and commitment on both sides—employers and employees. This is why I'm delighted that the Queensland Government has moved to fund the continuation of the healthy workplace program, established under the Australian Government's national partnership agreement.

With every problem there is opportunity, and tackling obesity should be no different. It may manifest in fresh thinking and new ways of doing things. New ideas, better urban design and supportive communities, food reformulation, social marketing and education, smart policy and legislation around issues like improved food labelling and junk food, underpinned by individual behaviour change might just be among some of the ways we overcome this epidemic. And it begins with communities, industry and the health sector working hand-in-hand. Ultimately, this could influence how we think, eat, work and play. But there can be no room for deterrents, such as a GST on fresh fruit and vegetables or any other measure that could undermine progress.

While obesity is a key plank to this report it is obviously not the whole report, so it would be a shame for it to overshadow Queensland's health achievements. I'm pleased to say there has been steady progress in many quarters and, as a result, more Queenslanders are enjoying better health.

“...there has been steady progress in many quarters and, as a result, more Queenslanders are enjoying better health...”

Most noticeably, smoking rates have continued to fall with the rate of decline similar for both men and women. Teenagers and young men, aged 18–29, have led the way and given hope that this will result in fewer young people taking up the smoking habit in the future.

It's estimated, however, that there are still about 500,000 adult smokers in Queensland and that's 500,000 too many. We've had great wins with those wanting to quit, the 'contemplators' and those who just needed a nudge, but the real challenge will lie in getting those hard-core smokers to quit once and for all—not just for themselves and their families, but for the community's benefit as well.

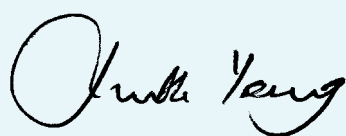
After all, one in 10 people who die from smoking-related diseases never smoked themselves.

Universally, there is a groundswell of anti-smoking support. However, as success can sometimes create a false sense of security, it is important we don't think the battle is over or we could lose the gains we've made. That's why the emergence of products like electronic cigarettes and personal vaporising devices that mimic smoking (need to be addressed) pose such a threat. We can't let these or anything else normalise smoking again or we risk creating a new market of nicotine users.

Immunisation is definitely a Queensland success story. Queensland continues to have higher rates than nationally, and, at 92 per cent, I believe we are on track to meet the end goal of 95 per cent. To help achieve this, the Queensland Government is creating a \$3 million incentive scheme for the Hospital and Health Services (HHSs). Incentive programs are traditionally the ambit of primary care initiatives, so to have two state-funded incentive schemes focussing on prevention is a move in the right direction. As a longer life expectancy doesn't necessarily equate to a gain in healthy years, prevention is definitely the key to our future.

It is also worth noting a small but very welcome change in the state's alcohol consumption rates. While Queenslanders still drink more than the national average, it is young men, once again in the 18–29 age bracket, who have made a difference by achieving an encouraging decline in 'risky' drinking levels. Small steps but ones with big potential.

Finally, this is the first time in this series of reports that I have included an analysis of the population health status within individual HHSs. It's a good move. Not only does it support transparency and increased accountability, it gives HHSs real insight to the challenges and opportunities within their catchments. Importantly, the data provides a solid evidence base from which to identify priorities, inform decision-making and guide best use of funds and resources.



Dr Jeannette Young
Chief Health Officer, Queensland

November 2014

At a glance

This fifth report of the Chief Health Officer Queensland captures a broad range of information at state and regional level about the health status of the population. Its purpose is to identify key causes of health burden, how these are changing and where health can be improved.

Good health and wellbeing is fundamental to a prosperous state, thriving communities and for Queenslanders to reach their full potential. Most, but not all, are healthy by national and international standards.

Reducing preventable diseases and improving health behaviours will advance health, and decrease health disparity across the state.



We are making progress:

- life expectancy increase
- death rates for many causes decrease
- Indigenous death rates decrease
- smoking rates decrease
- physical activity increase.

Challenges ahead:

- diseases of ageing increase
- hospitalisation rates increase
- impact of rising obesity on diabetes and heart disease burden
- large regional health disparities
- socioeconomic health inequalities continue.

We are a healthy state:

- outliving much of the world—of 187 countries, Queensland ranked among top 10
- living longer—a gain of about two years in the past decade
- death rates going down—14% decrease in a decade, and a larger decline in premature deaths
- smoking less, breathing easier—over a decade, smoking decreased by 26% and male death rates for chronic obstructive pulmonary disease (COPD) and lung cancer decreased by about 20%
- very good health outcomes for some—median age of death of 81 years in four HHSs.

But not in every way:

- diabetes increasing—prevalence increased by 25% over the past 12 years
- gaining weight—average adult Queenslanders gained about 3kg in a decade and obesity rates increased 2.5 times over two decades—by measurement 28% of children are overweight or obese and 65% of adults
- dementia rising—the number of cases likely to increase more than fivefold by 2050
- young minds troubled—anxiety and depression a leading cause of disease burden, with suicide the leading cause of death in young people
- poor diet choices—more than one-third of daily energy intake derived from energy-dense, nutrient-poor foods such as sugary drinks, snack foods and confectionery.

And not every person is healthy:

- death by disadvantage—about 2500 premature deaths associated with socioeconomic disadvantage
- high Indigenous Queenslanders death rates—about 60% higher than the non-Indigenous rate
- smoking during pregnancy—15% smoked at some time and about 40–50% of teenagers and Indigenous Queenslanders women doing so
- wide disparity in outcomes—21-year difference in median age of death across HHSs.

We can do better:

- risk factors impact on total burden of ill health—joint effects of modifiable risks about one-third of total disease burden and 43% of premature deaths
- high risk of cardiovascular disease—some risk for more than two-thirds of adults and high risk for 14%
- silent disease risk—untreated high cholesterol in 50% of adults and inadequate treatment for 8%, untreated high blood pressure for 13% and inadequate treatment for 6%, 20% of diabetes cases undiagnosed and 54% inadequately treated.

We are spending more and doing more:

- increased spending on healthcare—4.1% per year increase in recurrent expenditure per person over the past decade
- escalating hospitalisation rates—about 66,000 more hospitalisations each year
- increased spending on general practitioner (GP) services and number of visits—34% increase in primary healthcare spending nationally in past five years.

Looking ahead:

- more people, greater demand for services—average population increase of 90,000 persons per year over a decade with marked increase in the proportion of older people
- economic pressure to meet healthcare needs with greater demand for hospital and aged care—higher level of disability due to diseases of ageing
- increasing number of people living with cancer as a result of improved survival and more cases due to population ageing and growth
- increasing obesity driving up diabetes rates—leading to increased incidence of cardiovascular disease, adding to health system pressures and with potential to constrain life expectancy gains
- pressure on productivity—attributable to lifestyle diseases and risk factor burden, specifically increasing prevalence of obesity.

The health of Queenslanders 2014

The health of Queenslanders continues to improve, and compares well nationally and internationally. However, as in many developed countries, the burden of disease in Queensland is shifting towards greater disability and away from early death. In addition to an ageing population, the drivers for a longer, but not necessarily healthier life are:

- increases in chronic diseases
- shifts towards disabling conditions and away from fatal causes
- changes in risk factors, particularly the influence of obesity.

Queenslanders, similar to other Australians have one of the longest life expectancies in the world. In 2012, life expectancy for Queensland males was 79.5 years and 84.0 years for females, an increase of 2.3 years and 1.6 years respectively over the previous decade. In 2010, compared to 186 other countries, Australia was among the top five performing countries across many of the major health conditions.⁸ Among OECD countries, Australia has risen in ranking, moving from eleventh highest life expectancy in 1990 to fourth highest in 2010—and for health adjusted life expectancy from ninth to fifth highest. Australia out-performed many countries including the United States (US), United Kingdom (UK), Canada, New Zealand and the Scandinavian countries.^{9,10}

Improved health outcomes in Queensland showcase the strong performance of Australia:

- Death rates are declining for major causes—by 39% over a decade for coronary heart disease, 30% for stroke and 7% for all cancers.
- More people are surviving cancer—now 7 in 10 people diagnosed with cancer survive for at least five years after diagnosis, while 20 years ago about 5 in 10 survived five years.
- There has been significant progress in healthy lifestyles among young people—melanoma incidence rates are declining among 15–29 year olds due to improved risk awareness and childhood sun protection, smoking rates among teenagers and younger adult males have decreased more than for any other age group, and in recent years the riskiest alcohol consumption has markedly declined among 18–29 year olds but not among older people.

While there have been gains in life expectancy, about half the two-year gain in the past decade was spent in poor health, principally due to chronic diseases. Chronic disease (non-communicable disease), caused about 80% of deaths, hospitalisations and allocated expenditure. Ongoing improvements in health and wellbeing, and life expectancy gains depend on investment in the prevention of chronic disease.¹¹ Furthermore, there are substantial disparities in Queensland—socioeconomic disadvantage has the greatest impact on poor health outcomes, and in 2009–2010 resulted in an excess 2500 premature deaths per year. Life expectancy of Indigenous Queenslanders was about 10 years less than for non-Indigenous people and median age of death 23 years earlier.

Obesity, now considered a global pandemic, is rising steeply in Queensland. This state had the highest rate of adult obesity in Australia, and over the past five years increased at double the national rate with 1 in 3 adults measured obese and another 1 in 3 overweight. For children, rates have plateaued nationally, however, 28% of Queensland children were overweight or obese in 2011–12. The number of overweight or obese Queenslanders is projected to increase from about 2.5 million in 2014 to 3 million in 2020 based on measured estimates. Obesity is leading to significant consequences for the health of affected individuals, an increasing burden on health services and social supports, and potentially constraining economic productivity. It is a major risk factor for diabetes, cardiovascular disease and some cancers. It reduces quality of life and life expectancy. Rising levels of obesity in Queensland are part of the global challenge, and over the past 33 years there have been no national success stories.¹²

The health status and risk factor profile for the population of each HHS is included in this report series for the first time. This analysis shows that among the HHSs there are:

- very divergent outcomes with high rates of death evident
- substantially large gaps in median age of death—21-year difference
- high variability in hospital rates and burden
- many opportunities to reduce the hospital burden by addressing preventable conditions including those that could have been treated in a primary healthcare setting
- HHSs with greater risk factor burden which will increase the likelihood of disease development, disability and early death.

What does the future hold?

A healthy economic future for Queensland will be shaped by the health and wellbeing of the population.¹¹ Looking ahead, the demographic factors of population growth and ageing will be dominant influences on future health system pressures in Queensland and nationally. The current population of 4.7 million is projected to be 7.1 million by 2036, with a 50% increase in the percentage aged 65 years and older and a doubling of those 85 years and older. There are escalating pressures on the economy as the proportion of workers to support an ageing population diminishes, and there is increasing demand in all major categories of health service delivery and spending due to the rising number of older people.¹³

People are living longer, but living longer with disease. The major causes of the loss in healthy life in Australia are cardiovascular disease, cancers and diabetes. Diabetes is the main driver of the projected expansion in morbidity, a consequence of increasing levels of obesity.¹⁴ A number of degenerative conditions will contribute to economic pressures within the health system and associated services. These include dementia, Parkinson's disease and arthritis. Although people with illnesses are living longer, Queenslanders value quality of life and wellbeing at every stage including that period that precedes death.^{15,16}

Health spending, as a proportion of GDP, is projected to almost double in the 40-year period up to 2049–50. In 2011–12, it cost about \$6200 per person (\$5916 in recurrent expenditure) to provide healthcare services to Queenslanders and over the previous decade there had been a 4.1% per year increase in recurrent spending per person.¹⁷ Reducing the level of illness across the life course, including among older people, is an important strategy for reducing future economic and health burden. The major causes of loss of healthy life are also the causes that are more expensive to treat and have the most potential for prevention—cardiovascular disease and diabetes in particular. Diabetes expenditure—the largest single cause of anticipated proportional expenditure increase—is projected to increase fivefold over the 30 years to 2032–33.¹⁸ It has already increased by 86% in the eight years up to 2010, and hospitalisation expenditure has more than doubled.

Preventing disease and addressing risk factors in the population has dual benefits. It will reduce the burden of ill health both now and in the future. It will also improve wellbeing and reduce the incidence of chronic disease, providing economic benefits through savings in the health system and improved productivity:

- Promoting healthy lifestyles will improve the health and wellbeing of the population. Queensland adults with the least number of risk factors report the highest levels of quality of life and satisfaction with their health. In 2012, with each additional chronic disease risk factor a person carried, there was a 70% reduction in quality of life, self rated health and satisfaction with health, irrespective of sociodemographic variables.¹⁹
- Reducing the prevalence of risk factors is achievable, and will deliver significant health improvements. One-third (31%) of burden in Queensland and 43% of premature deaths are associated with 13 modifiable risk factors. Cardiovascular disease, as the largest cause of death and the most expensive to treat, is important to prevent. Gains will come from a renewed focus on treating and preventing high blood pressure, high cholesterol, high blood glucose, obesity, smoking and physical inactivity.
- Reducing the incidence of disease has the potential to lower health system costs and improve productivity. Productivity losses from obesity comprise 44% of the \$8.3 billion in financial costs nationally.²⁰ For heart attacks and chest pain, productivity losses are 50% higher than the \$4.3 billion healthcare system costs.²¹ The recent slowing of the decline in deaths due to coronary heart disease in younger age groups in Queensland and nationally, is likely to jeopardise future gains in healthcare cost reduction and productivity improvement.²²

The Queensland Plan: Queenslanders' 30-year vision is a long-term vision for the state.¹⁶ In 2013, the people of Queensland contributed to this plan. Preventing disease and reducing lifestyle related diseases were widely embraced by Queenslanders. Their vision was to lead an active and healthy life which included children building healthy habits and adults taking more responsibility for their health and wellbeing. What matters to them is a health system that supports those most in need, and specifically results in better outcomes for Indigenous Queenslanders. They seek to balance investments in prevention and treatment. *The Queensland Plan* includes targets and measures of success for health as well as other foundation areas.

Summary

Health outcomes

Of the 26,922 deaths of Queenslanders in 2010, 1 in 3 was premature, that is, occurring before the age of 75 years, representing 46% of male deaths and 30% of female deaths. At least three-quarters of all premature deaths were due to cancer, cardiovascular disease and injuries in 2010. Queensland public and private hospitals recorded 1.9 million hospitalisations in 2011–12 with hospitalisations projected to more than double to 4.13 million in 2031–32, the largest projected increase being for renal dialysis. Information in this section is derived from the relevant chapters of the report where sources are cited.

Avoidable deaths and potentially preventable hospitalisations

- The rate of avoidable deaths has decreased by 22% in 10 years, yet still one-quarter of all deaths (7048), were avoidable in 2010. The avoidable death rate in Queensland was 7% higher than national, leading to about 400 excess deaths. Avoidable deaths are either preventable or treatable. The decrease in the treatable death rate was about 50% greater than the preventable rate decrease. Preventable death rates showed the greatest difference across population groups in the state. Rates in disadvantaged areas were about double those in advantaged areas. Treatable and preventable death rates varied markedly across HHSs, from twice the state rate to 20% lower.
- At 7.6% of all hospitalisations, the rate of potentially preventable hospitalisations in Queensland was similar to national. Diabetes complications were the largest specific cause. The rate was 69% higher in the most disadvantaged areas, where socioeconomic disadvantage represented about 29,000 excess hospitalisations per year. Rates for HHSs varied from more than twice the state rate to about 20% lower. This equates to about 1800 excess hospitalisations across the three HHSs with the highest rates and about 7600 fewer across the four with the lowest rates.

Cancer

- Over their lifetime, 1 in 2 males and 1 in 3 females will be diagnosed with cancer. Population growth and ageing are driving the 37% increase in the number of new cases diagnosed over the decade. Cancer was the second most

common cause of death, after cardiovascular disease, the cause of 1 in 3 of all deaths, and the largest cause of premature death (42%).

- Death rates for most cancers are declining. The five-year relative survival rate for all cancers increased 27% over two decades, with higher gains in prostate cancer and lower gains in lung cancer.
- One-third of the total burden of cancer was due to preventable risk factors where tobacco, physical inactivity, high body mass and alcohol consumption were the largest causes. The incidence and burden of cancer can be reduced with improved lifestyles and further participation in the population screening programs for breast, cervical and bowel cancers.

Cardiovascular disease

- Cardiovascular disease plays a key role in longevity and health inequalities across the state. It is the largest cause of death and health system expenditure, and a leading cause of disease burden. Of the 8602 deaths in 2010, 1 in 4 was premature. People died of cardiovascular disease about 15–20 years earlier in parts of north Queensland compared to the south-east.
- Coronary heart disease death rate was 9% higher than national, causing 350 excess deaths in Queensland. Stroke rate was 8% higher causing 150 excess deaths. Six HHSs had excess coronary heart disease death rates and three had lower rates than the state. If all rates were as low as the HHS with the lowest rate, there would have been about 1100 fewer deaths. The rate of premature death due to coronary heart disease for males was 3 times the female rate, and in disadvantaged areas it was double the rate for advantaged areas.
- Cardiovascular disease death rate decreased by 65% over 25 years, leading to substantial gains in life expectancy. Of concern, the decline has slowed in age groups up to 55 years. However, ongoing decline is predicted, and is projected to offset expenditure increases by 20%. Gains are achievable as over 80% of coronary heart disease burden and about 70% of stroke burden are due to modifiable factors. For the gains to be realised, the prevalence of diabetes, obesity, dyslipidaemia and hypertension must be reduced and effectively treated.

Males



3 in 10 of all deaths could have been avoided:

1 in 10
through treatment

2 in 10
through prevention

Females



2 in 10 of all deaths could have been avoided:

1 in 10
through treatment

1 in 10
through prevention

Diabetes

- About 1 in 12 adult Queenslanders has diabetes, with one undiagnosed case for every four diagnosed cases. Of those with diabetes, 54% were inadequately treated. Since 2000, about 17,000 new adult cases have been diagnosed each year. Two-thirds of the burden of type 2 diabetes was due to excess weight and physical inactivity. The incidence rate of type 1 diabetes for Australian children has not changed since 2004.
- The diabetes death rate was double in disadvantaged areas and 5% higher than national. Indigenous Queenslanders had 5.9 times the average Queensland death rate. The average age of hospitalisation varied across HHSs by about 15 years.

Mental health

- Mental health disorders are a leading cause of disability burden. In 2007, based on a clinical diagnostic survey tool, about 1 in 2 Queenslanders aged 18–65 years reported a mental health disorder at some time in their life and about 1 in 5 did so in the previous 12 months.
- About 1 in 7 Queenslanders self reported a long-term mental health problem, while about 1 in 8 adults reported recent psychological distress.
- Adults in disadvantaged areas were about 80% more likely to report poorer health, as were obese adults, smokers, those who were insufficiently active and the sedentary. Those with the least number of risk factors reported the highest levels of quality of life, wellbeing and satisfaction with health.

Injury

- Falls related injuries are common among people aged 65 years and older, with the number of deaths in this age group increasing by 46% in nine years and hospitalisations increasing by 87% due to the ageing population. Females are particularly vulnerable, accounting for 6 in 10 falls related deaths and 7 in 10 hospitalisations.
- Road transport injuries are much higher for males, accounting for about 8 in 10 road transport injury deaths and 6 in 10 hospitalisations. Rates of death in disadvantaged areas and in remote areas were fourfold those of advantaged areas and cities, and hospitalisation rates about double. Road transport injuries caused 18% of all deaths in 15–29 year olds (82 of the 450 deaths in this age group in 2010).

Respiratory conditions

- COPD is principally caused by smoking and this is reflected in excess deaths and hospitalisations for males, Indigenous Queenslanders and in disadvantaged areas. The death rate for COPD decreased by 19% in a decade, consistent with decreasing smoking rates.

- Asthma prevalence, at 10%, did not vary for children and adults or between other population groups, except for Indigenous Australians where prevalence was 90% higher. A management plan can reduce the impact of asthma, 24% of Australians with asthma have a written asthma action plan.
- Influenza and pneumonia death rates decreased by 53% in a decade while hospitalisation rates have been steady. Laboratory-confirmed influenza notification rates in 2013 were about one-third those in 2012. Pneumococcal notifications in 2013 were also lower than in the previous two years.

Communicable diseases

- Measles outbreaks due to international disease importation and subsequent local spread caused a 50% higher notification rate in 2013 than the previous peak in 2009, the last year where there was widespread community transmission.
- Staphylococcus aureus bloodstream infection rates in Queensland public hospitals have been below the national target since the target was introduced in 2011.

Other conditions

- Suicide was the cause of 569 deaths and 25% were of 15–29 year olds in 2010. The median age of death was 44 years. The male rate was 3 times the female rate, and 2.3 times higher in both disadvantaged and remote areas. The suicide rate in Queensland was 20% higher than national.
- Dental disease exacts a high cost with expenditure the second highest of all disease groups—1 in 3 hospitalisations for dental conditions, mostly decay, was for children aged 0–9 years.
- Musculoskeletal conditions affect 1 in 4 people and are a common chronic condition. They are a major cause of disability with employment restrictions for 80% of those with back problems, 74% with osteoporosis and 66% with arthritis.
- Dementia prevalence was estimated at about 3% for Australians aged 65–74 years, 10% for those aged 75–84 and 30% for those 85 years and older. Over the past 20 years, the burden in Australia has more than doubled. The number of cases in Queensland is projected to increase 5.5 times in 40 years in line with population ageing.
- Vision disorders and diseases of the eye affect 1 in 2 people. For those with type 2 diabetes 60% will develop some form of eye disease as a complication within 20 years of diagnosis.
- Deafness was experienced by about 1 in 10 Queenslanders in 2011–12, a decrease of 10% over a decade. Otitis media affects up to 5 in 10 Indigenous Australian children living in remote communities.

Adults



1 in 3 healthy weight

1 in 3 overweight

1 in 3 obese

Children



7 in 10 healthy weight

2 in 10 overweight

1 in 10 obese

Risk and protective factors

About one-third (31%) of the total burden of disease and injury in Queensland in 2007 and 40% of deaths were due to the joint effect of 13 modifiable risk factors (43% of premature deaths). The leading risk factor for Australia in 2010 was related to diet (10.5%), followed by high body mass (8.4%) and smoking (8.3%).

Very few Queenslanders are free of disease risk, increasing their likelihood of disease development, disability and early death. More than two-thirds of adults had one or more of the four physiological risks for cardiovascular disease and 1 in 5 reported at least three of five lifestyle-related risks for chronic disease. One in 12 adults (8%), was of a healthy weight and had a healthy lifestyle, while the remainder, over 90%, were either overweight or obese or had an unhealthy lifestyle: 55% were overweight or obese and had an unhealthy lifestyle, 27% were a healthy weight but had an unhealthy lifestyle and 10% were overweight or obese although their lifestyle was healthy.

Overweight and obesity

- About 1.1 million adults were obese by measurement and 1.2 million overweight. With 75,000 children obese and 146,000 overweight, a total of 2.5 million Queenslanders are of excess weight in 2014. Queensland had the highest adult obesity in the nation, 10% greater than Australia. The rapid increase in overweight and obesity during their twenties suggests that by 65 years, over 85% of males and 65% of females of excess weight will have been an unhealthy weight for 35 to 40 years. Self-perception is a concern with one-third of those who were overweight or obese considering themselves of acceptable weight.
- Obesity varied markedly across the state. In disadvantaged areas, over the past decade the obesity rate for adults was about 60% higher than in advantaged areas, where the average woman weighed 5.5kg more and average man 1.8kg more in 2011–12. For children, the prevalence of obesity was double in disadvantaged areas. Remote areas and Indigenous Queenslanders had excess obesity. The average weight of adults varied by 9.2kg across HHSs, with excess obesity rates varying from 14% to 77% higher than the state.

- Adult obesity increased 22% in four years with an annual increase of about 40,000 cases per year over a decade. By 2020, it is anticipated that about 1.5 million adults will be obese (measured estimation). In contrast, children's obesity levels appear to have plateaued nationally and by self report the rate of increase of adult obesity appears to be slowing in Queensland.

- Obesity reduces life expectancy and may have a greater impact on health adjusted life expectancy. About half of the financial cost of obesity is due to lost productivity. The total cost of obesity was \$11.614 billion in 2008, and was estimated to cause 5.4% of hospital expenditure and indirectly cause 3200 deaths in 2010.

Food and nutrition

- Dietary factors were the leading risk of disease burden in Australia at 10.5%, excluding any impact of over-consumption of energy-dense food. About one-quarter of all deaths were directly or indirectly associated with dietary risks.
- Discretionary foods, that is, energy-dense, nutrient-poor foods, provided 37% of energy intake, about three times the recommended amount for healthy weight, active people. The proportion was 35% in 2–3 year olds, peaking at 45% in 14–18 year olds, and reducing to about 33% for those aged 50 years and older. Cereal based foods such as cakes, biscuits, pizza and other takeaway foods provided 17% of energy for 2–3 year olds decreasing to 11% for those aged 71 years and older, with a third of adults and half of all children having takeaway food at least weekly. Confectionery provided 6% of energy for teenage girls and sugary drinks provided 8% of energy for boys. Alcohol provided about 7% of energy for male adults.
- While about 60% of adults and children ate the recommended daily serves of fruit, only about 7% ate enough vegetables. There has been little change in a decade. Health sector costs associated with inadequate fruit and vegetable consumption, are estimated to drop by 34% with the consumption of an additional two serves of fruit or vegetables per person per day.
- About 25% of infants are exclusively breastfed to four months and 1.8% to six months, with solids introduced by four months for one-third of infants.

Hypertension



7 in 10 normal blood pressure (70%)

1 in 10 successfully treated BP (11%)

1 in 10 inadequately treated BP (6%)

1 in 10 untreated high BP (13%)

Dyslipidaemia



3 in 10 normal cholesterol levels (36%)

1 in 10 successfully treated (5%)

1 in 10 inadequately treated (8%)

5 in 10 untreated high cholesterol (51%)

Physical activity and sedentary behaviour

- Physical activity is increasing and the difference between socioeconomic groups is decreasing. For adults, 60% achieved recommended physical activity and for children, 41%. The prevalence of adult activity increased by 39% over the decade, 7.3% per year in 2004 to 2008, slowing to 1.5% per year thereafter. This increase was 2.6 times greater in disadvantaged areas, with a diminishing gap in the prevalence of activity between advantaged and disadvantaged areas.
- Sedentary behaviour has adverse health effects. One in 8 adults usually sits for seven or more hours each day. One in 3 children spend two or more hours of recreational screen time per day, with older children twice as likely as younger children to do so.

Smoking

- Daily smoking prevalence is now at 14% for adults. It has reduced by 26% over the decade since 2004 with a slowing evident in recent years. Smoking rates in teenagers and younger male adults are decreasing faster than other age groups. Adults in disadvantaged areas continue to smoke at about double the rate of advantaged areas. Indigenous Australians smoke at 2.5 times the rate of non-Indigenous people, with no change in this excess since 2002.
- The percentage of women smoking at some time during their pregnancy varied from 10% to 50% across HHSs—the state prevalence was 15%. Indigenous Queenslanders, teenagers and women from disadvantaged areas smoked during pregnancy at about 3 to 6 times the rate of others.
- Smoking accounts for 1 in 7 deaths in Queensland with 3700 Queenslanders dying annually from tobacco related conditions. About one-third of these were of working age. The variation in smoking rates explains a substantial proportion of differences in life expectancy among populations.

Alcohol consumption

- About half the adult population are exceeding the NHMRC guidelines for safe consumption.
- One in 6 adults (17%) drink alcohol at the riskiest levels, that is exceeding the average two standard drinks a day every day and consuming more than four drinks on a single occasion at least monthly. In four years, rates decreased by 32% for young people but were unchanged for older people.
- Rates of risky drinking are about 16% higher in Queensland than national rates—this produces greater impacts for Queensland, including the 34,000 alcohol related hospitalisations each year.

High blood pressure and cholesterol

- Hypertension contributed to 4900 deaths in 2010. One in 3 adults is hypertensive, increasing to 4 in 5 of those aged 75 years and older—13% have untreated high blood pressure and 6% are inadequately treated.
- Two in 3 adults are dyslipidaemic, increasing to 4 in 5 in those aged 65–74 years. Half had untreated high cholesterol and other lipids (51%) and 8% were inadequately treated—about 1700 deaths in 2010.
- Between 1990 and 2010 the burden of both these conditions halved in Australia, delivering gains in life expectancy not achieved in many OECD countries.

Other risk and protective factors

- Cancer screening rates vary markedly among population groups—34% participation rate for bowel cancer screening, although lower for males and younger people, 58% for BreastScreen Queensland but lower for women in major cities and in advantaged areas, and 56% for cervical screening but lower in regional or remote areas and in advantaged areas.
- Sun protection behaviours, that is, 3 of 5 behaviours, were practised by 52% of adults in summer, yet 54% of adults and children were sunburnt in the previous year. In summer, 6% of adults were vitamin D deficient and in winter 15%, about half the national rate.
- Tooth decay experience was found in the primary teeth of 50% of children—10% higher than national—and 30% had decay experience in permanent teeth. Lower levels of decay were found in children in areas of long-term water fluoridation. In 2014, 80% of Queenslanders have access to fluoridated water.
- Illicit drug use in the previous 12 months was reported by 15% of those aged 14 years and older, with 1 in 10 using cannabis. Rates and frequency of use varied with age, with higher rates in those aged 18–29 years, and more frequent use among those aged 30 years and older.
- Fully immunised coverage is now consistently over 90% for one-year, two-year and five-year cohorts, although there are geographic areas and subpopulations where coverage needs to be improved to reach the aim of 95% coverage.

Cardiovascular disease risk: of the deadly quartet*

1 in 3	no risk
1 in 2	low risk
1 in 7	high risk

* High blood pressure, high cholesterol, high plasma glucose, obesity

Hospital and Health Services

Population health status varies markedly across HHSs. Much of the data relates to the period prior to the establishment of the HHSs in July 2012. It shows there are clear opportunities for local stakeholders to reduce the hospital burden in HHSs and improve health outcomes by addressing preventable conditions, including those that could have been treated in the primary healthcare setting. In addition, the HHSs with greater risk factor burden have greater potentially preventable disease, disability and death:

- Premature deaths: 1 in 2 deaths was avoidable in Torres Strait–Northern Peninsula, Cape York and North West, decreasing to 1 in 4 in Metro North, Metro South, Sunshine Coast and Gold Coast.
- Median age of death: varied markedly with a 21-year difference between Torres Strait–Northern Peninsula and Gold Coast. There was wide variation among Indigenous and non-Indigenous populations within most HHSs. In Metro North, Indigenous Queenslanders were 29 years younger at death on average than non-Indigenous. In contrast, in Torres Strait–Northern Peninsula, Indigenous Queenslanders were 3.5 years older at death on average than non-Indigenous.
- Hospitalisation rates: were higher than the state for at least six key selected conditions in North West, South West and Central West. Gold Coast had lower rates for many conditions. Potentially preventable hospitalisation rates varied markedly from at least double the state in Cape York, Torres Strait–Northern Peninsula and North West, and were lower in some south-east HHSs.
- Risk factors—such as obesity, smoking and excess alcohol—cluster in Cape York, Central Queensland, Townsville and Darling Downs although other HHSs have substantial exposure. Obesity and daily smoking cluster most, and these two risks have the greatest impact on health outcomes, posing significant challenges to these HHSs and across Queensland.
- Perinatal risks: smoking during pregnancy and higher rates of teenage pregnancy cluster in Wide Bay, West Moreton, Darling Downs and Central Queensland for non-Indigenous Queenslanders. Gold Coast and Metro North had a less risky profile. Risks for Indigenous Queenslanders were more dispersed.

Chapter 1 Indicators of progress

Monitoring the health of Queenslanders is fundamental to the provision of evidence based services in Queensland to improve health status.

This chapter reports on trends in 68 population health indicators between 2000 and the year when the most recent data was available, noting the space limitations to include all years in the early part of the past decade (*Table 1*). While the printed version of this report includes only person-level data for Queensland, the online version includes data for every year since 2000 for males, females and persons with 95% confidence intervals (CIs) where available. Six key trends of outstanding or emerging health issues in 2014 are described (*Figure 1*).

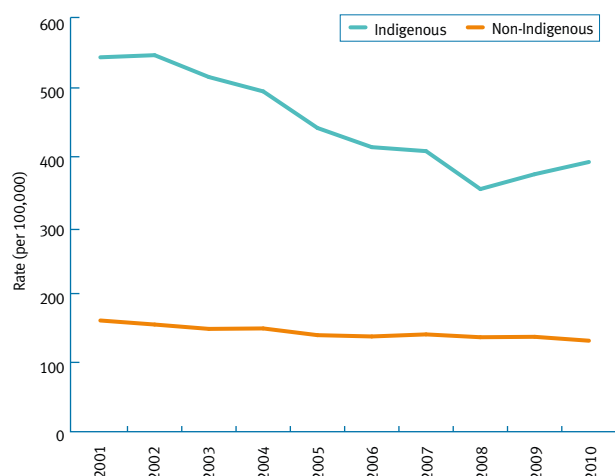
More detailed information on these progress indicators is reported in chapters 3 and 4. In particular, many of these indicators vary markedly between subpopulations, notably between Indigenous and non-Indigenous Queenslanders, between those in socioeconomically disadvantaged and advantaged areas, between cities and regional and remote areas, and between HHSs. These differences are described in Chapter 5.

A challenge for the health system in Queensland is the well-documented ageing and growth of the population, and the need to provide services to many widely dispersed areas of the state. Chapter 2 includes more detailed information about the Queensland population and how it is changing.

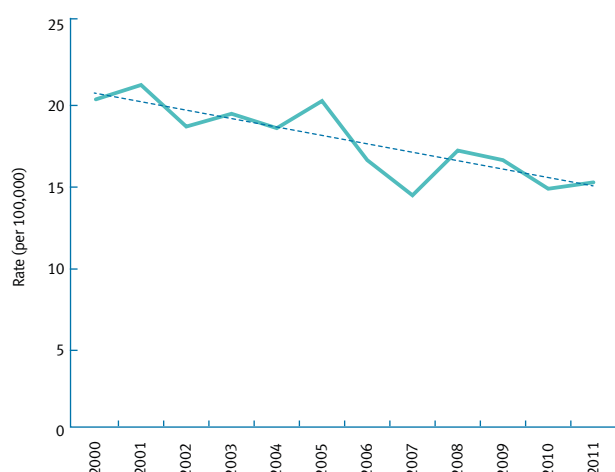
In this chapter:

- Six key progress indicators
 - All cause deaths
 - Melanoma incidence
 - Smoking
 - Obesity
 - Physical activity
 - Risky alcohol consumption
- Population health indicators

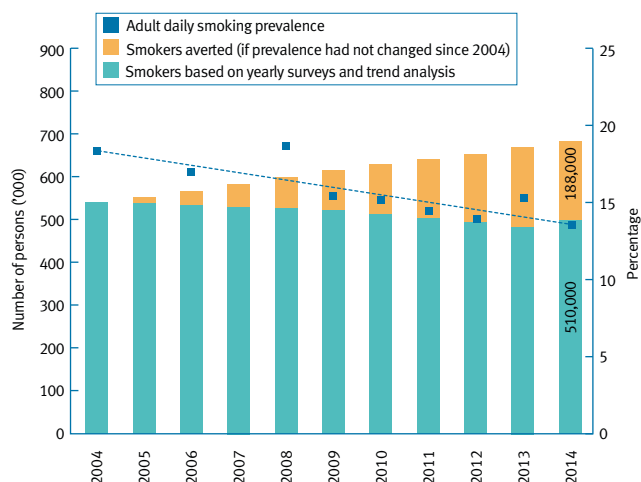


Figure 1: Six key indicators of progress, Queensland**a. All cause death rates by Indigenous status**

- The all-cause death rate decreased by 1.6% per year over the past decade.
- Death rates for Indigenous Queenslanders decreased by 25% over 10 years, more than double the decline of the non-Indigenous rate (11%).
- There was an average of 600 deaths of Indigenous Queenslanders per year over the past decade with no change from year-to-year, while the number of non-Indigenous deaths has increased from about 22,000 per year to about 26,000 per year.

b. Melanoma incidence rates in 15–29 year olds

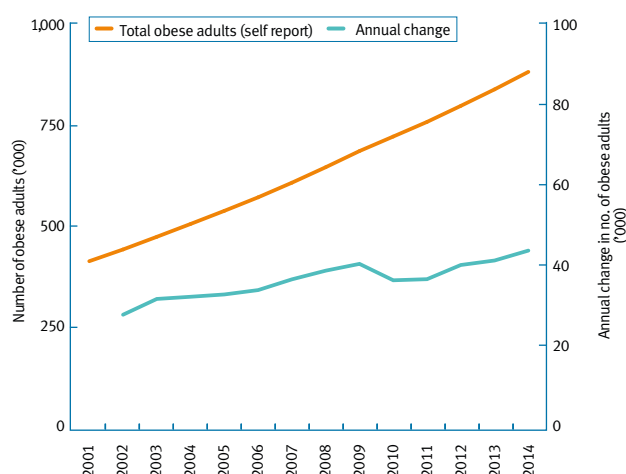
- Melanoma is the leading cause of cancer in young people and in all age groups up to 50 years of age.²³
- The incidence rate for young people aged 15–29 years decreased by 38% (3.3% per year) between 2002 and 2011.²⁴
- In contrast, incidence rates in adults aged 50–79 years have been steady while in those aged 80 years and older, the rate has increased by 3% to 4% per year.
- Between 2002 and 2011, the incidence rate for all ages increased by 5% (8% for males and 2% for females).
- Australia has the highest melanoma incidence rate in the world along with New Zealand.

c. Smoking

- In 2014, 14% of adults reported smoking daily, a 26% reduction from 2004. If the decline had not occurred, there would have been about 190,000 more smokers than there are. As it is, there were about 500,000 adult smokers in 2014.
- In recent years, the rate of decline in daily smoking has diminished.
- Rates of smoking in disadvantaged areas were double those in advantaged areas with a similar gap over the past decade.
- For males, the lung cancer death rate decreased by 16% over the past decade, and for COPD by 26%, consistent with declining smoking rates, particularly among males.

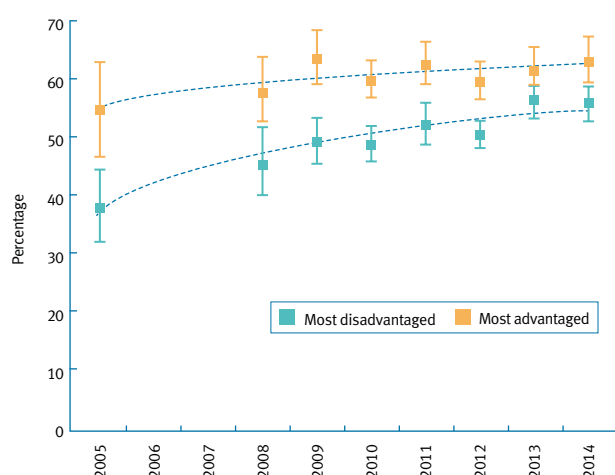
Figure 1: Six key indicators of progress, Queensland (continued)

d. Increase in number of obese adults



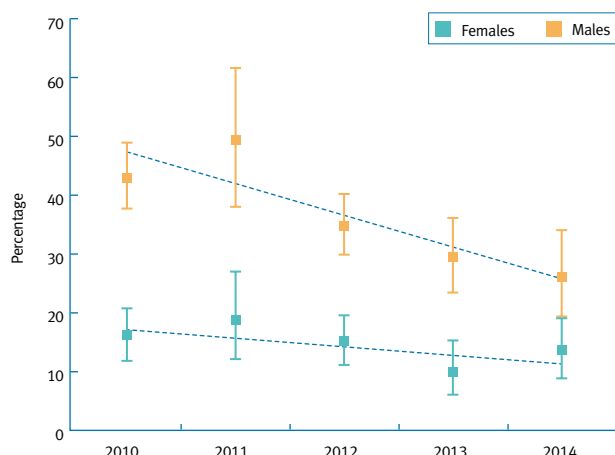
- The prevalence of self reported adult obesity increased by 34% (3.0% per year) over the past decade although there has been a slowing in the past four years. Since 1993, it has more than doubled (2.5 times increase).
- As a result of this increase and combined with the growing population, there are a greater number of obese adults. Since 2010, the yearly increase has been about 40,000 and in the period up to 2020 is projected to increase by an average of 50,000 per year (77,000 overweight or obese adults).
- 30% of adults were obese by measurement in 2011–12 (about 1.1 million people in 2014), while 23% were by self report in 2014 (about 900,000).

e. Socioeconomic trends in physical activity, adults



- The prevalence of sufficient physical activity for health benefit has been increasing over the past decade across the whole population.
- Ten years ago, there was a socioeconomic gap, with the prevalence in adults in advantaged areas about 50% higher than those in disadvantaged areas.
- Over the decade two changes have emerged:
 - The rate of change in prevalence is slowing so that a plateau is emerging.
 - The gap has diminished between advantaged and disadvantaged populations with no difference in 2013 and 2014.

f. Riskiest alcohol consumption in 18–29 year olds



- In 2014, 17% of Queensland adults were drinking alcohol at the riskiest levels, that is, exceeding an average of two standard drinks a day every day and consuming more than four drinks on a single occasion at least monthly.
- Over four years (2010 to 2013) there has been a decrease in such risky drinking:
 - about 32% decrease (12% per year) for young males and females aged 18–29 years, from 30% in 2010 to 20% in 2013, with 27% of young males still consuming at this level
 - no change in risky consumption for those aged 30–64 years.
- There are encouraging early signs that the pattern of risky alcohol consumption is diminishing for young people.

Table 1: Population health indicators (persons), Queensland, 2001–2014										
Population	Units	Age group	2001	2008	2009	2010	2011	2012	2013	2014
Total population – estimated resident	'000	0–85+	3,628.9	4,270.1	4,365.4	4,424.2	4,474.1	4,568.7	4,658.6	
Queensland – proportion of Australia	%	0–85+	18.7	19.9	20.0	20.0	20.0	20.1	20.1	
Queensland – by remoteness										
Major cities	'000	0–85+	2,140.0	2,596.8	2,669.1	2,720.6	2,769.9	2,830.5		
Inner regional	'000	0–85+	789.9	863.1	884.3	898.0	910.3	927.5		
Outer regional	'000	0–85+	562.5	626.6	641.3	651.0	660.0	672.2		
Remote	'000	0–85+	85.5	76.8	77.2	77.5	78.1	79.2		
Very remote	'000	0–85+	51.1	56.2	56.9	57.6	58.4	58.9		
Indigenous Queenslanders										
Estimated Resident Population	'000	0–85+	128.6	152.5	156.5	160.6	189.0			
Proportion of Queensland population	%	0–85+	3.5	3.6	3.6	3.6	4.2			
Proportion of Aust. Indigenous population	%	0–85+	27.5				28.2			
Births	no.		47,678	63,168	66,149	64,523	63,253	63,837		
Infants	'000	<1	49.4	61.0	63.7	60.6	60.6	63.3	63.6	
Young children	'000	1–4	198.3	226.8	236.5	243.1	243.6	248.2	252.7	
Children	'000	5–14	524.9	572.3	576.4	578.4	583.3	597.7	608.5	
Young people	'000	15–24	510.0	604.7	619.2	624.3	625.4	633.1	642.6	
Younger adults	'000	25–44	1,080.5	1,214.2	1,239.7	1,253.6	1,264.3	1,290.7	1,314.5	
Adults	'000	45–64	843.6	1,069.0	1,091.0	1,105.9	1,119.1	1,127.6	1,142.6	
Older people	'000	65–74	231.5	286.5	299.6	314.3	328.7	351.7	370.3	
Elderly	'000	75+	190.7	235.7	239.4	243.9	249.1	256.4	263.8	
Children	%	0–14	21	20	20	20	20	20	20	
Young people	%	15–24	14	14	14	14	14	14	14	
Adults	%	25–64	53	53	53	53	53	53	53	
Older people	%	65–74	6.4	6.7	6.9	7.1	7.3	7.7	7.9	
Elderly	%	75+	5.3	5.5	5.5	5.5	5.6	5.6	5.7	
Headline indicators	Unit	Age group	2001	2008	2009	2010	2011	2012	2013	2014
Life expectancy – males	years	at birth	76.9	78.9	79.1	79.4	79.5	79.5		
Life expectancy – females	years	at birth	82.3	83.7	83.8	83.9	84.1	84.0		
Indigenous life expectancy – males	years	at birth					68.7			
Indigenous life expectancy – females	years	at birth					74.4			
Perinatal mortality rate – per 1,000 births	rate		11.3	9.6	11.1	10.6	9.8			
Health inequality – avoidable deaths										
Disadvantaged/advantaged	rate ratio	0–74	1.39	1.55	1.88	1.93				
Median age at death	years		78	80	80	80	80	81		
Headline indicators (contin.)	Unit	Age group	1999–01	2006–08	2007–09	2008–10	2009–11	2010–12	2011–13	2012–14
Infant mortality rate – per 1,000 live births	rate		5.9	5.1	5.1	5.2	5.1	4.8		
Indigenous people	rate		11.7	7.9	7.6	8.8	8.4	6.9		
Non-Indigenous people	rate		5.6	4.7	4.7	4.7	4.7	4.4		
Hospitalisations	Unit	Age group	2001–02	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15
All causes	no.	0–85+	1,246,893	1,646,573	1,714,637	1,767,749	1,843,946			
	rate	0–85+	35,110	38,022	38,377	38,590	40,281			
Potentially preventable hospitalisations	no.	0–85+	110,716	143,688	149,831	134,648	139,990			
	%	0–85+	8.9	8.7	8.7	7.6	7.6			
	rate	0–85+	3,138	3,327	3,353	2,942	3,064			
Coronary heart disease	rate	0–85+	904	734	677	687	699			
Stroke	rate	0–85+	273	240	237	241	247			
Diabetes	rate	0–85+	244	391	391	173	180			
COPD	rate	0–85+	282	280	269	272	281			
Asthma	rate	0–85+	183	150	173	157	162			
Road transport injury	rate	0–85+	251	269	244	224	240			
Falls	rate	0–85+	622	713	703	721	744			
	rate	65+	2,221	2,528	2,568	2,737	2,850			
Cancer incidence	Unit	Age group	2001	2008	2009	2010	2011	2012	2013	2014
All cancers	no.	0–85+	17,611	23,239	23,864	24,073	24,461			
	rate	0–85+	514	540	538	527	521			
Female breast cancer	rate	0–85+	124	125	123	125	120			
Target age group for screening	rate	50–69	315	313	312	312	293			
Cervical cancer – female	rate	0–85+	8.8	7.2	7.6	8.2	7.6			
Target age group for screening	rate	20–69	12	9.8	10	11	11			
Prostate cancer – male	rate	0–85+	129	187	185	167	171			
Lung cancer	rate	0–85+	48	49	48	48	45			
Colorectal cancer	rate	0–85+	71	67	65	65	64			
Melanoma	rate	0–85+	68	69	70	69	71			
Disease prevalence	Unit	Age group	2001	2008	2009	2010	2011	2012	2013	2014
Diabetes and high blood sugar – self report	%	18+			7.7	7.8	9.9	8.6	9.2	9.7

Note 1: Data for all years from 2000 and for males and females is available on the CHO report website www.health.qld.gov.au/cho_report/

Note 2: All rates are age standardised per 100,000 persons unless otherwise noted.

Note 3: Data and/or indicator updates may have occurred since previous reports.

Table 1: Population health indicators (persons), Queensland, 2001–2014 (continued)

Communicable disease notifications	Unit	Age group	2001	2008	2009	2010	2011	2012	2013	2014
Foodborne pathogens	no.	0–85+	6,340	7,154	7,260	7,997	8,227	7,160	7,419	
Chlamydia	no.	0–85+	5,586	15,002	16,377	19,046	18,339	18,655	19,199	
Infectious syphilis	no.	0–85+	111	200	192	228	341	388	324	
HIV	no.	0–85+	97	166	182	204	194	206	184	
Dengue	no.	0–85+		230	1,026	288	186	243	489	
Hendra	no.	0–85+		2	1	0	0	0	0	
Influenza – lab confirmed	no.	0–85+		3,703	18,318	3,223	10,407	16,927	5,508	
Pertussis	no.	0–85+		2,278	6,212	8,220	8,986	7,559	3,800	
Measles	no.	0–85+	11	11	32	14	17	4	53	
Tuberculosis	no.	0–85+	132	132	168	186	221	174	155	
Immunisation	Unit	Age group	2001	2008	2009	2010	2011	2012	2013	2014
Childhood vaccination rates – March quarter	%	1 year	91.4	91.2	91.2	91.5	92.1	91.4	92.3	90.7
	%	2 years	87.8	92.5	92.2	91.6	92.4	93.1	92.6	93.5
	%	5 years		80.6	80.9	82.2	89.7	90.7	91.9	92.8
Causes of death	Unit	Age group	2001	2008	2009	2010	2011	2012	2013	2014
All causes	no.	0–85+	22,463	26,967	25,934	26,922				
	rate	0–85+	661	614	572	574				
Premature deaths – all causes	no.	0–74	9,467	10,036	9,927	10,302				
	%	0–74	42	37	38	38				
	rate	0–74	285	242	231	233				
Avoidable deaths	%	0–74	73	68	68	68				
	rate	0–74	207	166	158	159				
	%	0–74	43	42	42	43				
Preventable	rate	0–74	121	101	96	99				
Treatable	%	0–74	30	27	27	26				
	rate	0–74	85	65	61	60				
All causes	rate	0–85+	661	614	572	574				
Coronary heart disease	rate	0–85+	147	107	94	90				
Stroke	rate	0–85+	65	53	47	46				
Heart failure	rate	0–85+	13	11	8.8	9.8				
All cancers	rate	0–85+	185	180	171	174				
Female breast cancer	rate	0–85+	25	22	19	20				
Target age group for screening	rate	50–69	51	46	42	40				
Cervical cancer – female	rate	0–85+	2.7	2.2	2.0	1.9				
Target age group for screening	rate	20–69	2.7	2.3	2.2	2.1				
Prostate cancer – male	rate	0–85+	36	34	32	34				
Lung cancer	rate	0–85+	36	36	34	35				
Colorectal cancer	rate	0–85+	25	17	18	17				
Melanoma	rate	0–85+	6.3	7.8	6.6	7.9				
Diabetes	rate	0–85+	15	18	17	16				
Suicide	rate	0–85+		13	12	13				
Asthma	rate	0–85+	2.3	1.8	1.6	1.4				
COPD	rate	0–85+	26	24	24	23				
Road transport deaths	rate	0–85+	8.7	7.6	7.3	5.8				
Falls	rate	0–85+	8.6	8.1	8.0	8.4				
	rate	65+	55	59	56	58				
Protective factor prevalence	Unit	Age group	2001	2008	2009	2010	2011	2012	2013	2014
Breastfed at discharge* – total	%	newborn	86.1	89.6	90.6	91.3	91.9	92.0		
Indigenous infants	%	newborn	80.4	82.8	84.7	86.0	85.1	85.7		
Non-Indigenous infants	%	newborn	86.4	90.0	90.9	91.6	92.4	92.4		
* Indicator changed to breastfeeding in 24 hours prior to discharge in 2007										
Ever breastfed	%	0–1		95.3		96.0				
Exclusive breastfeeding to 6 months	%	0–1		12.9		1.8				
Breastfeeding to 12 months	%	0–1		33.3						
Introduced solid foods at about 6 months	%	0–1		60.9		68				
5 or more antenatal visits – total	%		91.6	93.2	93.3	93.5	94.6	94.6		
Indigenous women	%		75.6	77.5	77.8	77.7	83.4	84.4		
Non-Indigenous women	%		92.5	94.1	94.2	94.5	95.4	95.3		
Excellent, very good or good health	%	18+		83.3	84.6		84.0	83.0		
Very good or good quality of life	%	18+		88.7	90.6		89.5	90.9		
Very satisfied or satisfied with health	%	18+		78.2	79.1		77.5	79.8		
Healthy weight – self report	%	18+	47.7	42.4	41.6	41.5	39.8	39.8	37.9	39.6
Healthy weight in children – proxy report	%	5–17			68.4		66.4		65.5	
Healthy and underweight – measured	%	18+		39.2			35.1			
Healthy and underweight in children – measured	%	5–17		73.3			72.5			
Sufficient physical activity	%	18–75	45.9	53.9	55.9	53.9	57.4	56.1	58.9	59.5
Participated in organised sport in school	%	5–15			64.2		57.1		70.8	
Active every day of past week	%	5–17					44.0		40.6	
Mean daily fruit intake	serves	18+		1.76	1.69	1.85	1.65	1.75	1.81	1.89
Mean daily vegetable intake	serves	18+		2.52	2.49	2.56	2.39	2.39	2.36	2.47
Mean daily fruit and vegetable intake	serves	18+		4.28	4.36	4.41	4.04	4.15	4.17	4.36

Table 1: Population health indicators (persons), Queensland, 2001–2014 (continued)

Mean daily fruit intake	serves	5–17			1.96			1.89		1.97	
Mean daily vegetable intake	serves	5–17			2.14			2.09		2.19	
Mean daily fruit and vegetable intake	serves	5–17			4.1			3.98		4.15	
2013 Dietary Guidelines											
Adequate fruit intake – adults	%	18+								55.7	58.3
Adequate fruit intake – children	%	5–17								65.0	
Adequate vegetable intake – adults	%	18+								7.1	9.2
Adequate vegetable intake – children	%	5–17								6.3	
2003 Dietary Guidelines											
Adequate fruit intake – adults	%	18+	48.7	54.6	57.1	57.4	50.3	53.7	55.7	58.3	
Adequate fruit intake – children	%	5–17			61.3		59.6		61.0		
Adequate vegetable intake – adults	%	18+		9.4	10.1	11.3	9.1	9.7	8.8	10.3	
Adequate vegetable intake – children	%	5–17			31.7		29.2		33.5		
Any 3 of 5 sun safe behaviours – summer	%	18+				56.5	52.0	52.6			
Any 3 of 5 sun safe behaviours – winter	%	18+				33.8	32.1	26.4			
BreastScreen Queensland participation	%	50–69	58.4		57.3		57.8				
Pap smear screening participation – females	%	20–69	57.0		55.3		55.8				
Bowel screening participation	%	50,55,65			37.4		33.9				
Risk factor prevalence	Unit	Age group	2001	2008	2009	2010	2011	2012	2013	2014	
Low maternal age – females	%	<20 years	6.4	5.7	5.5	5.5	5.1	5.0			
Low birth weight – total	%		6.8	6.8	7.1	6.9	6.9	7.1			
Indigenous people	%		12.0	10.9	11.6	12.1	12.0	8.2			
Non-Indigenous people	%		6.5	6.5	6.8	6.6	6.6	6.8			
Smoking after 20 weeks gestation	%			16.0	14.2	13.1	16.0	15.2			
Indigenous people	%			48.1	45.4	43.6	49.7	48.5			
Non-Indigenous people	%			14.2	12.4	11.2	13.9	13.0			
Self rated fair or poor health	%	18+		16.7	15.4		16.0	17.0			
Psychological distress – high/very high risk	%	18+		15.2	12.0		13.6				
Smoke daily	%	18+		19.2	15.8	15.5	14.8	14.3	15.8	14.0	
Alcohol consumption: lifetime risk	%	18+				22.7	22.7	21.1	20.5	18.9	
Single occasion risk – weekly	%	18+				16.4	15.9	15.3	15.1	13.9	
Illicit drugs – used in past 12 months	%	14+	16.3			15.1					
Underweight – self report	%	18+	3.8	3.1	3.1	2.8	2.8	2.5	3.3	2.6	
Overweight – self report	%	18+	34.1	33.4	34.1	34.2	34.5	35.0	35.3	34.7	
Obese – self report	%	18+	14.3	21.1	21.3	21.4	22.9	22.7	23.4	23.2	
Overweight and obese – self report	%	18+	48.4	54.5	55.3	55.6	57.4	57.7	58.8	57.8	
Unhealthy weight – self report	%	18+	52.3	57.6	58.4	58.5	60.2	60.2	62.1	60.4	
Overweight – measured	%	18+		35.9			34.5				
Obese – measured	%	18+		24.9			30.4				
Overweight and obese – measured	%	18+		60.8			64.9				
Underweight – proxy report	%	5–17			6.6		7.0		5.4		
Overweight – proxy report	%	5–17			16.0		18.1		18.1		
Obese – proxy report	%	5–17			8.9		8.5		10.9		
Overweight and obese – proxy report	%	5–17			25.0		26.6		29.1		
Unhealthy weight – proxy report	%	5–17			31.6		33.6		34.5		
Overweight – measured, children	%	5–17		17.9			18.2				
Obese – measured, children	%	5–17		8.8			9.3				
Overweight or obese – measured, children	%	5–17		26.7			27.5				
2013 Dietary Guidelines											
Inadequate fruit intake	%	18+							44.3	41.7	
Inadequate fruit intake	%	5–17							35.0		
Inadequate vegetable intake	%	18+							92.9	90.8	
Inadequate vegetable intake	%	5–17							93.7		
2003 Dietary Guidelines											
Inadequate fruit intake	%	18+	51.3	45.4	42.9	42.6	49.7	46.3	44.3		
Inadequate fruit intake	%	5–17			38.7		40.4		39.0		
Inadequate vegetable intake	%	18+		90.6	89.9	88.7	90.9	90.3	91.2		
Inadequate vegetable intake	%	5–17			68.3		70.8		66.5		
Full cream milk usual consumption	%	18+		48.6	44.9		44.8				
Takeaway food once a week or more	%	18+	49.5	41.2	36.8		33.7			29.8	
Ran out of food and could not afford to buy more	%	18+		8.3	5.8		7.1				
Insufficient physical activity and sedentary	%	18–75	54.1	46.1	44.1	46.1	42.6	43.9	41.1	40.5	
Sedentary – sitting 7 hours/day, 7 days/week	%	18–65			13.1		12.1				
Exceeds recommended daily screen time*	%	5–17					43.3		33.9		
* Small screen viewing for entertainment											
High blood cholesterol – self report	%	18+			22.8	22.6		22.9	25.0	22.3	
High blood pressure – self report	%	18+			28.0	27.0		28.7	29.9	27.0	
Sunburnt in previous 12 months	%	18+				50.9	52.4	51.6	52.3	54.3	

Chapter 2 Queensland's population

Queensland's population is dispersed, ageing and continuing to grow. Health service needs are strongly influenced by the sociodemographic distribution and growth of the population.

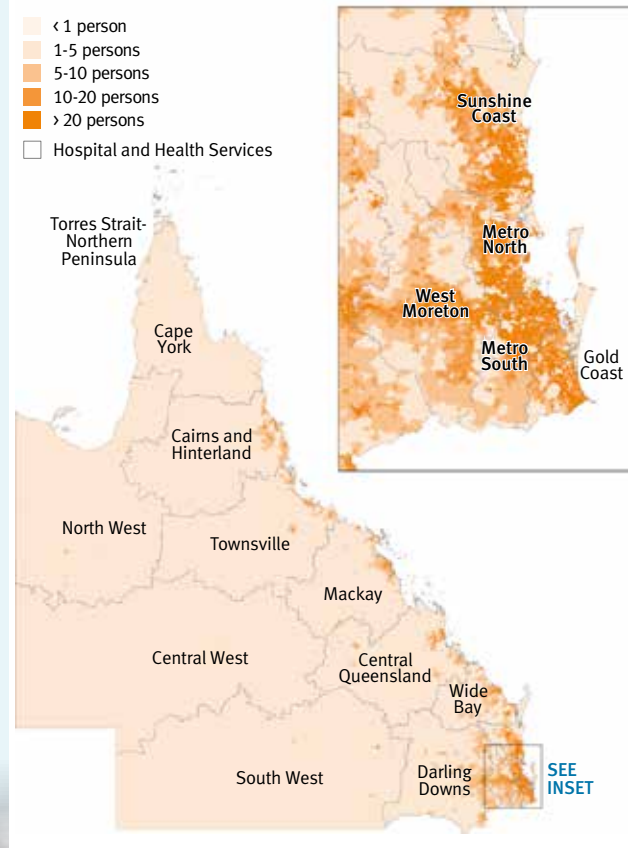
The estimated resident population (ERP) of Queensland in June 2013, was 4.659 million.²⁵ Compared to other states and territories, a greater proportion of the population live outside the capital city—52% lived outside Brisbane in 2011, compared with an average of about 30% for other states. However, the population is located mainly along the coastal regions with 70% clustered in South East Queensland (*Figure 2*).²⁶ Much of the excess burden of ill health is borne by socioeconomically disadvantaged groups and Indigenous Queenslanders. This chapter identifies the location and distribution of these populations. Selected demographic characteristics of HHSs are included in this chapter and Chapter 5.

The information in this chapter provides a foundation for the subsequent chapters. Recurring themes throughout this report are ageing, population growth, and higher health burden in selected populations.

In this chapter:

- Age and sex structure
- Socioeconomic distribution
- Indigenous Queenslanders
- Regional Queensland
- Cultural diversity
- Growth and projections

Figure 2: Population density (per km²), by HHS, Queensland, 2011



What is the sex and age distribution?

Of the estimated 4.659 million people in Queensland in 2013, 50.1% were female and 49.9% male, similar to the ratio over the previous decade.²⁵ One in 5, or 20% of the population, was aged 0–14 years, 21% were aged 15–29 years, 21% aged 30–44 years, 25% aged 45–64 years and 14% aged 65 years and older (where 1.6% were aged 85 years and older) (*Figure 4a*).

There were more males than females in the 0–64 year age group: in 2013 there were 101.7 males for every 100 females. In contrast, in the age group 65 years and older, there were 89.8 males for every 100 females.²⁵ This difference is largely explained by more male births than female, and higher rates of premature deaths for males.²⁷

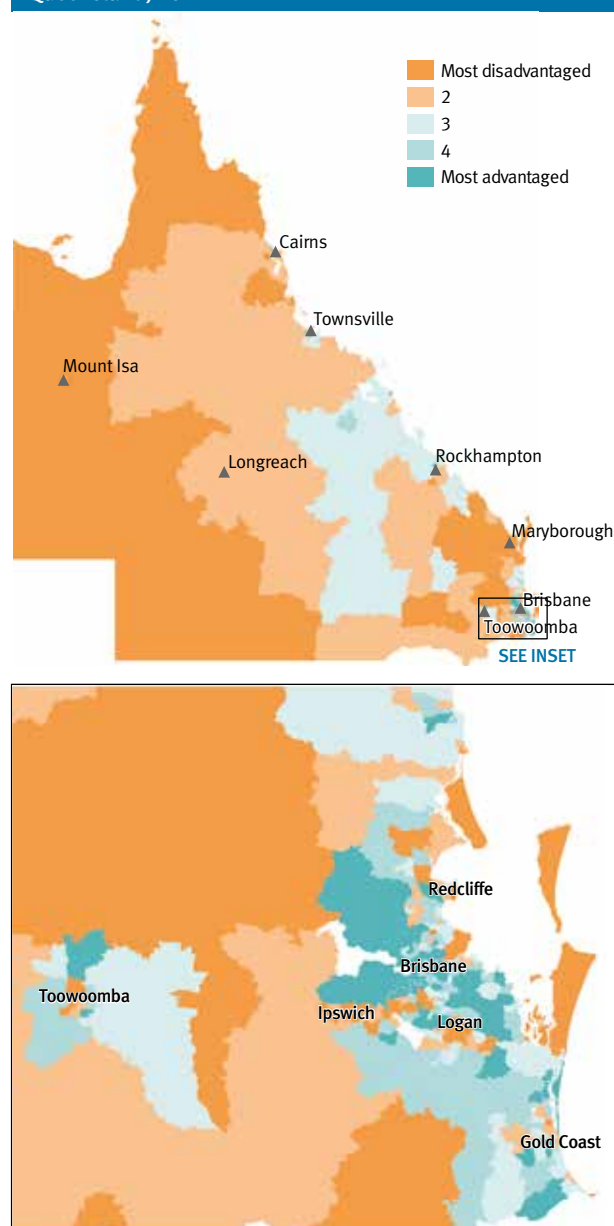
As at June 2013, there were 633,979 Queenslanders aged 65 years or older. The majority were aged 65–84 years (88%). The proportion of older people has increased markedly over past decades and is projected to increase further (*Figure 4b*). There is considerable difference in the proportion aged 65 years and older in each HHS, ranging from 21% in Wide Bay to 5% in Torres Strait–Northern Peninsula (*Figure 4c*). Two-thirds of the state's older population live in Gold Coast, Sunshine Coast, Metro North and Metro South HHSs.

Socioeconomically disadvantaged populations

Socioeconomic status can affect a wide range of health behaviours, risks and outcomes. Within this report, the population is profiled using the Australian Bureau of Statistics (ABS) Index of Relative Socioeconomic Advantage and Disadvantage.²⁸ This index summarises information about the economic and social conditions of people and households within an area, and includes characteristics of advantage and disadvantage.²⁹ It includes measures of income, education and employment, and reflects the aggregate characteristics of the population in an area, rather than all individuals in the area. The index is used to categorise areas into groups of equal size such as deciles or as in this report, quintiles. The health parameters of the most disadvantaged areas (quintile 1) are contrasted with those of the most advantaged areas (quintile 5). For simplicity, these groups are described as 'disadvantaged' and 'advantaged' areas respectively.

Areas of socioeconomic disadvantage occur across the state (*Figure 3*). The percentage of the population with a profile of socioeconomic disadvantage increases with remoteness from 12% of major city populations to 55% of very remote populations (*Figure 4d*). The demographic characteristics of areas across Queensland are interlinked, with remote areas and disadvantaged areas having a greater proportion of Indigenous Queenslanders. The socioeconomic profile of Indigenous Queenslanders is described below.

Figure 3: Socioeconomic advantage and disadvantage, Queensland, 2011



The socioeconomic profile of the HHS has a large bearing on health outcomes and risks. In 2011, a number of HHSs had a substantially greater proportion of the population living in disadvantaged areas, the largest was Torres Strait–Northern Peninsula (100%), followed by Wide Bay, Cape York and other HHSs (*Figure 4e*). In contrast, Metro North and Metro South had a higher proportion of the population living in advantaged areas. These two groups do not explain the full socioeconomic profile of the HHSs, as shown on page 153 (*Figure 63*).

How many Indigenous Queenslanders are there?

The estimated resident Indigenous Queensland population in 2011 was 188,954.³⁰ This was 4.2% of the Queensland population and 28% of the Indigenous Australian population. Relative to other states and territories, the Indigenous Queensland population:

- was the second largest after New South Wales (28% of the Australian Indigenous population compared with 31% for NSW)
- had the greatest proportion living outside major cities (39%)
- had the second youngest age profile with 38% aged 0–14 years (median age 21 years).

The age and sex distribution of the Indigenous Queensland population is very different to the non-Indigenous population (*Figure 4f*). Indigenous Queenslanders have a higher fertility rate and a higher death rate across all ages, resulting in a considerably younger age profile.²⁷ The median age of Indigenous Queenslanders was 21 years in 2011, 16 years less than non-Indigenous Queenslanders (37 years).³⁰ In 2011, 38% of Indigenous Queenslanders were aged under 15 years compared to 19% of non-Indigenous.

The distribution of non-Indigenous and Indigenous Queensland populations varied markedly in 2011³⁰:

- 31% of Indigenous Queenslanders lived in major cities compared with 63% of the non-Indigenous population and conversely 2% of major city populations were Indigenous Queenslanders (*Figure 4h*).
- 19% of Indigenous Queenslanders lived in remote and very remote areas compared with 2% of the non-Indigenous population—26% of remote and very remote populations were Indigenous Queenslanders (*Figure 4h*).
- 5% of Indigenous Queenslanders lived in the most advantaged areas compared with 20% of the non-Indigenous population—1% of the advantaged area population were Indigenous Queenslanders (*Figure 4i*).
- 46% of Indigenous Queenslanders lived in the most disadvantaged areas compared with 19% of the non-Indigenous population—9% of disadvantaged area population were Indigenous Queenslanders (*Figure 4i*).
- About half (47%) of Indigenous Queenslanders lived in four HHSs in 2011: Cairns and Hinterland, Metro South, Townsville and Metro North (*Figure 4j*).
- The HHSs with the highest proportion of Indigenous Queenslanders were Torres Strait–Northern Peninsula (83%), Cape York (53%) and North West (25%) (*Figure 4k*).

Regional and remote populations

In 2011, 82% of the Queensland population lived in major cities or inner regional areas, 15% in outer regional areas and 3.1% in remote or very remote areas.³¹ Areas of Queensland are classified into categories primarily based on the physical road distance of an area to the nearest urban centre, as a proxy for relative access to services (*Figure 66, page 158*).³² Major cities include the Brisbane metropolitan area, Ipswich, and most of the Gold Coast, Sunshine Coast, Moreton Bay and Redland local government areas. In 2012, 70% of the Queensland population lived in the area defined as South East Queensland (Greater Brisbane, Toowoomba, Sunshine Coast and Gold Coast).²⁶

The percentage of males in the population increased with remoteness from 49% in major cities in 2011, 50% in inner regional areas, 51% in outer regional areas and 53% in remote and very remote areas.

Cultural diversity

According to the 2011 census, 21% (about 890,000) of Queensland residents were born overseas, and 26% of these had arrived between 2006 and 2011 (classified as recent arrivals).³³ More than a third of recent arrivals were born in the English speaking countries of New Zealand (22%), the UK (14%) or Ireland (1.5%). Based on year of arrival, between 2006 and 2010, the percentage of people who reported being from the Asian geographical region increased from 29% in 2006 to a peak of 41% in 2009.³³ Over the same period, the percentage of people who reported being from other major global regions remained relatively stable.

Each year Queensland receives humanitarian entrants under the *Special Humanitarian Program*. In 2012–13, Queensland planning levels for humanitarian entrants annually were about 1000 under the refugee program, 540 Special Humanitarian Program entrants and 60 onshore visa grants to asylum seekers. Planned settlement areas in Queensland were Brisbane (65% of settlements), Logan and Gold Coast (17%), Toowoomba (11%), Cairns (4%) and Townsville (3%).³⁴

In 2011, about 420,000 people (9.8% of the population) reported that they spoke a language other than English at home—compared with 7.8% in 2006.³³ In 2011, Mandarin and Cantonese were the languages most often spoken (14%), followed by Indo-Aryan languages including Hindi and Sinhalese (9.3%) and Vietnamese (5.2%). Of those who spoke another language at home, 15% reported that they spoke English not well or not at all, which is similar to the proportion in 2006 (16%).

How fast is Queensland growing and projected to grow further?

The Queensland population increased by 90,000 people or 2.0% between June 2012 and June 2013.²⁵ Queensland grew the third fastest of all states and territories after Western Australia (3.3%) and the Australian Capital Territory (ACT) (2.2%). Between 2012 and 2013, 70% of the annual increase (about 60,000 individuals) was concentrated in south-east Queensland (Greater Brisbane, Gold Coast and Sunshine Coast).³¹ Over the last decade, the population grew by about 91,000 persons per year, an annual average of 2.2%, the second highest average population growth of all states and territories after Western Australia (2.6%) (*Figure 4g*). Queensland's population growth is high relative to other nations.³⁵

The Queensland population has more than doubled in size over the past 40 years—a 2.5 times increase—with greater relative increase in older age groups:

- 4.6 times for 75 years and older
- 3.1 times for 30–74 years
- 2.2 times for 18–29 years
- 1.7 times for 0–17 years.

The proportion of younger people (0–30 years) has decreased by 20–30% in 40 years, middle aged adults by 10% while the proportion of those 65 years and older increased by 50%, tripling for those aged 85 years and older.

Queensland's population is projected to grow to 7.095 million people by 2036 (*Figure 4b*).³⁶ This projection is based on annual population growth decreasing from current levels to around 1.6% per year by 2036.

Queensland's population is ageing. In 2013, 14% of the population were aged 65 years and older.²⁵ The proportion in this age group has been increasing for 40 years and is projected to reach 20% by 2036 (*Figure 4b*). The proportion aged 85 years and older is projected to more than double between 2013 and 2036, from 1.6% to 3.4%.³⁶ This demographic shift is referred to as ageing of the population.

Population growth has occurred across Queensland. In the five years from 2008 to 2013, population growth was evident across all remoteness categories although in remote areas growth was minimal. The population in very remote areas increased by 5.3% or about 3000 people and in major cities by 11% or about 292,000 people.

What are the sources of growth?

In 2011²⁵:

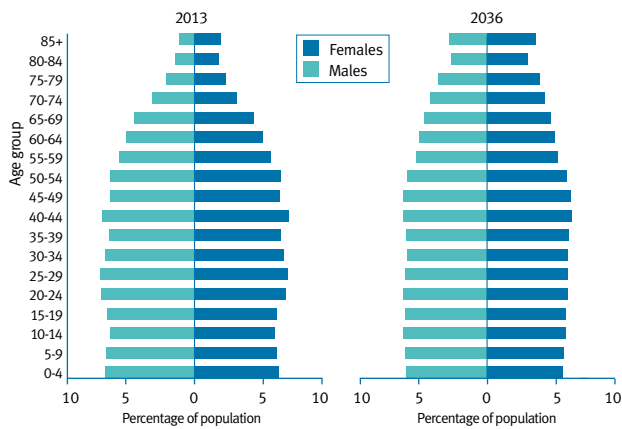
- Net overseas migration added 40,312 individuals to the Queensland population, 48% of total population growth.
- Natural increase (births minus deaths) added 34,955 individuals, 42% of total population growth.
- Interstate migration contributed 9042 people, 11% to total population growth.

Over the past decade, Queensland has experienced high population growth relative to other states and territories (*Figure 4g*). This is largely due to interstate migration with the relative contribution of net overseas migration and natural increase broadly similar to the most populous states. Natural increase is a relatively stable contributor to population growth within Queensland and nationally. Net overseas migration is the most volatile component, although the relative percentage of yearly net overseas migrants settling throughout the states and territories remains steady over time. Within Queensland, interstate migration peaked in 2003 and since then has steadily declined. Net overseas migration rose steadily until it peaked in 2009 and then declined to 2011, in line with decreases in net overseas migration numbers nationally.

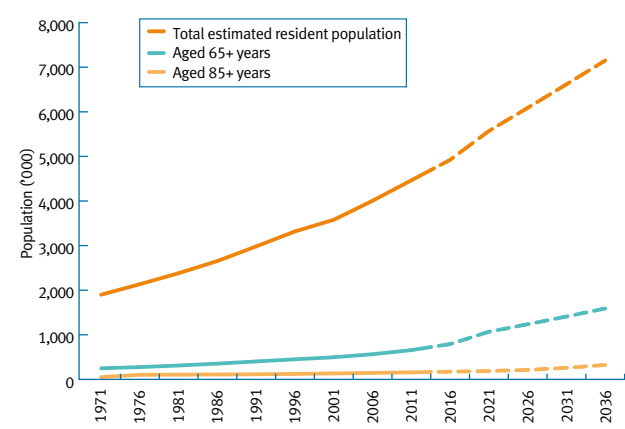


Figure 4: Selected demographic indicators, Queensland

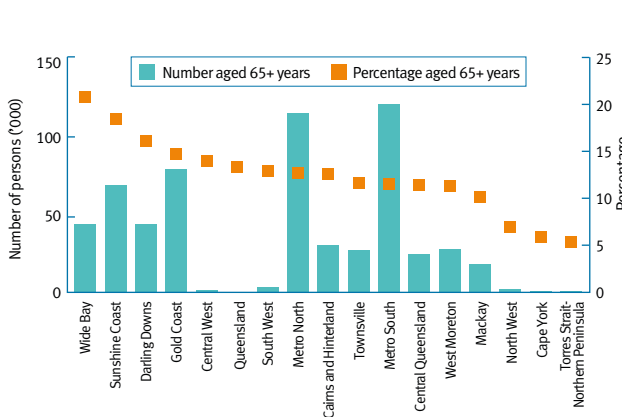
a. Population distribution by age and sex, 2013 and 2036 (projected)



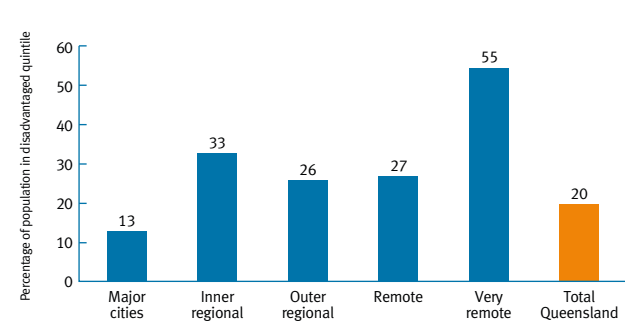
b. Past trends and projected increase in population, 1971 to 2036



c. Population aged 65 years and older by HHS, 2012



d. Proportion of population in disadvantaged quintile by remoteness, 2011



e. Socioeconomic advantage and disadvantage by HHS, 2011

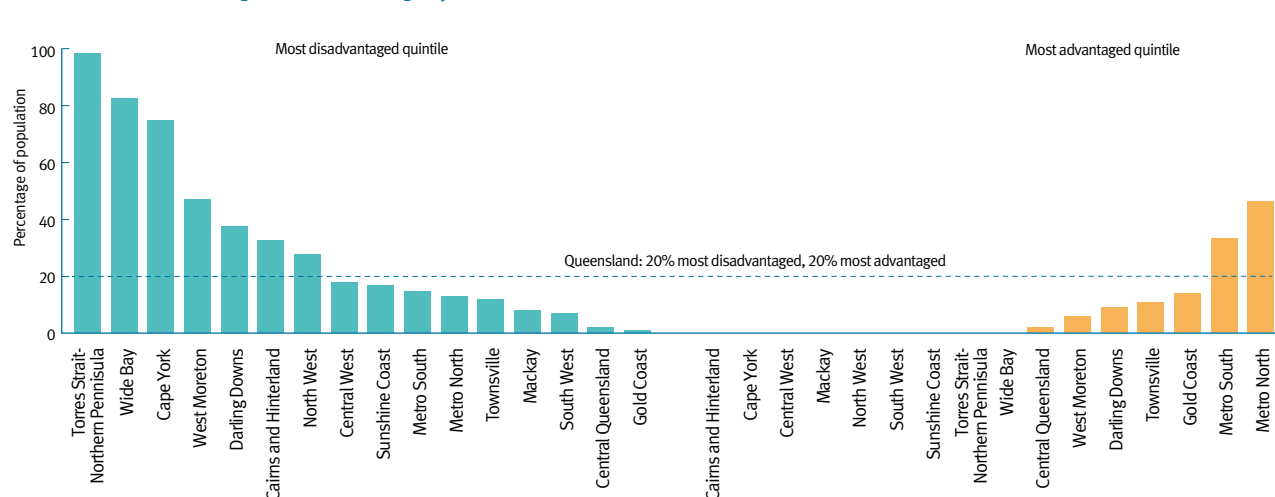
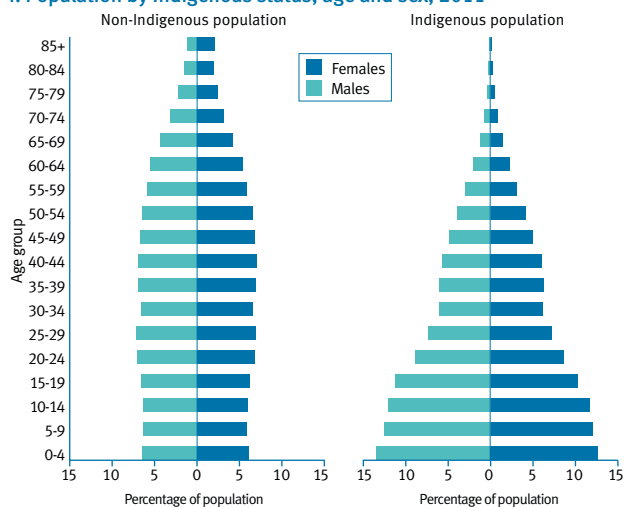
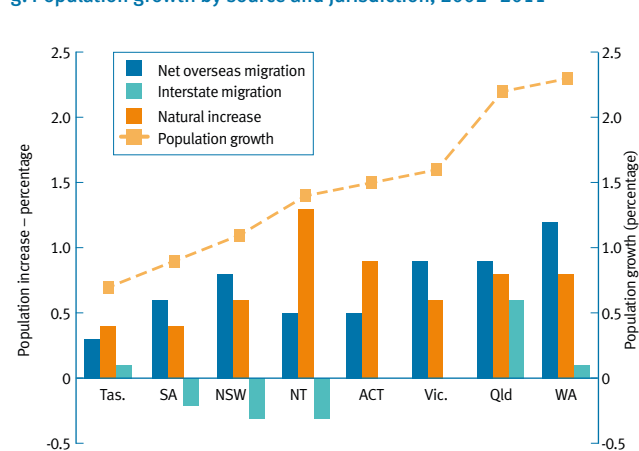
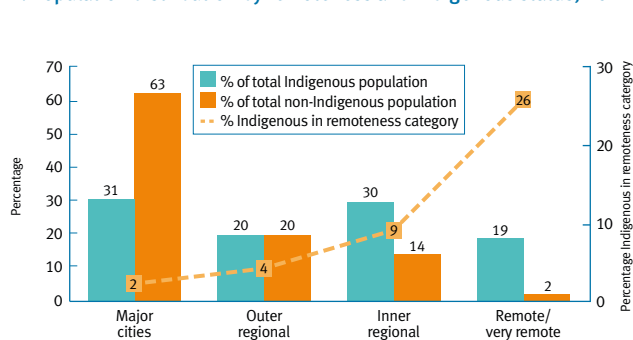
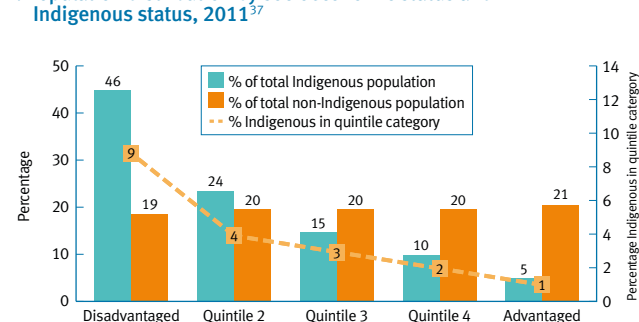


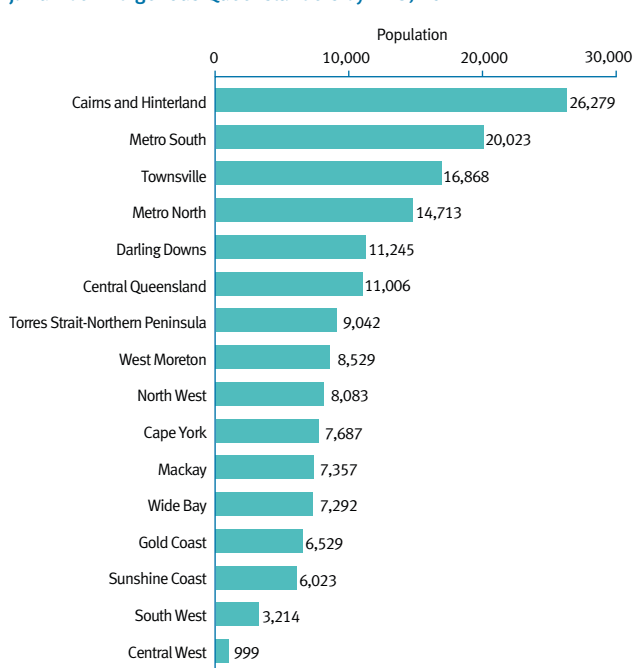
Figure 4: Selected demographic indicators, Queensland (continued)

f. Population by Indigenous status, age and sex, 2011³⁰

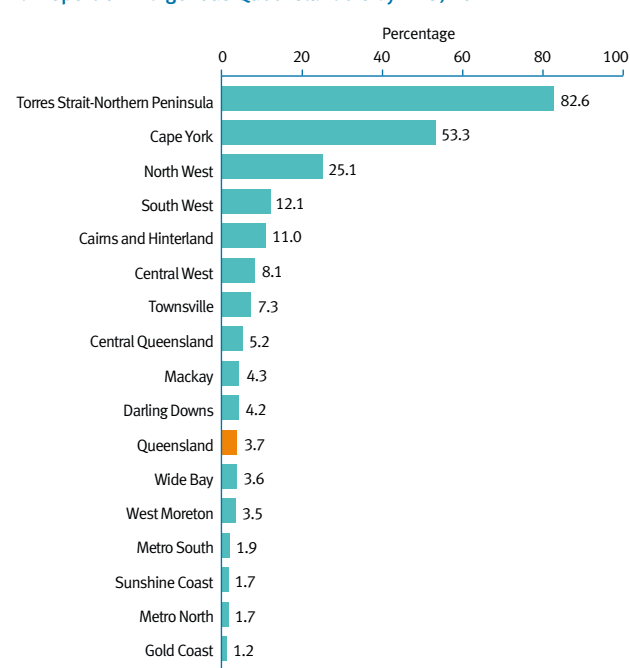
g. Population growth by source and jurisdiction, 2002–2011

h. Population distribution by remoteness and Indigenous status, 2011³⁷i. Population distribution by socioeconomic status and Indigenous status, 2011³⁷

j. Number Indigenous Queenslanders by HHS, 2012



k. Proportion Indigenous Queenslanders by HHS, 2012



Chapter 3 Health outcomes

This chapter describes the death and disease burden of Queenslanders. It includes headline indicators such as life expectancy and all-cause deaths, as well as outcomes for all the major disease groups and key specific conditions. Quality of life and measures of well-being are also reported. Aside from longevity, the importance of quality of life also needs to be recognised as people with illnesses age and approach death.¹⁵ Discussion and decisions about this important stage of life need to occur among families, within the healthcare setting, and in the broader community.

Each section includes prevalence, deaths, hospitalisations, trends and expenditure for each condition where available. Detailed information on rates for persons in the past decade is in *Table 1, page 4*. Annual male and female data to complement Table 1 is available at www.health.qld.gov.au/cho_report/. The data collections and analytical methodologies used in this chapter are described on *page 173* and supporting documents.³⁸

Population groups experience disease and death burden differently. This chapter includes health outcomes for population groups including by age, sex, socioeconomic status, remoteness, Indigenous Queenslanders and HHSs. These population groups are profiled in Chapter 5, with factsheets for each HHS in the Appendix.

The causes of health burden were broadly discussed in the 2012 Chief Health Officer report.³⁹ There is a complex web of causes including physiological and lifestyle factors. While treatment of disease is essential to improving the health and wellbeing of the population, it is necessary to understand the relationship between modifiable risk factors and outcomes. This chapter identifies the causes and risks for each of the key conditions. It shows about one-third of the total burden of disease and injury is attributable to known modifiable

risks such as dietary factors, high body mass, smoking, physical inactivity, high blood pressure and cholesterol.⁴⁰ These risks explained about 43% of premature deaths in 2007. Chapter 4 describes these risks in more detail.

In this chapter:

- Life expectancy
- Health expenditure
- Burden of disease
- All causes
- Chronic disease
- Avoidable deaths
- Potentially preventable hospitalisations
- Cancer
- Cardiovascular disease
- Diabetes
- Mental health
- Suicide and self-inflicted injury
- Injury
- Respiratory conditions
- Dental disease
- Musculoskeletal conditions
- Dementia
- Vision disorders and hearing loss
- Communicable diseases



Life expectancy

Life expectancy at birth for Queenslanders continues to increase and reflects declining death rates at all ages. In 2012, life expectancy for males was 79.5 years and 84.0 years for females, an increase of 2.3 years and 1.6 years respectively over the previous decade.⁴¹ Life expectancy in Queensland was similar to national in 2012—79.9 years for males and 84.3 years for females. Compared to other jurisdictions, Queensland had the third lowest life expectancy for both males and females.

Life expectancy in Australia continues to be among the highest in the world.⁴² Based on an international study of 187 countries in 2010, Australian males were ranked fifth highest at 79.2 years—0.7 years behind highest ranked Iceland.⁸ Australian females were ranked eighth highest at 83.8 years—2.1 years behind highest ranked Japan.

Health adjusted life expectancy (HALE) extends the concept of life expectancy to provide an estimate of the expected years of healthy life. HALE is calculated by reducing total life expectancy by the proportion of time spent at each age in states of less than perfect health, adjusted for the relative severity of those health states. Australians lost about 13.6 years due to ill health on average over a lifetime. HALE in 2010 was 66.8 years for Australian males (a loss of 12.4 healthy years) and 69.0 years for females (a loss of 14.8 years).⁸ The average loss of healthy life in Australia was similar to that among other top ranked countries for life expectancy. Of the 187 countries, Australia was ranked sixth highest HALE for males and eighth highest for females. Japan had the highest HALE for both males and females and was 2.0 years ahead of Australian males and 2.7 years ahead of females.

Among OECD countries, Australia was ranked fourth highest life expectancy after Japan, Iceland and Switzerland (*Figure 5*).⁹ Australia's ranking of life expectancy and HALE has increased, contrasting with decreases for countries such as the US, Canada and UK. Between 1990 and 2010, Australia rose in ranking from 11th highest life expectancy to fourth, and for HALE, from ninth to fifth. In contrast, over the 20 years, the US fell in life expectancy rankings from 20th to 27th, Canada from fifth to 12th and the UK from 16th to 19th while New Zealand rose from 19th to 11th position. A similar pattern was evident for HALE.

Life expectancy at birth is an important indicator of the overall disparity in health status between non-Indigenous and Indigenous Australians. For Indigenous Queenslanders, life expectancy in 2010–2012 for males was 68.7 years and 74.4 years for females.⁴³ Compared to the non-Indigenous Queensland population, this represents a gap in life expectancy of 10.8 years for males and 8.6 for females. Compared to Indigenous Australians, Indigenous Queenslanders have a longer life expectancy, 1.3 years for males and 2.1 for females. The life expectancy gap for Indigenous Queenslanders is due to a wide range of factors such as reduced access to health services, higher rates of disease and health risk factors such as smoking, obesity and exposure to adverse environmental and socioeconomic conditions. The factors contributing to the life expectancy gap between Indigenous and non-Indigenous Australians in the Northern Territory was recently assessed.⁴⁴ Socioeconomic factors accounted for 42–54% of the life expectancy gap, smoking accounted for 14–24%, obesity 9–17%, alcohol 1–7% and assault and pollution less than 1% of the gap. Jointly these risks accounted for 60–70% of the life expectancy gap in the Northern Territory based on data from 1986 to 2005.

More broadly, the potential of behavioural and social interventions for increasing life expectancy may be far greater than traditional medical interventions.⁴⁵ Although the exact number varies, most analyses suggest that behavioural and social factors account for at least half of the variation in health outcomes. Medical care accounts for about 10% of the variation in health outcomes.⁴⁶

The median age of death is an important measure of outcome based on factors affecting the health of the individual prior to death. In contrast, life expectancy is a projection into the future. The median age of death is the age, during a given period of time, at which exactly half the deaths were of people above that age and half were below. Median age of death is used to report differences in outcomes for population groups and over time, although it is subject to limitations as described on *page ii*. In 2010, the median age of death from all causes for all Queenslanders was 80 years (males were 77 years, females were 83 years). Some groups die at younger ages on average than their comparative population groups (*Figure 6*): people in socioeconomically disadvantaged areas (four years difference in 2009–2010), those in remote and very remote areas (12 years), and Indigenous Queenslanders (23 years). These differences are discussed in more detail in Chapter 5.

There is a wide variation in median age of death among HHSs: from 60 years in Torres Strait–Northern Peninsula to 81 years in Gold Coast, Sunshine Coast, Metro South and Metro North in 2008–2010 (*Figure 7a*). A key driver of median age difference between HHSs is the proportion of Indigenous Queenslanders in the population. The median age of death of Indigenous Queenslanders in HHSs varied from 52 years in Metro North to 67 years in Sunshine Coast (*Figure 7b*).

City dwellers have 12 more years of life than others.

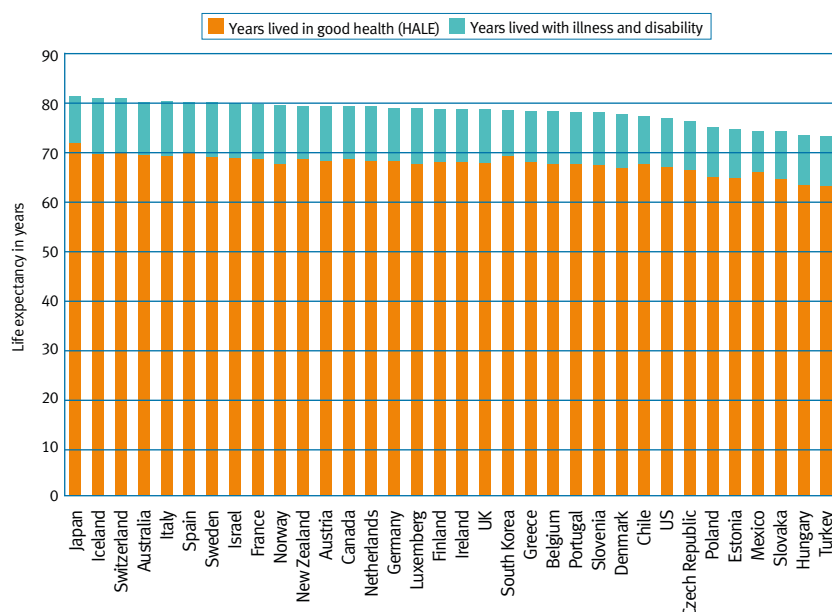
Figure 5: Life expectancy and HALE by OECD country, 2010⁹

Figure 6: Median age of death by population group, Queensland

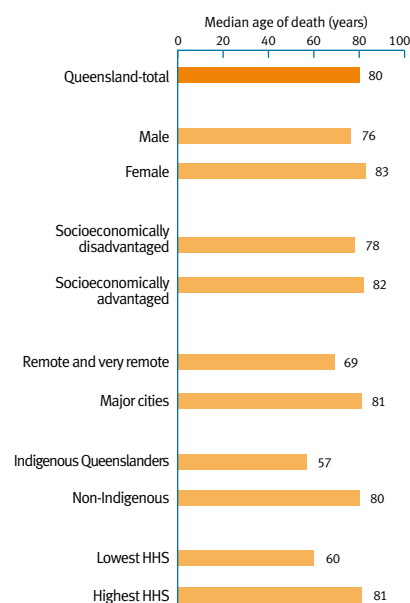
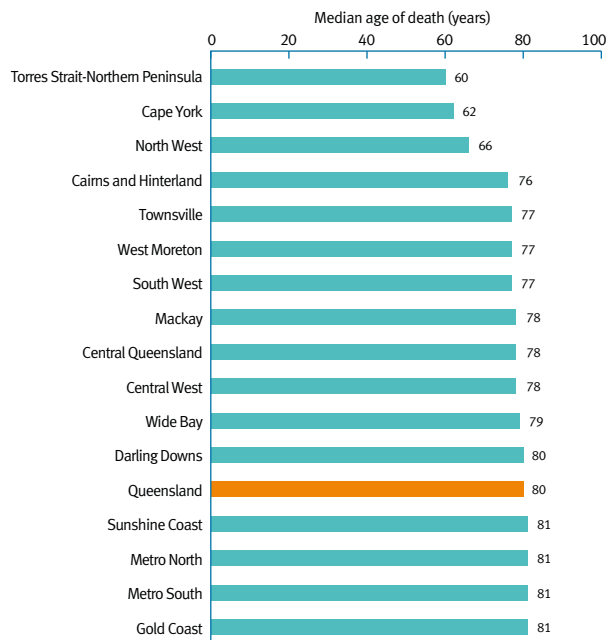
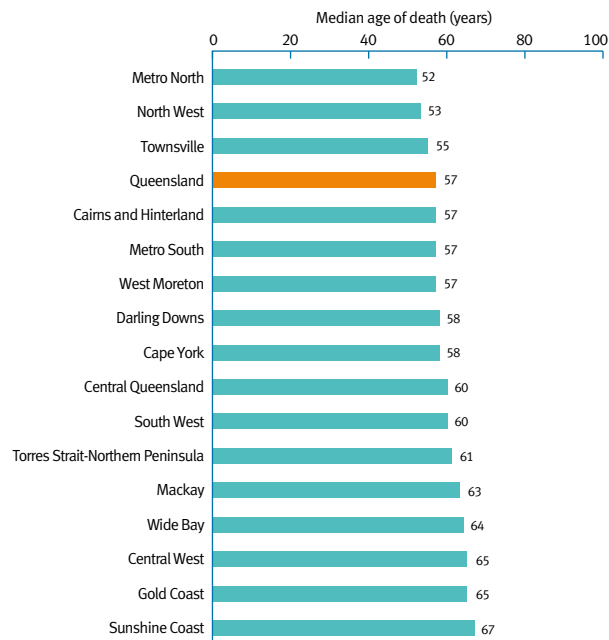


Figure 7: Median age of death by HHS, Queensland, 2008–2010

a. Total population



b. Indigenous Queenslanders



*People in advantaged areas
have four years more healthy life
than disadvantaged areas.*

Health expenditure

A total of \$29,019 million was spent on health in Queensland in 2011–12, 92% of which was recurrent expenditure (\$26,729 million) and the remaining 8% was capital (\$2290 million).¹⁷ The total amount reflects spending from all sources, including federal and state governments.

Health expenditure in Queensland (from all sources) was 19.6% of Australian health expenditure, slightly less than the Queensland's population as a proportion of national (20.1% in June 2013²⁵). The Queensland Government spent \$11,156 million on health in 2011–12⁴⁷, the largest component of the State Government expenses. Health (25.6% of the total budget) and education (23.9%) accounted for one in every two dollars spent by the Queensland Government.⁴⁸ Information on health expenditure in this report is derived largely from Australian Institute of Health and Welfare (AIHW) reports, which are the national reporting benchmark of Australian health expenditure.^{49–51}

Nationally, spending on health accounted for 9.5% of GDP in 2011–12, an increase of 1.1 percentage points since 2001–02.¹⁷ Real growth in health expenditure in recent years has largely been driven by increases in the volume of health goods and services purchased, rather than price.

Compared to 34 OECD countries and using the OECD system of accounts, Australia had the ninth highest per capita spending on health in 2011–12, about half that spent per person in the US (A\$5952 compared to A\$12,206).¹⁷ Australia had the twelfth largest expenditure on health compared to GDP in 2011, was lower than the weighted average of OECD countries, and about half that of the US (17%).

Government bears the greatest proportion of health spending. In Queensland in 2011–12, 72% of total health expenditure (recurrent and capital) was by the Australian and Queensland governments (*Table 2*).¹⁷ Health insurance funds were the source of 8% of spending, individuals 17% and the remaining 4% was from other sources. The distribution of source funding was similar across Australia.

In 2011–12 the estimated per person recurrent expenditure on health in Queensland was \$5,916, an increase in real terms of \$264 on the previous year.¹⁷ Real growth in per person recurrent expenditure averaged 4.1% per year over the previous decade, compared to 3.8% nationally. Per capita recurrent expenditure in Queensland was similar to national (\$5916 compared with \$5881 nationally) in 2011–12, although a decade ago it was lower in Queensland (\$3951 compared with \$4062 nationally in 2001–02).

Spending on primary healthcare, which includes general practice, community health and allied health services has increased nationally by 64% between 2001–02 and 2011–12, and 34% in the past five years.¹⁷ The 'out of pocket' component funded by individuals increased by 33% in the past five years.

The most recent report on spending categorised by disease groups was in 2008–09, where 60% of national recurrent health expenditure was allocated to selected disease groups.^{50,52,53} Cardiovascular disease was the largest specific cause of health system expenditure nationally, followed by oral health, mental disorders and musculoskeletal conditions (*Table 3*). Health system expenditure for 2011–12 has been estimated assuming no change in the allocation by disease since 2008–09 and using the most recent health expenditure report for the nation and states.¹⁷ Generation of Queensland estimates from national reports assumes a population proportion and that the profile of expenditure in Queensland was the same as national.

Care of people in the period close to their death is an important part of hospital service delivery, as about half of all deaths occur in hospital in Queensland.⁵⁴ In the period 2008–2010, in the last six months of life they spent an average of 28.8 days in hospital, where data is confined to those who died who had spent at least one night in hospital.⁵⁵ For people aged 50 years and older who had at least one night as an admitted patient in the six months prior to death in an 18-month period up to 2011, the average cost for public hospital treatment was \$30,161 per person.⁵⁴ In NSW, care of people aged 65 years and older in their last year of life accounted for 8.9% of all hospital costs in 2002–2003 with an average cost of \$13,513.⁵⁶ The highest per capita spending in the last year of life was for people aged 65–74 years (\$17,927) and spending decreased with age to \$7028 for those aged 95 years and older. Average inpatient costs increased greatly in the six months before death, from \$646 per person in the sixth month to \$5545 in the last month. Cardiovascular diseases (43% of all deaths) were associated with an average of \$11,069 inpatient costs, while cancer (25% of deaths) accounted for \$16,853. The highest average inpatient cost in the last year of life was for genitourinary system diseases (\$18,948). While these data are for NSW, similar costs and differentials are likely for Queensland.

Total national health and residential aged care expenditure is projected to almost triple in the 30-year period from 2002–03 to 2032–33, from \$85 billion to \$246 billion.¹⁸ Increases in the volume of services per treated case is projected to account for half (\$81.3 billion) the projected \$161 billion increase. Two demographic factors—population ageing (23%) and absolute population increase (21%)—will account for most of the remaining 50% increase. Non-demographic factors—including health price inflation and an increasing proportion of previously untreated cases now treated—will account for a very small proportion of the total increase. On current trajectories, declining disease rates are projected to save the health system \$2.3 billion over the 30-year period. Rate decline is projected for some of the main disease groups such as cardiovascular disease,

injuries, cancer and sense organ disorders, but not for others. The diabetes rate is projected to double, resulting in a fivefold increase in expenditure over the 30 years to 2032–33, the largest single cause of anticipated proportional increase in expenditure (Figure 8). However, cardiovascular disease will remain the largest cause of health expenditure, closely followed by respiratory conditions and neurological disorders.

*Health expenditure (with approximate distributions)**

Total (100%) = recurrent (92%) + capital (8%)

*Recurrent (100%) = allocated** (60%) + not allocated (40%)*

** vary by year and by jurisdiction **to disease group*

Table 2: Health expenditure by source of funding, Queensland, 2011–12^{17,50,52}

	\$m	% of total
Government	20,906	72.0
Australian	11,679	40.2
State/territory and local	9,227	31.8
Non-government	8,113	28.0
Individuals	4,778	16.5
Private health insurance funds	2,272	7.8
Other	1,063	3.7
Total	29,019	100

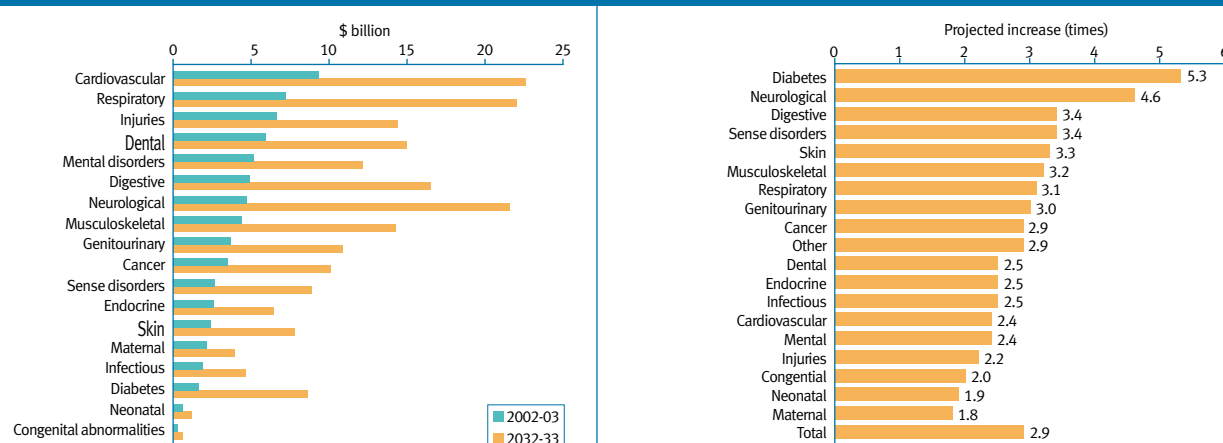
Table 3: Estimates of health expenditure by disease group, area of expenditure, 2011–12^{17,50,52,53}

Disease	\$ (m) 2008–09 Aus.	% of allocated	% of recurrent	\$ (m) 2011–12 Aus.*	\$ (m) 2011–12 Qld*	% admitted patient	% out-of-hospital medical services	% prescription pharmaceuticals	% optometrical and dental	% community and public health
CVD	7,741	10	7	9,492	1,898	58	21	23	–	–
Oral health	7,176	10	7	8,799	1,760	4	1	0	95	–
Mental disorders	6,375	9	6	7,817	1,563	42	11	15	–	27
Musculoskeletal	5,671	8	5	6,954	1,391	55	28	16	–	–
Injuries	5,184	7	5	6,357	1,271	78	18	6	–	–
Cancer	4,862	7	5	5,962	1,192	75	10	11	–	7
Respiratory	4,588	6	4	5,626	1,125	52	28	17	–	–
Digestive system	4,076	6	4	4,998	1,000	69	18	18	–	–
Nervous system	3,387	5	3	4,153	831	44	27	20	8	–
Genitourinary	3,453	5	3	4,234	847	65	26	8	–	–
Endocrine, nutritional and metabolic	2,634	4	2	3,230	646	31	24	44	–	–
Diabetes	1,521	2	1	1,865	373	43	25	34	–	–
Maternal conditions	2,514	3	2	3,083	617	97	2	1	–	–
Infectious and parasitic	1,654	2	2	2,028	406	51	32	13	–	–
Skin diseases	1,597	2	1	1,958	392	42	30	19	–	–
Neonatal causes	770	1	1	944	189	99	4	0	–	–
Congenital abnormalities	411	1	0	504	101	92	8	1	–	–
Signs, symptoms etc	n/a	n/a	n/a	n/a	n/a	45	43	12	–	–
Total	65,129		60	79,864	15,973	52	21	14	10	3

* Estimated

n/a Not applicable.

Figure 8: Projected change in health expenditure by disease group, Australia, 2002–03 to 2032–33¹⁸



Burden of disease

The most recent burden of disease and injury study for the Queensland population was for 2007.³⁹ Since then a global study has been undertaken which includes updated disease models, a revision of disability weights and the estimation of prevalent disability rather than incident disability.⁵⁷ The 2013 updated methodologies were retrospectively applied to 1990 to allow an assessment of change over the 20 years. Importantly, the global study extended the risk factor analysis to include new risks including a wide range of diet related factors, and for the first time, an assessment of the worldwide impact of diet was reported.⁵⁸ The global burden of disease study released in 2010 (GBD 2010) is the most recent assessment and is used in this report for Australia. Data for Queensland from this study is not available.

The 2007 Queensland study is reported to describe the burden for Queensland and sub populations. It is based on earlier models and estimates using the methodologies of the 2003 Australian study.⁵⁹ These studies are not directly comparable with the global study, however key concepts are the same. The AIHW has commenced a burden of disease study for Australia, building on the global study, which will be finalised in late 2015.⁶⁰ An Indigenous Queensland study was released in 2014⁶¹ using methodologies similar to the 2007 Queensland study and is also reported.

International rankings

In 2010, compared to 186 other countries, Australia was positioned very highly across many measurement parameters, and among the top five performing countries based on GBD 2010.⁸ On a regional comparison, Australasia was ranked the best performing region with the lowest burden of disease per head of population. Among OECD countries between 1990 and 2010, Australia out-performed many countries including the US, UK, Canada, New Zealand and Scandinavian countries.^{9,10} For example, based on the age standardised death rate among 34 countries, Australia rose from ninth best to fourth best, for rate of years of life lost the ranking improved from 10th to eighth best, and for rate of years lost to disability, from 18th to 14th. Similarly, Australia has moved from 11th highest life expectancy in 1990 to fourth among OECD countries in 2010—and for health adjusted life expectancy (HALE) from ninth to fifth highest.

*Burden of disease (DALYs) =
years of life lost (YLL) + years lost
to disability (YLD)*

Australia

Total disease burden:

The leading specific causes of total burden (DALY) in 2010 for Australia were coronary heart disease (7.8%), low back pain (7.0%) and COPD (3.4%) (Table 4).⁴

Premature death burden:

The leading causes of premature death (YLL) in 2010 were coronary heart disease (15%), lung cancer (6.2%) and stroke (5.6%) (Table 4).⁴

Disability burden:

The leading causes of disability (YLD) in 2010 were low back pain (12.9%), major depressive disorders (5.5%) and other musculoskeletal disorders (5.3%), followed by neck pain (5.3%) and injury due to falls (4.7%) (Table 4).⁴

Risk factors:

The leading risk factor for Australia in 2010 was dietary risks (10.5%), followed by high body mass (8.4%) and smoking (8.3%) (Table 5).^{4,62} Dietary risks included diets low in fruit, nuts, seeds, vegetables, whole grains, fibre, seafood, omega-3 fatty acids and poly unsaturated fats as well as diets high in sodium and processed meat. Over consumption of food in the form of excess energy is not included in diet related burden of disease analyses—rather it leads to an increase in body mass which is assessed separately. Unlike the 2003 Australian study, the GBD 2010 did not fully estimate the joint effect of individual risks. However GBD 2010 included dietary risks for the first time and while it is likely the global analysis will undergo further developments, it will form a new benchmark for the assessment of diet, superseding the 2010 estimation undertaken in Queensland.^{40,63}

Trends:

DALY burden in Australia increased by 14% between 1990 and 2010, while the rate decreased by 10% over this period.⁶² The burden rate improvement was largely achieved by death rate reduction, while overall increase in DALY burden across many conditions was primarily associated with an increasing disability. In 1990, 46% of DALYs in Australasia were due to disability, increasing to 55% in 2010—consistent with most developed countries.

Four main trends are driving change in the leading causes of DALYs in Australia and globally, as is evident from the descriptions in this section and throughout this report. These are:

- ageing populations
- increases in non-communicable diseases
- shifts towards disabling causes and away from fatal causes
- changes in risk factors, particularly the influence of obesity in the developed nations.

The reduction in premature deaths in Australia between 1990 and 2010 resulted in an increase in life expectancy at birth of 5.4 years for males and 3.8 years for females. This was principally achieved by reduction in death rates among infants and children, particularly for males, and also among adults aged between 50 and 79 years.⁶² Lowest gains in death rate reduction were achieved for adults aged between 30 and 49 years and those aged 80 years and older.

Over the 20 years to 2010, the life expectancy gain for Australian males (5.4 years) was ranked 63 of 187 countries where the top ranking reflected the greatest gain. The gain for females was smaller (3.8 years) with Australia ranked 101 of 187 countries. The increasing burden of disability is resulting in lower gains in HALE. The 3.4 years increase in healthy life over the two decades for Australian males was a middle ranking position globally (90th among 187 countries). For Australian females, the 2.0-year gain in healthy life was ranked 125 of 187 countries.

Broadly for Australia, while gains are being achieved for cardiovascular conditions such as coronary heart disease and stroke, and also for road transport injury and suicide, for many of the major causes, the overall burden has increased over the past 20 years.⁶² Between 1990 and 2010 using the global methodologies for consistent assessment, the two leading causes of DALY burden for Australia have remained the same—coronary heart disease followed by low back pain (*Table 4*).⁸

Some key conditions have decreased in ranking: road injury has moved from third to 10th largest cause, stroke has moved from fourth to fifth and lung cancer from sixth to eighth. In contrast, COPD has moved up from fifth to third largest cause, and injury due to falls to sixth position from 12th in 1990. Although coronary heart disease was the top ranked condition over the 20 years, the number

of DALYs due to coronary heart disease decreased by 28%, largely due to strong reductions in fatal outcomes (total deaths and premature deaths) in contrast to an increased non-fatal burden (22% increase in YLDs). For the second ranked condition, low back pain, there was a 45% increase in DALYs—totally associated with an increase in YLDs. An increasing disability burden means there are more people living with conditions that perhaps once were fatal, such as coronary heart disease. This will impact on the health system and the economy with greater demand for services and support, and diminished productivity. Detailed trends in premature death and disability for Australia were reported in 2013.⁶⁴

Dietary factors were the leading attributable risk for total burden in 1990 and retained top ranked position in 2010 (*Table 5*).⁸ High blood pressure moved from second to fourth largest risk. Smoking including second-hand smoke, remained in third place while high body mass has moved from fourth to second largest risk. Data for comparative assessment of physical activity burden in 1990 was not available.

Dietary factors were also the largest cause of death among the risk factors in 1990 and remained in top position in 2010 despite a 7% reduction in death burden (*Table 5*).⁸ High blood pressure and smoking were in second and third position in 1990 and also in 2010, although the number of deaths for each decreased by 19% and 13% respectively.

Australians live more years in good health than people in most countries.⁶

Table 4: Change in DALYs, YLL and YLD ranking of leading specific causes, Australia 1990 and 2010⁸

DALYs				2010			
1990		2010		YLL		YLD	
Cause		Cause	% change*	Cause	% change*	Cause	% change*
1 Coronary heart disease	→	1 Coronary heart disease	-28%	1 Coronary heart disease	-32%	1 Low back pain	45%
2 Low back pain	→	2 Low back pain	45%	2 Lung cancer	11%	2 Major depressive disorder	30%
3 Road injury	→	3 COPD	9%	3 Stroke	-19%	3 Other musculoskeletal	32%
4 Stroke	→	4 Other musculoskeletal	38%	4 Colorectal cancer	18%	4 Neck pain	36%
5 COPD	→	5 Stroke	-12%	5 Self harm	-12%	5 Falls	52%
6 Lung cancer	→	6 Falls	50%	6 Road injury	-40%	6 Anxiety disorders	29%
7 Other musculoskeletal	→	7 Major depressive disorder	30%	7 COPD	-10%	7 Migraine	24%
8 Major depressive disorder	→	8 Lung cancer	11%	8 Breast cancer	5%	8 Asthma	17%
9 Asthma	→	9 Neck pain	36%	9 Alzheimer's disease	170%	9 Drug use disorders	22%
10 Self harm	→	10 Road injury	-27%	10 Diabetes	40%	10 COPD	34%
11 Neck pain	→	11 Drug use disorders	24%	11 Prostate cancer	47%	11 Diabetes	56%
12 Falls	→	12 Alzheimer's disease	137%	12 Pancreatic cancer	46%	12 Alzheimer's disease	114%
13 Drug use disorders	→	13 Asthma	3%				
21 Alzheimer's disease	→	18 Self harm	-12%				

* 1990 to 2010

In marked contrast to the gains in death burden, the disability burden for all the top 10 risks increased between 1990 and 2010, and the greatest increase was the doubling in disability burden for high body mass. High body mass was the leading YLD related risk in 1990 and 2010, followed by smoking and drug use. Risk factors with the largest disability burden remained steady over the 20 years with minor shifts in ranking. The disability burden due to high body mass doubled over the 20 years due to the increased prevalence of obesity in Australia.¹² This was a worldwide trend with the prevalence of adult

overweight and obesity globally estimated to have increased by 27.5% between 1980 and 2013 and for children by 47.1%. High fasting plasma glucose increased by about 60% over the 20 years, reflecting dietary changes and the increasing burden of diabetes.

Dietary risks are the leading cause of disease burden.⁴

Table 5: Change in DALY, death and YLD ranking of leading risk factors, Australia 1990 and 2010⁸

DALYs				2010			
1990		2010		Deaths		YLD	
Risk		Risk	% change*	Risk	% change*	Risk	% change*
1 Dietary risks	→	1 Dietary risks	-20%	1 Dietary risks	-7%	1 High body mass	104%
2 High blood pressure	↘	2 High body mass	40%	2 High blood pressure	-19%	2 Drug use	22%
3 Smoking	↘	3 Smoking	-21%	3 Smoking	-13%	3 Smoking	16%
4 High body mass	↘	4 High blood pressure	-34%	4 High body mass	45%	4 Dietary risks	42%
5 High total cholesterol	↘	5 Physical inactivity	n/a	5 Physical inactivity	n/a	5 High plasma glucose	62%
6 High plasma glucose	↘	6 High plasma glucose	22%	6 High plasma glucose	33%	6 Occupational risks	28%
7 Alcohol use	↘	7 High total cholesterol	-46%	7 High total cholesterol	-37%	7 High blood pressure	18%
8 Occupational risks	↘	8 Alcohol use	9%	8 Alcohol use	31%	8 Alcohol use	19%
9 Drug use	↘	9 Drug use	20%	9 Lead	181%	9 Physical inactivity	n/a
10 Iron deficiency	↘	10 Occupational risks	2%	10 Ambient PM pollution	32%	10 Iron deficiency	23%
11 Ambient PM pollution	↘	11 Lead	95%	11 Occupational risks	-2%	11 Childhood sexual abuse	n/a
12 Lead	↘	12 Iron deficiency	21%	12 Low bone density	138%	12 High total cholesterol	-3%

* 1990 to 2010

Queensland

In 2007, a greater proportion of total disease burden in Queensland was associated with disability (54%) than premature death (46%).⁶³ The male burden rate was 12% higher than the female rate with males experiencing 53% of total burden. A larger proportion of the female burden was associated with disability (58%) while for males the disability burden and fatal burden were similar (51% and 49% respectively).

Total disease burden:

Cancer was the leading broad cause of total burden (DALYs) (18.6%) in Queensland in 2007, followed by cardiovascular disease (15.9%) and mental disorders (14.0%), together accounting for nearly half the total burden.⁶³

The three leading specific causes of disease burden in 2007 were coronary heart disease (9%), anxiety and depression (7.9%) and type 2 diabetes (5.2%).⁶³

Premature death burden:

The three largest specific causes of premature death (YLL) in 2007 were coronary heart disease (14.7%), lung cancer (7.1%) and stroke (6.4%).⁶³

Disability burden:

The three largest specific causes of disability (YLD) were anxiety and depression (14.3%), type 2 diabetes (7.9%) and adult onset hearing loss (5.6%).⁶³

Risk factors:

An estimated 31% of the total burden of disease and injury in Queensland in 2007 was due to the joint effect of 13 modifiable risk factors.⁴⁰ High body mass was the largest single contributing risk factor at 8.5%, followed by tobacco and physical inactivity at 7.2% and 6.4% respectively. Over the past decade public health campaigns to reduce smoking have resulted in reduction of smoking related health diseases (lung cancer and

COPD), although the full benefits will take many years to be achieved due to the long-term impact of smoking on health. In contrast, rates of obesity have increased in Queensland, in Australia and many parts of the world. High body mass is now the leading cause of health burden in Queensland and will have immediate impact on diabetes, cardiovascular conditions and some cancers. The full impact of poor diet had not been assessed prior to the 2010 GBD, and while the latest global assessment has limitations it should be used instead of the reporting undertaken in Queensland in 2010 using a joint effects analysis.^{39,40,63}

The combined effect of the 13 risk factors resulted in about 10,600 deaths of Queenslanders in 2007, about 40% of all deaths. A greater proportion of these deaths were for males, about 5800 or 55%. For premature deaths, that is, death before the age of 75 years, 43% were due to the 13 risk factors, 47% of male premature deaths and 40% of female premature deaths.

Socioeconomic and remoteness differences:

There are large differentials in the disease and injury burden experience within the Queensland population.⁶⁵ The latest analysis of burden for population groups was for 2006 and was based on socioeconomic disadvantage and remoteness. As socioeconomic disadvantage increased so too did the rate of burden—24.7% of the total burden in Queensland was associated with socioeconomic disadvantage. The burden rate was higher outside major cities—12% higher in regional areas and 50% higher in remote areas.

Projections:

On the assumption that past trends will continue into the future, the burden rate in Queensland (Indigenous and non-Indigenous Queenslanders) is projected to decrease by 8.1% between 2007 and 2016.⁶⁶ However, due to population growth and ageing the total burden of disease and injury (that is DALYs, not DALY rates) in Queensland is projected to increase by 19%. This overall change will reflect a decrease in the rate of premature death but an increase in the disability rate. The increasing disability burden will be associated with nervous system and sense organ disorders (related to ageing of the population), diabetes (associated with increasing rates of obesity as well as ageing) and cancer (associated with ageing rather than increasing prevalence of cancer).

Indigenous Queenslanders

The 2014 Indigenous Queensland burden of disease study⁶¹ was based on methods previously reported in Australia^{59,67} and similar to the 2007 Queensland study³⁹, while the 2010 global study introduced methodological and conceptual improvements.^{57,68} The 2014 Indigenous Queensland study should not be compared directly with the global study. However, consistent with the global study the 2014 study included prevalent years lost to disability (PYLD) which has been included in this report, differentiating this reporting from the 2007 total Queensland analysis. The impact of prevalent disability compared to incident disability is most evident in age group reporting, noting that age group differences have limited reporting in this section.

Total disease burden:

Mental disorders were the leading broad cause of total burden (DALYs) for Indigenous Queenslanders in 2007 (17.2%), followed by cardiovascular disease (14.8%), diabetes (9.8%), chronic respiratory disease (9.3%) and cancers (8.5%), with these five causes together accounting for 60% of the total burden in Queensland (Figure 9a).⁶¹

The five leading specific causes in 2007 were anxiety and depression (10.2%), type 2 diabetes (9.3%), coronary heart disease (8.5%), COPD (4.1%) and asthma (3.6%).⁶¹ There was a difference in the relative ranking of the top causes between males and females. For males the top three specific causes were coronary heart disease, type 2 diabetes, and anxiety and depression, while for females they were anxiety and depression, type 2 diabetes and coronary heart disease.

A greater proportion of the Indigenous Queensland burden is experienced by males (51.3%) rather than females (48.7%), with the male rate 40% higher than the female rate. The age distribution of disease burden differed markedly between Indigenous Queenslanders and non-Indigenous (Figure 9b). Years lost to premature death accounted for 43.8% of total burden with 56.2% due to disability burden.

Burden rate of Indigenous Queenslanders is 2 times non-Indigenous.

The relative burden for Indigenous Queenslanders in 2007 was more than double that of non-Indigenous Queenslanders based on rate (2.1 times) after adjustments were made for age differences.⁶¹ This was evident in the 10-year gap in life expectancy (68.7 years compared with 79.4 years for males, 74.4 years compared with 82.6 years for females in 2010–2012⁴³), and the 12.3-year gap in HALE (61.2 years compared with 73.5 years in 2007). HALE for Indigenous Queensland males was 4.4 years less than females (59.0 years for males and 63.4 years for females). Over one-quarter of the HALE gap between Indigenous Queenslanders and the total Queensland population was due to differences in the disability burden rate. Potentially, 3.45 years of healthy life could have been gained had the cardiovascular rates not differed. Type 2 diabetes was the second largest cause of HALE difference and resulted in an extra 2.37 years loss of healthy life. Chronic respiratory conditions accounted for 1.34 years loss of HALE, cancer, 0.8 years, mental disorders 0.8 years, intentional injuries 0.6 years, infectious diseases, 0.6 years and unintentional injuries 0.5 years.

While the overall burden rate difference between Indigenous and non-Indigenous Queenslanders was 2.1 times, it varied markedly by cause (*Figure 9c*).⁶¹ The largest difference was for diabetes where the burden rate for Indigenous Queenslanders was 4.7 times the non-Indigenous rate. For infectious and parasitic diseases it was 4.2 times, unintentional injuries 3 times followed by cardiovascular disease at 2.8 times and 2.7 times for chronic respiratory disease burden.

Premature death burden:

The three largest specific causes of premature death (YLL) for Indigenous Queenslanders in 2007 were coronary heart disease (14.3%), type 2 diabetes (7.3%) and suicide and self inflicted injuries (7.1%).⁶¹ The male fatal burden was 38% higher than the female fatal burden rate with males experiencing 57.1% of total fatal burden. The Indigenous Queensland fatal burden rate was 2.5 times the non-Indigenous rate, and for diabetes it was 11.8 times greater. The premature death burden of Indigenous Queenslanders was evident across the age range, whereas for non-Indigenous, fatal outcomes were more evident in older age groups. (*Figure 9d*)

Disability burden:

The three largest specific causes of prevalent disability (PYLD) were anxiety and depression (16.4%), type 2 diabetes (9.2%) and asthma (5.2%).⁶¹ The male disability burden rate was similar to the female rate while females experienced a greater proportion of the disability burden (51.8%). The Indigenous Queensland disability burden rate for all causes was 70% higher than the non-Indigenous rate, with the rate for infectious and parasitic diseases 5.8 times greater.

Risk factors:

An estimated 36% of the total burden of disease and injury for Indigenous Queenslanders in 2007 was due to the joint effect of 11 modifiable risk factors.⁶¹ High body mass was the largest single contributing risk factor at 12.1%, followed by tobacco (11.6%) and physical inactivity (7.9%). For males, tobacco was the largest risk factor accounting for 12.4% of burden, while for females, high body mass was the largest at 13.2%.

The burden due to high body mass and to tobacco is greater for Indigenous Queenslanders⁶¹ than for all Queenslanders.³⁹ Due to the substantial impact of these risk factors on disease incidence, particularly diabetes, cardiovascular conditions, some respiratory conditions and some cancers, there is considerable potential to improve the health of Indigenous Queenslanders through reduction of risk factor prevalence.

As a proportion of deaths, tobacco was the largest cause (accounting for 125 deaths of Indigenous Queenslanders in 2007) followed by high body mass (97 deaths) and physical inactivity (80 deaths).⁶¹ The combined effect of the 11 risk factors resulted in about 300 deaths in 2007, about half the total deaths (49%).

Remoteness differences:

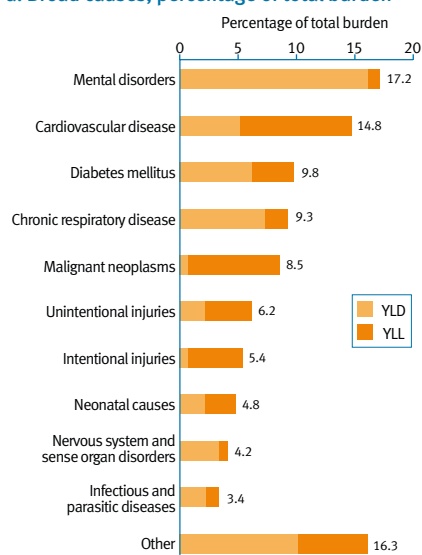
A greater proportion of the Indigenous Queensland population lives in regional and remote areas and these populations experience a greater disease burden than those in major cities. In 2007, the burden rate in remote areas was 47% higher than the major city rate and 26% higher in regional areas.⁶¹ The leading cause in major cities and regional areas was mental disorders, followed by cardiovascular disease, while in remote areas cardiovascular disease was the leading cause followed by diabetes.

In 2007, based on the 2014 study, the years Indigenous Queenslanders lived in good health (HALE) was higher in major cities. Overall the HALE of Indigenous Queenslanders was 61.2 years—65.3 years in major cities, 61.0 years in regional areas and 57.8 years in remote areas.⁶¹

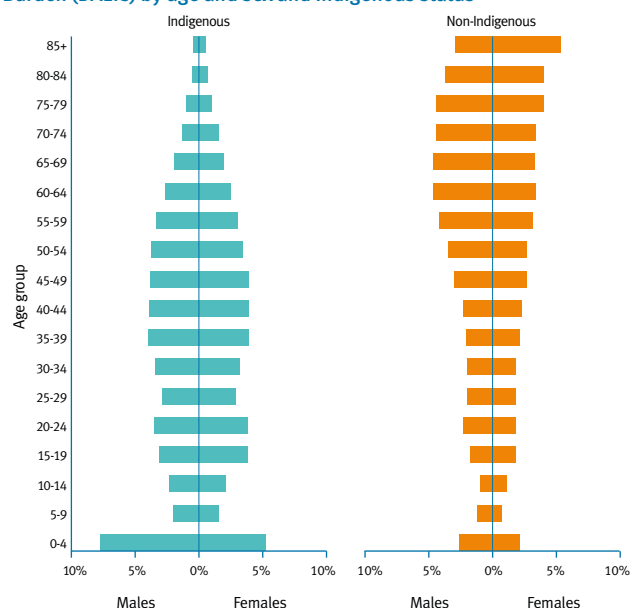
The proportion of burden attributed to the 11 risk factors was higher in regional and remote areas than major cities—the burden rate for the combined effect of these risks was 22.3% higher in regional areas than major cities and 58.9% higher in remote areas.⁶¹ The burden rate was higher in regional and remote areas than major cities for the majority of risks. In remote areas the burden rate associated with high body mass was double that of the major city rate while for regional areas it was about 25% higher. For high blood pressure, the remote rate was about double the major city rate. For tobacco, it was about 30% higher in regional and remote areas than major cities.

Figure 9: Burden of disease for Indigenous Queenslanders: selected indicators, 2007⁶¹

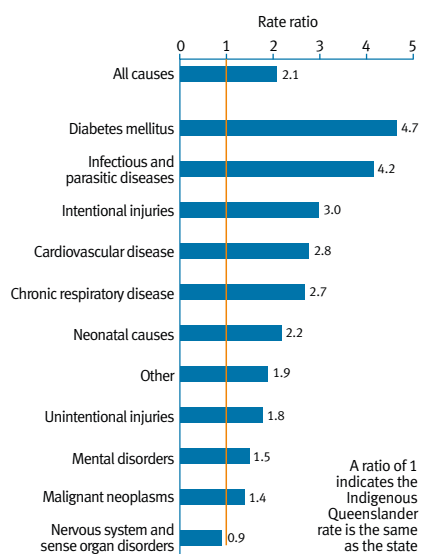
a. Broad causes, percentage of total burden



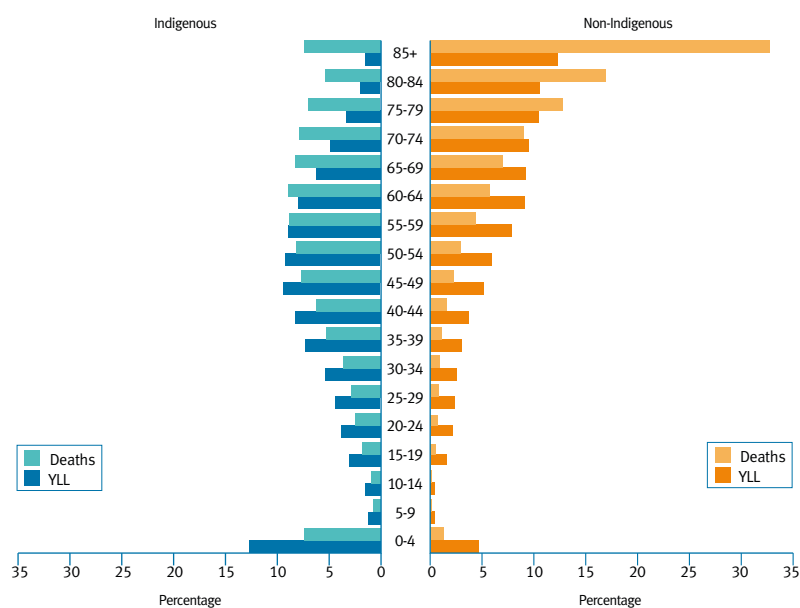
b. Burden (DALYs) by age and sex and Indigenous status



c. Indigenous Queenslanders to non-Indigenous burden, rate ratio by broad cause group



d. Distribution of fatal burden and deaths by age and sex and Indigenous status



All causes

This section reports on deaths, hospitalisations and GP visits. When a death is registered, the death certificate states the underlying cause as well as the associated or multiple causes. In fewer than 1 in 5 deaths in Australia in 2010 was there only one cause, and on average for each death, there were 3.2 causes.⁶⁹ In this section and throughout this report, the underlying cause is reported unless noted.² In 2011, about 50–55% of all deaths in Queensland occurred in hospital and varied from 60–70% of people aged 50 to 70 years to about 30–40% for those aged 90 years and older.⁵⁴ Of those who spent at least one night in hospital, death was preceded by 29 days in hospital on average over the six months prior to the death.⁵⁵ Older age at death did not alter the length of stay nor did it differ by Indigenous status.

Hospitals provide a range of services including admitted inpatient and outpatient care and emergency department care. The type of service provided varies by facility with, for example, the major public hospitals providing a wider range of services than rural hospitals and specialised facilities. Because of this variation, comparison of hospitalisation rates between areas such as HHSs has limits. Across the state about 50% of the expenditure on public hospital services is for admitted inpatients, 14% for outpatients, 13% for emergency department presentations, 8% for procedures and interventions, 7% for sub and non-acute patient admissions, and 7% for mental health admissions. Within this report, hospitalisation data refers to admitted inpatient data, generally only for Queensland residents and includes many of the admissions for procedures and interventions, sub and non-acute patients and mental health services. Projections are based on these groups of services excluding procedures and interventions, although there are limitations which are noted.³⁸ Data refers to public and private hospitals combined, unless otherwise stated. Hospitalisations are coded to the person's residence.

Deaths

- There were 26,922 deaths of Queenslanders due to all causes in Queensland in 2010 (14,138 males, 12,784 females), with the male rate 44% higher than the female rate. If the male rate were the same as the female rate there would have been 4472 fewer male deaths in 2010—a reduction of about one-third of all male deaths.
- The three largest broad causes of death were cardiovascular disease, cancer and respiratory conditions, together accounting for 70% of all deaths in 2010 (*Figure 10a*).

- The median age of death was 80 years (83 years for females, 77 years for males).
- The male death rate was higher than the female rate in all age groups, in the age group 25–34 years the male rate was 2.8 times the female rate.
- In 2009–2010, the death rate was (*Figure 10b*):
 - 31% higher in socioeconomically disadvantaged areas than advantaged areas
 - 55% higher in remote and very remote areas than in major cities
 - 60% higher for Indigenous Queenslanders than non-Indigenous (66% for males, 57% for females) and about 50% higher across all remoteness categories: the highest difference (72%) being in outer regional areas.
- Eight HHSs had higher death rates than the state and varied from 49% to 4% higher (*Figure 10c*). Three HHSs had lower rates than the state and varied from 4% to 16% lower.
- Between 2001 and 2010, the death rate decreased by 14% (1.6% per year), while the number of deaths increased by 19% (2% per year).
- The decrease in death rates for Indigenous Queenslanders was about double that for non-Indigenous—25% decrease (3.2% per year) compared to 11% decrease (1.2% per year) (*Figure 1a, page 2*).
- In 2010, the all-cause death rate in Queensland was 3% higher than the national rate and the fourth highest of the states and territories.² The median age of death in Queensland in 2011 was 1.2 years earlier than the national, with a widening gap in the previous decade from 0.5 years difference in 2002.⁴¹
- Australia was ranked second lowest among 33 OECD countries for all-cause deaths in 2009.⁷⁰ The Queensland rate was 14% higher than the best performing country, Japan and 17% lower than the OECD country average.

Premature deaths

- About one-third of all deaths were premature, that is, occurred before the age of 75 years—38% in 2010 (46% of male deaths, 30% of females).
- There were 10,302 premature deaths in 2010 and 63% were male (6448 males, 3854 females). The male rate was 67% higher than the female rate.
- About 1 in 4 premature deaths for males in 2010 were for coronary heart disease, lung cancer or suicide, and for females, lung cancer, breast cancer or coronary heart disease.

- In 2009–2010 the premature death rate:
 - was 74% higher in disadvantaged areas than in advantaged areas. If rates across Queensland were the same as those in advantaged areas, there would have been 2500 fewer premature deaths per year
 - was 2.4 times the major city rate in remote and very remote areas and about 20% higher in regional areas
 - for Indigenous Queenslanders (0–64 years) was 2.9 times the non-Indigenous rate (3.2 times for females and 2.8 times for males).
- The death rate for Indigenous Queenslanders (0–64 years) was higher than for non-Indigenous across all the remoteness categories—the highest difference was in remote and very remote areas, 3.3 times the non-Indigenous rate.
- Nine HHSs had higher premature death rates than the state and varied from 2.1 times the state in North West to 9% higher in West Moreton. Four HHSs had lower rates, from 4% lower in Metro South to 20% lower in Gold Coast (*Table 36b, page 167*).
- Between 2001 and 2010, the premature death rate decreased by 18% (2.1% per year), while the number of deaths increased by 10% (1% per year).

Hospitalisations

- There were 1.90 million hospitalisations for all causes in 2011–12, and 1.84 million were for Queensland residents. The female hospitalisation rate was 6% higher than the male rate, although when hospitalisations due to pregnancy were excluded, there was no difference.
- The median age of hospitalisation of Queensland residents was 57 years (61 years for males, 53 years for females) (*Figure 10d*).
- In 2011–12, admissions for investigations, examinations and procedures (described as factors influencing contact with the health system) was the leading broad cause of hospitalisation (28% of all hospitalisations), followed by digestive system diseases (10%). The next largest groups, each accounting for about 7% of hospitalisations, were admissions for symptoms, signs and abnormal findings, and admissions for injury, poisoning and other external causes (*Figure 10a*).
- For the two-year period 2010–11 to 2011–12, the all-cause hospitalisation rate:
 - was 10% higher in disadvantaged areas than advantaged areas
 - was 17% higher in remote and very remote areas than major cities
 - for Indigenous Queenslanders was 2.1 times the non-Indigenous rate (similar for males and females) and higher across all remoteness categories with a threefold difference in outer regional areas.

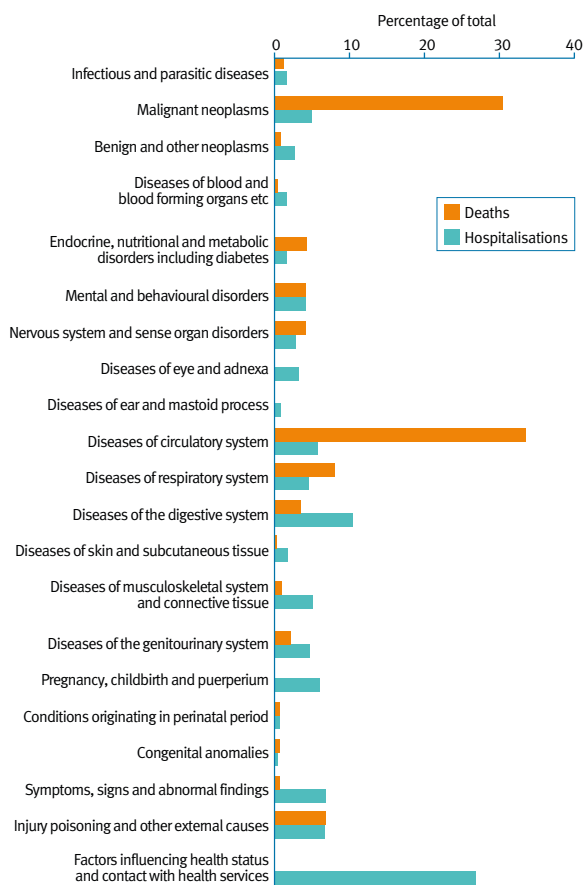
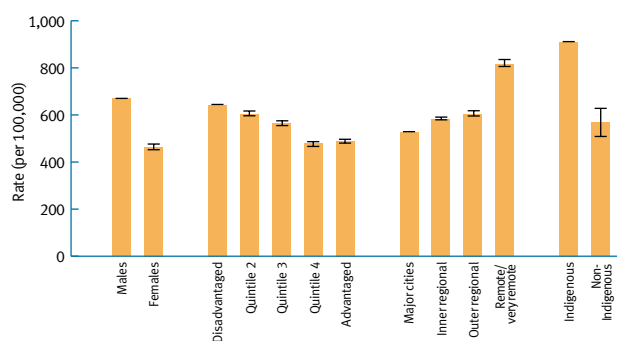
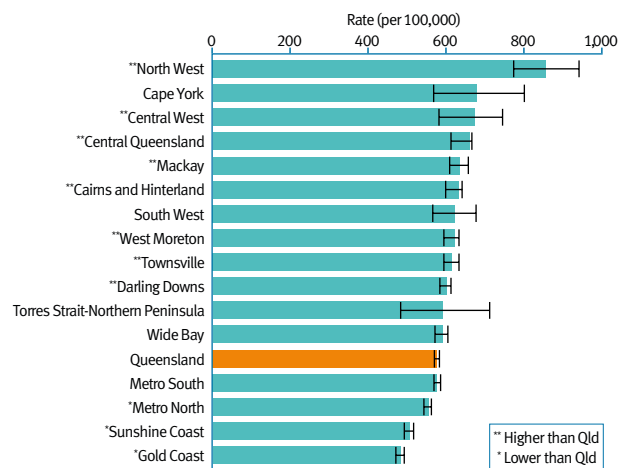
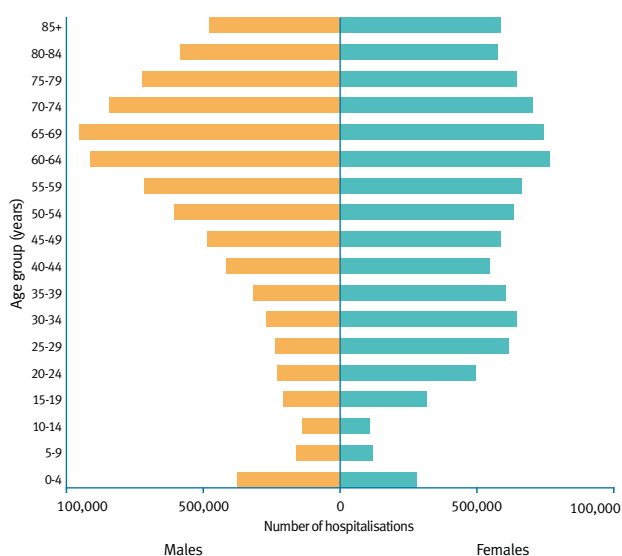
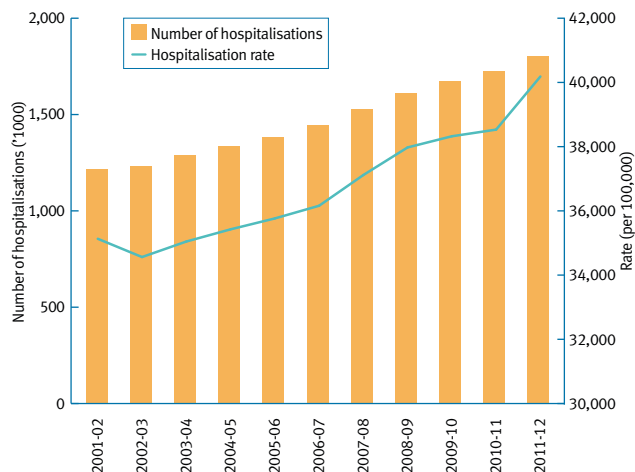
- The hospitalisation rate was higher than the Queensland rate for eight HHSs and lower for six, for the three-year period, from 2009–10 to 2011–12 (*Table 37, page 168*).
- The hospitalisation rate for overnight admissions in Queensland was 6% higher than national in 2012–13 and highest of the five jurisdictions with reported data. For same day hospitalisations the Queensland rate was 9% higher than national and second highest of five jurisdictions.⁷¹
- Between 2001–02 and 2011–12, there was a 16% increase in the hospitalisation rate (1.5% per year) while the number of hospitalisations increased by 51%, which is about 66,000 hospitalisations per year (4.2% per year) (*Figure 10e*).

GP visits

- In 2013, there were 21.66 million GP consultations in Queensland of which 57% were females (12.4 million for females, 9.3 million for males).⁷²
- On average, there were 4.6 visits per person (5.2 for females, 3.9 for males) and for those aged 75 years and older there were 11 visits per person.
- The Queensland rate was similar to the national rate and was fourth lowest rate among the jurisdictions in 2013.
- Between 2009 and 2013 the number of GP visits increased by 15%, while the rate increased by 5%, from 4.3 to 4.6 visits per person.

Projected hospitalisations

- The number of hospitalisations in Queensland public and private hospitals is projected to more than double between 2011–12 and 2031–32, from 1.9 million to 4.13 million—an increase of 111% or 3.8% per year or about 95,000 hospitalisations per year rising to about 128,000 per year.
- The proportion of hospitalisations for people aged 70 years and older is projected to increase from 28% to 42% in this 20-year period. The disease groups with greatest projected increase are renal dialysis (5.6% per year), non-acute (5.5%), non-subspecialty medicine (5.1%), immunology and infections (4.9%) and renal medicine (4.7%).
- The projected increase in hospitalisations over the 20 years is highest for West Moreton HHS (6.3% per year) and lowest for North West HHS (1.4% per year). The projected increase in West Moreton is driven by a combination of population growth, an ageing population and an increasing utilisation of hospital services.

Figure 10: Deaths and hospitalisations for all causes, selected indicators, Queensland
a. Deaths (2010) and hospitalisations (2011–12) by ICD chapter

b. Deaths by sociodemographic factors, 2009–2010

c. Deaths by HHSs, 2008–2010

d. Hospitalisations by age and sex, 2011–12

e. Trend in hospitalisations, 2001–02 to 2011–12


Chronic disease

Chronic diseases are the leading cause of death in Queensland and worldwide and their impact is steadily growing. They are characterised by complex causality, multiple risk factors, long latency periods, a prolonged course of illness and functional impairment or disability.⁷³ Many chronic diseases persist throughout life, but are not always the cause of death—arthritis for example. Some, such as heart attack and stroke, are life-threatening, while others such as diabetes are lifelong and can require intensive management.

Chronic disease commonly refers to heart disease, stroke, cancer and diabetes, but as there is not a single definition, measurements and reporting vary. Two definitions are used in this report: all non-communicable diseases and selected chronic conditions (Table 6). The specific disease groups included in these two categories are described in Table 7 and in the ICD codes listed in Table 39 on page 174.

Cardiovascular disease and cancer are the largest causes of chronic disease death regardless of definition, accounting for about 2 in 3 of these deaths (Table 7). For hospitalisations, however, admissions for investigations, examinations and procedures (described as factors influencing contact with the health system) were the largest single cause, accounting for 1 in 3 hospitalisations for non-communicable diseases. This category was not included in the definition of selected chronic diseases.

Deaths

- There were 24,079 deaths due to all non-communicable diseases in 2010 (89% of all deaths), of which 8490 were premature (35% of all non-communicable deaths) (Table 6).
- There were 23,181 deaths due to selected chronic conditions in 2010 (86% of all deaths), of which 8236 were premature (36% of all selected chronic condition deaths) (Table 6).
- The male non-communicable disease death rate was about 40% higher than the female rate with a similar difference for selected chronic conditions (Figure 11a).

- The non-communicable disease death rate increased with age with the highest number of deaths in persons 85 years and older (Figure 11b). As a proportion of all deaths, non-communicable diseases accounted for a relatively smaller proportion of deaths in children and young people, and a higher proportion in older people, increasing to over 95% by age 65–69 years (Figure 11c). Excluding infants aged 0–4 years, the lowest proportion was in the age group 15–24 years, due to the higher prevalence of injuries, which accounted for about 70% of deaths in this age group, noting that the total number of deaths of 15–24 year olds is relatively small (Figure 11b).
- The death rate for all non-communicable diseases in socioeconomically disadvantaged areas was 28% higher than the rate in advantaged areas with a similar difference for selected chronic conditions—resulting in about 2500 excess deaths per year in 2009–2010.
- Death rates in remote and very remote areas were about 40–50% higher than in major cities for all non-communicable diseases and selected chronic conditions.
- Among Indigenous Queenslanders, death rates for all non-communicable diseases and selected chronic conditions were about 50% higher than non-Indigenous rates in 2009–2010.
- The death rate for non-communicable diseases decreased by 13% between 2001 and 2010 (1.6% per year), while the number of deaths increased by 20% with a similar trend for selected chronic conditions.
- The proportion of deaths due to non-communicable diseases varied across HHSs in the three-year period 2008–2010, from 79% in Cape York to about 90% in HHSs in the south-east and coastal areas of Queensland (Figure 11d). The proportion of deaths due to injury was highest in Cape York and Torres Strait–Northern Peninsula and the proportion due to communicable, maternal and neonatal conditions was highest in Cape York. Death rates for non-communicable diseases and for selected chronic conditions varied from about 50% higher than the state rate in Mackay to about 15% lower in Gold Coast and Sunshine Coast.

Table 6: Non-communicable disease and selected chronic conditions, Queensland: summary facts

	All deaths 2010			Premature deaths 2010		Hospitalisations 2011–12			Allocated expenditure 2011–12	
	Number	% of total	Median age	Number	% of total	Number	% of total	Median age	*\$m estimated	%
All causes	26,922	100	80	10,302	100	1,843,946	100	57	15,973	100
Communicable, maternal and neonatal	1,025	4	77	493	5	203,345	11	28	1,312	9
Non-communicable diseases	24,079	89	81	8,490	82	1,521,480	83	61	12,645	83
Injuries	1,818	7	51	1,319	13	213,657	12	56	1,271	8
Selected chronic conditions	23,181	86	80	8,236	80	693,721	38	59	9,647	63

* Based on national allocation in 2008–09 adjusted for Queensland in 2011–12.

Chronic diseases caused about 80% of deaths, hospitalisations and recurrent allocated health expenditure.

Hospitalisations

- There were 1.5 million hospitalisations for all non-communicable diseases in 2011–12, 83% of all hospitalisations (*Table 6*). About 40% of the hospitalisations in this category were admissions not primarily associated with a disease group such as signs and symptoms, examinations, investigations and procedures (*Table 7*).
- For selected chronic diseases, there were about 0.7 million hospitalisations, 38% of all hospitalisations (*Table 6*).

Expenditure

In 2008–09 non-communicable diseases accounted for 83% of national recurrent allocated health expenditure and selected chronic diseases for 56%.⁷⁴ Based on the assumption that expenditure in Queensland would be about one-fifth of total national expenditure and the annual allocation would not change, non-communicable diseases were estimated to cost \$12.6 billion in 2011–12 in Queensland, and selected chronic diseases, \$9.6 billion (*Table 6*).

80% of premature deaths and 38% of hospitalisations are due to selected chronic diseases.

Causes and preventability

Chronic diseases have complex morbidities. About 3.5 million Queenslanders (77%) reported a long-term condition in 2011–12 and about 1.9 million (40%) reported three or more conditions.⁷⁵ This was similar to the Australian prevalence and has changed little over the past decade. Long-term conditions include chronic diseases such as heart disease, diabetes and cancer as well as less life threatening ones such as sight and skin problems. Treating and managing co-morbid conditions is challenging. Diabetes, for example, has multiple morbidities—the complications of diabetes are the largest cause of potentially preventable hospitalisations. Very few people who die of diabetes do so for this condition alone—less than 2% in 2010.² Coronary heart disease was reported in more than two-thirds of all diabetes deaths (70%), renal failure in about 1 in 3, stroke in 1 in 5 and heart failure in 1 in 5. In contrast, cancer was the sole cause of death for one-third of all cancer deaths because it has fewer co-morbid conditions.

Chronic diseases have multiple risks. The risk of cardiovascular disease is most strongly associated with high blood pressure, high cholesterol, obesity and diabetes. Not only do these particular factors increase the risk of disease, the more deadly effect is in combination. Those with such a profile have been described as ‘living dangerously’⁷⁶ or ‘generation risk’.⁷⁷ In 2011–12, 14% of Queensland adults had three of the four risks (based on biomedical and physical measurement) and this was similar to national prevalence.¹⁹ Fewer than 1 in 3 adults had no risk factors for cardiovascular disease. By self report, adults in socioeconomically disadvantaged areas of Queensland were about twice as likely as those in advantaged areas to be at high risk of cardiovascular disease, after adjusting for age differences. The clustering of risk factors is further described in *Chapter 4, page 74*.

Challenges and opportunities

The number of people with chronic diseases is likely to rise as the population ages, as will the number with multiple long-term conditions. This will have a significant impact on health and welfare expenditure. Multi-morbidity is more common among disadvantaged populations than advantaged and there is evidence that the number of conditions can be a greater determinant of a patient’s use of health service resources than the specific diseases.⁷⁸

Managing, treating and preventing these multi-morbidities will be a challenge.^{79,80} The clustering of risk factors may however, provide opportunities for management of risk across the population. For example, gains that have been achieved in management of blood pressure and cholesterol over recent decades in Australia may be helping to mitigate the cardiovascular effects of the obesity epidemic.⁸¹

Figure 11: Non-communicable and selected chronic diseases, selected indicators, Queensland, 2008–2010

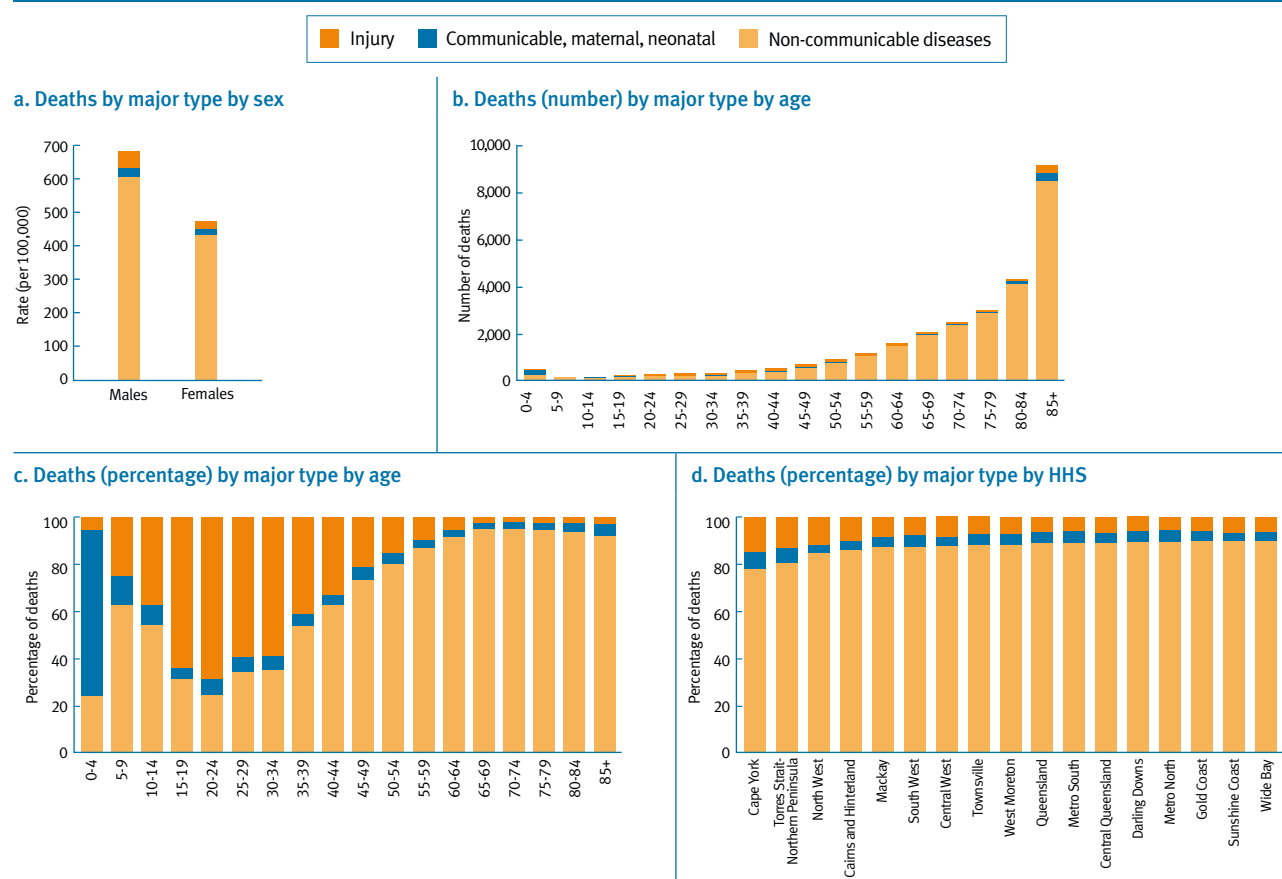


Table 7: Non-communicable diseases and selected chronic conditions, Queensland: deaths and hospitalisations

Disease group name	ICD Chapter	Deaths 2010		Hospitalisations 2011–12	
		No.	% in category	No.	% in category
Non-communicable diseases	Malignant neoplasms	8,180	34	86,971	6
	Benign and other neoplasms	191	1	46,238	3
	Diseases of blood and blood forming organs etc	74	0	30,221	2
	Endocrine, nutritional and metabolic disorders including diabetes	1,061	4	24,770	2
	Mental and behavioural disorders	1,151	5	76,552	5
	Nervous system and sense organ disorders	1,041	4	52,292	3
	Diseases of eye and adnexa	n/a	n/a	61,070	4
	Diseases of ear and mastoid process	n/a	n/a	12,065	1
	Diseases of circulatory system	8,602	36	103,949	7
	Diseases of respiratory system – chronic respiratory	1,788	7	30,039	2
	Diseases of the digestive system	970	4	183,971	12
	Diseases of skin and subcutaneous tissue	59	0	30,599	2
	Diseases of musculoskeletal system and connective tissue	234	1	88,939	6
	Diseases of the genitourinary system	569	2	84,315	6
	Symptoms, signs and abnormal findings	194	1	124,271	8
	Factors influencing health status and contact with health services		0	485,218	32
	Sub total	24,114	100	1,521,480	100
Communicable, maternal and neonatal conditions	Infectious and parasitic diseases	304	31	28,938	14
	Diseases of respiratory system – acute respiratory	392	40	50,039	25
	Pregnancy, childbirth and puerperium	n/a	n/a	106,274	52
	Conditions originating in perinatal period	157	16	11,715	6
	Congenital anomalies	134	14	6,379	3
	Sub total	987	100	203,345	100
Injury	Injury poisoning and other external causes	1,818	100	119,121	100
	Sub total	1,818	100	119,121	100
Selected chronic conditions	Malignant neoplasms	8,180	35	86,971	13
	Endocrine, nutritional and metabolic disorders including diabetes	1,061	5	24,770	4
	Mental and behavioural disorders	1,151	5	76,552	11
	Nervous system and sense organ disorders	1,041	4	52,292	8
	Diseases of circulatory system	8,602	37	103,949	15
	Diseases of respiratory system – chronic respiratory	1,788	8	30,039	4
	Diseases of the digestive system	970	4	183,971	27
	Diseases of musculoskeletal system and connective tissue	234	1	88,939	13
	Sub total	23,218	100	693,721	100
All causes		26,922		1,843,946	

n/a Not reportable Note: Sub totals do not match Table 6 exactly due to variation in disease classification and rounding.

Avoidable deaths

The majority of premature deaths in Queensland were avoidable. In 2010, 38% of all deaths in Queensland were premature (death in a person under 75 years of age) and two-thirds of these were potentially avoidable. Avoidable deaths are those premature deaths that were treatable or preventable. These are national indicators and used to monitor government services⁸²⁻⁸⁴, and are defined on [page 174](#). Of all deaths in 2010, 26% or 1 in 4 was avoidable where 16% were preventable and 10% were treatable.

Prevalence

- There were 26,922 deaths in Queensland in 2010, and 10,302 were premature (38%).
- Of the premature deaths, 68% or 7048 were avoidable (*Figure 12a*).
- Of the avoidable deaths, 62% or 4398 were preventable and 38% or 2650 were treatable.
- Thus of all deaths, about 3 in 10 were avoidable, 2 through prevention and 1 through treatment.

Trend

- Greater gains are being made in reducing the treatable death rate than the preventable death rate. Between 2001 and 2010, the treatable death rate decreased by 3.4% per year while the preventable death rate decreased by 2.2% per year, with the avoidable death rate decreasing by 2.7% per year (22% overall) (*Figure 12b*). The avoidable death rate decline over the past decade was greater than the all-cause death rate decline, 2.7% per year compared with 1.6%.

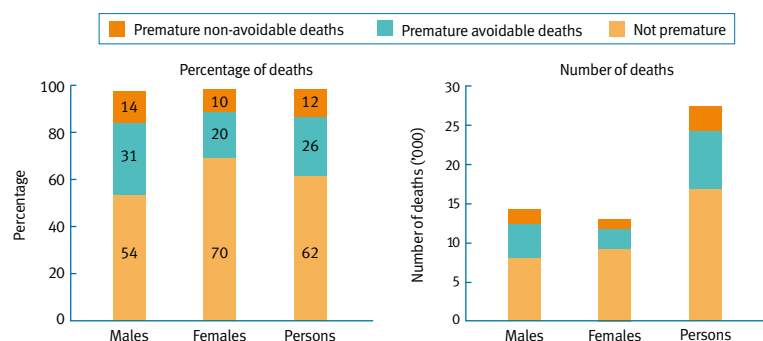
Differentials

- A greater proportion of male deaths were premature, 46% compared with 30% of female deaths in 2010, and a greater proportion of male deaths were avoidable, 31% compared with 20% of females (*Figure 12a*). The male avoidable death rate was 71% higher than the female rate.
- For males, 3 in 10 of all deaths in 2010 could have been avoided: 2 through prevention (21%) and 1 through treatment (10%).
- For females, 2 in 10 of all deaths in 2010 could have been avoided: 1 through prevention (11%) and 1 through treatment (9%).
- The male preventable death rate was 2.2 times the female rate. The male treatable death rate was 19% higher.

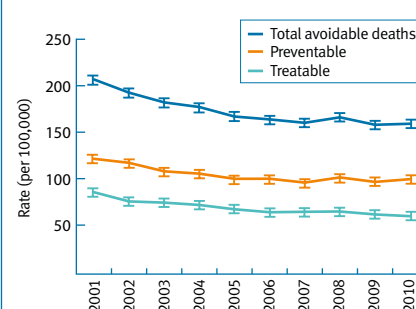
- The rate of avoidable death increased steadily with age from the thirties to forties onwards (*Figure 12c*). Avoidable deaths that occur in young adults are more often associated with preventable causes than treatable, while for infants and older age groups, avoidable deaths more frequently had a treatable cause.
- The avoidable death rate in disadvantaged areas was 90% higher than advantaged areas. The main reason for this difference was associated with preventable deaths (disadvantaged rates were double), rather than treatable (about 60% higher) (*Figure 12d*). This rate difference represented 2000 avoidable deaths per year due to socioeconomic disadvantage, that is, 29% of all avoidable deaths.
- The death rate in remote and very remote areas was 2.5 times the major city rate and this was similar for preventable deaths (2.6 times) and treatable deaths (2.4 times) (*Figure 12e*).
- There were 370 avoidable deaths of Indigenous Queenslanders per year on average in 2009–2010, and the death rate was 2.9 times the non-Indigenous rate—3.2 times for treatable conditions and 2.8 times for preventable conditions (*Figure 12f*).
- Avoidable death rates varied markedly in HHSs (*Figure 12g*). In 2008–2010, the rates in North West and Torres Strait–Northern Peninsula were double the state rate and in Sunshine Coast and Gold Coast they were about 20% lower.
- Although the difference in rates of avoidable deaths in HHSs was due to both preventable and treatable causes, compared to the state, a greater proportion of the excess in Torres Strait–Northern Peninsula was associated with treatable deaths (*Figure 12g*).
- The avoidable death rate in Queensland was on average about 7% higher than the national rate in the three years up to 2011 which is a comparative excess of 400 deaths in Queensland.⁸³ The treatable death rate difference was on average higher than the preventable rate difference, 8% compared with 5%. In 2011, the Queensland avoidable death rate was second highest among the jurisdictions after Northern Territory—for preventable deaths third highest after Northern Territory and Tasmania and for treatable deaths third highest after Northern Territory with Tasmania and NSW equal second highest.

Figure 12: Avoidable deaths, selected indicators, Queensland

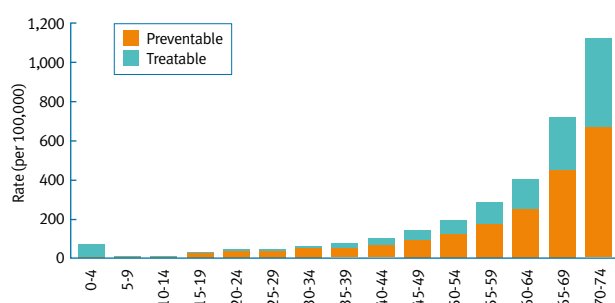
a. All deaths (premature and avoidable) by sex, 2010



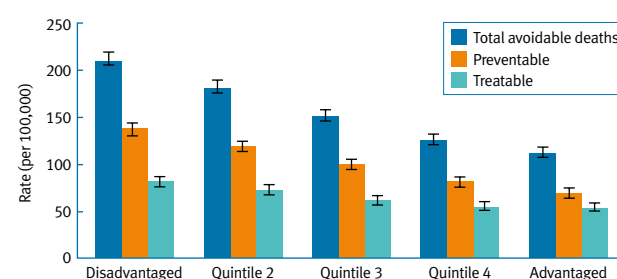
b. Trend in avoidable deaths



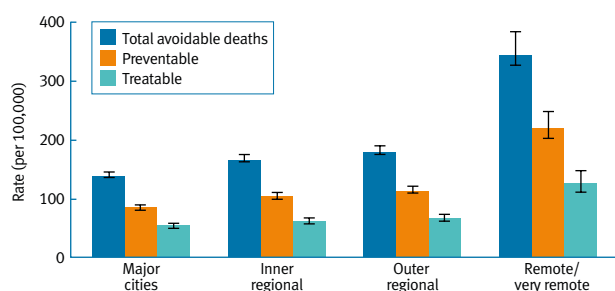
c. Age group, 2010



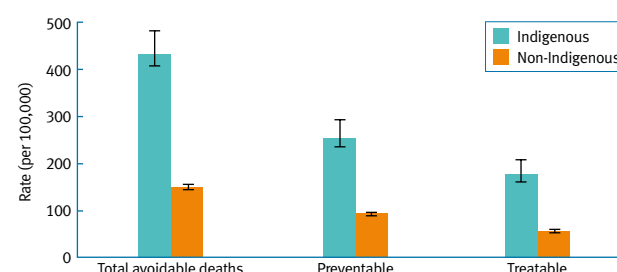
d. Socioeconomic status, 2009–2010



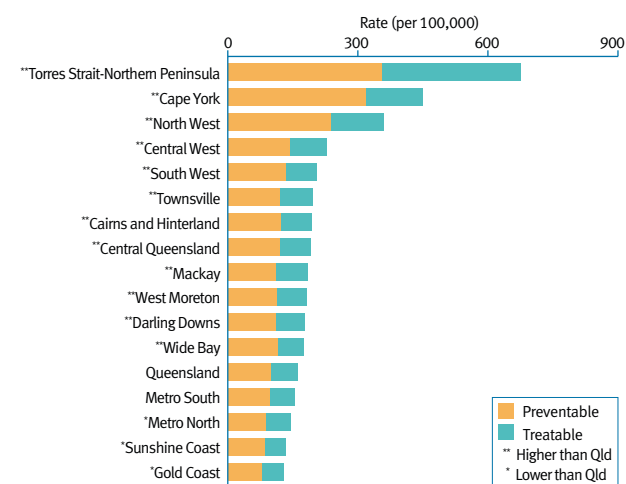
e. Remoteness, 2009–2010



f. Indigenous status, 2009–2010



g. Preventable and treatable deaths by HHS, 2008–2010



*3 in 10 male deaths and
2 in 10 female deaths
were avoidable—more than
half through prevention.*

Potentially preventable hospitalisations

Potentially preventable hospitalisations (PPHs) are conditions where hospitalisation could have been avoided if timely and adequate non-hospital care had been provided. They do not include those hospitalisations that could have been avoided if the disease or condition had been prevented in the first place such as coronary heart disease or lung cancer. PPH is a nationally defined indicator and used to monitor health system progress.^{83,85,86}

Prevalence

- In Queensland in 2011–12, there were 139,990 PPHs—7.6% of all hospitalisations.
- Acute conditions were responsible for 50% of all PPHs, chronic conditions 47%, and vaccine preventable conditions 3% (*Figure 13a*).
- Diabetes complications were the largest specific cause accounting for 14% of all PPHs in 2011–12.
- One in 10 PPHs was due to dental conditions—9% of total—and varied from 45% in 5–9 year olds to 20% in 10–14 year olds, with about 15% in infants aged 0–4 years and teenagers and young adults (15–29 year olds).

The proportion of PPHs in Queensland (7.6%) was similar to the national proportion (7.3%) in 2011–12.⁸⁷ The PPH rate was however 8% higher than the national rate—10% higher for chronic conditions and 6% higher for acute conditions.⁸³ Queensland was second highest of the jurisdictions (*Figure 13b*).

Trend

Due to changes in coding standards for diabetes related conditions in 2008 and again in 2010⁸⁸, data since then is not comparable with previous years.

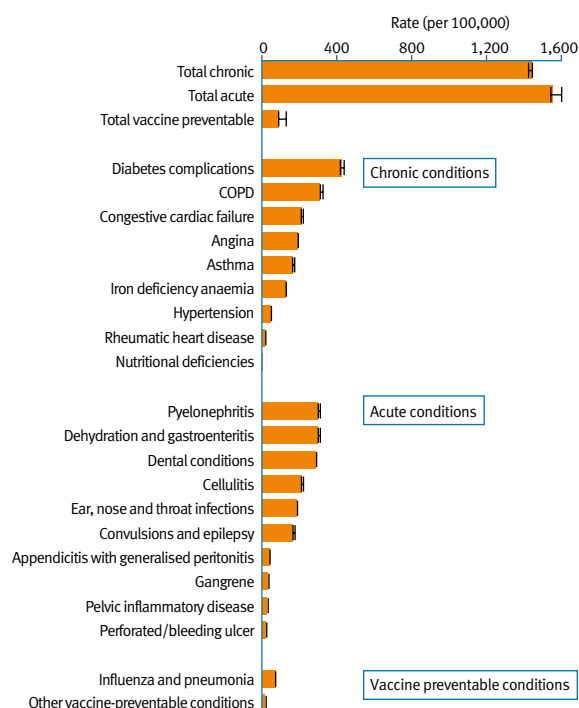
Differentials

- The male PPH rate was 5% higher than the female rate in 2011–12.
- There is a small peak in PPHs in early childhood, with about 1 in 7 or 13% of PPHs for young children (0–9 years) (*Figure 13c*). Acute conditions were the leading cause in this age group, with dental conditions (26%), ear, nose and throat infections (23%) and asthma (17%) the most prevalent.
- With age there is a dramatic increase in rates with about 4 in 10 (41%) of PPHs for those aged 65 years and older (*Figure 13c*). In older age groups, chronic conditions were the leading cause, with COPD the most prevalent (18% of PPHs in this age group), followed by diabetes complications (16%) and congestive cardiac failure (15%).
- In the two-year period 2010–11 to 2011–12 (*Figure 13d*):
 - The PPH rate increased with increasing disadvantage. The rate in the most disadvantaged areas was 69% higher than the most advantaged areas. Socioeconomic disadvantage represented about 29,000 excess hospitalisations per year in Queensland (22% of all PPHs).
 - The PPH rate was lowest in major cities. The rate in remote and very remote areas was more than twice that of major cities. Higher rates outside major cities represented about 11,000 excess hospitalisations per year, 8% of all PPHs.
 - There were about 8500 PPHs for Indigenous Queenslanders and the rate was 2.8 times the non-Indigenous rate.
- There were many HHSs with higher PPH rates than the Queensland average (*Figure 13e*). Rates in Cape York, Torres Strait–Northern Peninsula and North West were highest of all HHSs—at least double the Queensland rate—equating to about 1800 excess hospitalisations in these three HHSs alone (*Figure 13f*). In contrast, PPH rates in Gold Coast, Sunshine Coast, Metro North and Metro South were lower than the Queensland rate resulting in about 7600 fewer hospitalisations than there would otherwise have been.

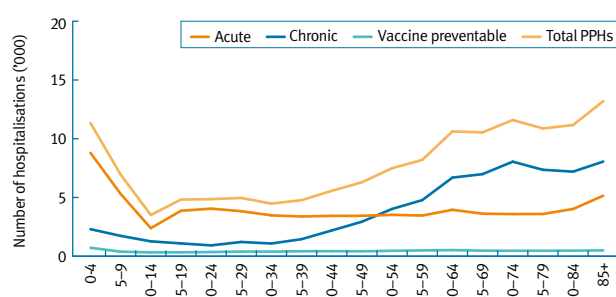
PPH rates in disadvantaged areas were about 70% higher than in advantaged areas.

Figure 13: Potentially preventable hospitalisations, selected indicators, Queensland

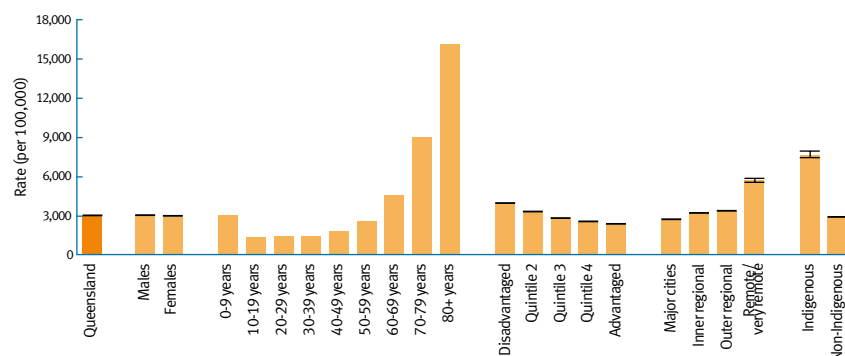
a. PPHs by category, 2011–12

b. Australia by jurisdiction, 2009–10⁸³

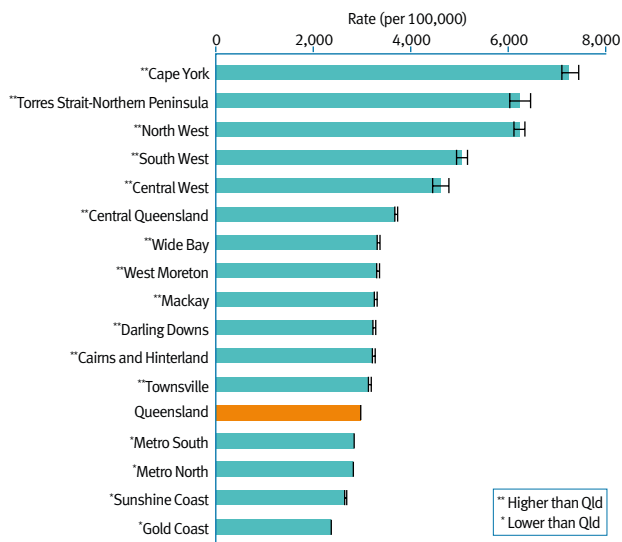
c. Age by category, 2011–12



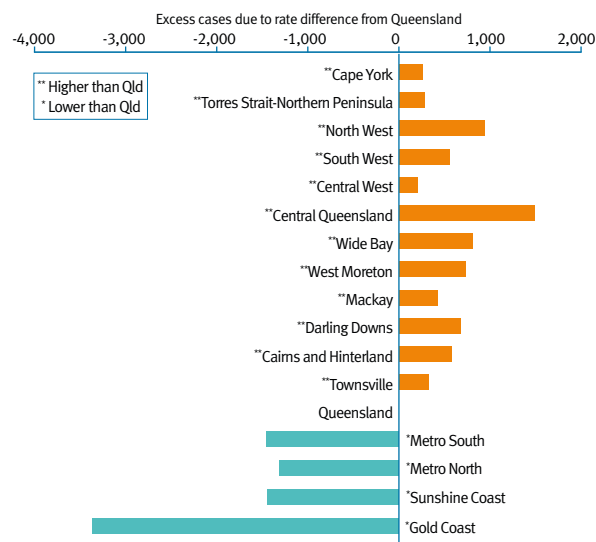
d. Sociodemographic factors, 2010–11 to 2011–12



e. HHS, 2009–10 to 2011–12



f. Impact of rate difference on cases by HHS, 2009–10 to 2011–12



Cancer

In 2010, cancer was the leading broad cause of premature death in Queensland and second largest cause of death. It has been a national health priority in Australia since 1996.⁸⁹ It was the largest cause of disease burden in 2007 at 19% of total⁹⁰, where 35% was attributed to modifiable risks (36% of cancer deaths were due to the joint effect of modifiable risks).⁴⁰ In 2007, 1 in 4 cancer deaths was due to smoking. This section discusses the incidence and death differentials for all cancers and for six commonly diagnosed cancers including those that are potentially preventable.

All cancers

There were 24,461 new cases of cancers diagnosed in 2011, with a disproportionate number of males—57% or 14,039 male cases and 10,422 females (*Table 8*). The male all cancer incidence rate was 45% higher than the female rate. In 2011, the median age of cancer diagnosis was 66 years and the median age of death was 73 years. For males, the most common cancers were prostate, melanoma, colorectal and lung, together accounting for 63% of all male cancer cases in 2011. For females, the most common cancers were breast, melanoma, colorectal and lung, together accounting for 61% of all female cancer cases. Between 2001 and 2010, the number of new cases increased by 37% (3% per year), while the rate increased by 3% indicating that population growth and ageing were driving the increase in cases (*Figure 14a,b*).²³

There were 63,861 hospitalisations due to cancers in 2011–12 where 58% were male (36,928 male, 26,933 female). Although there was a 30% increase in the number of cancer related hospitalisations between 2001–02 and 2011–12, the rate decreased by 4%.

In 2010, there were 8057 deaths from cancer and 59% were males (4719 males, 3338 females) (*Table 8*). The male rate was 67% higher than the female rate. Cancer was the second most common cause of death, accounting for 30% of all deaths in Queensland in 2010, 33% for males and 26% for females. It was the largest cause of premature death accounting for 42% of all premature deaths in 2010. Lung, prostate, colorectal and melanoma cancers accounted for 50% of all male cancer deaths. For females, cancer of lung, breast and colorectal and melanoma were responsible for 47% of all female cancer deaths. Between 2001 and 2010, there was a 25% increase in the number of deaths due to cancer (2.5% per year) with no change in rate. However the premature death rate due to cancer decreased by 15% over this period (1.8% per year). The all-cancer five-year relative survival rate was 69% in 2007–2011, that is nearly 7 in 10 people diagnosed with cancer survived for at least five years after diagnosis compared to those without cancer. Gains have been made, with a 27% increase in the relative survival rate since 1982–1989, when 53% or 5 in 10 people survived for five years (*Figure 14c*).

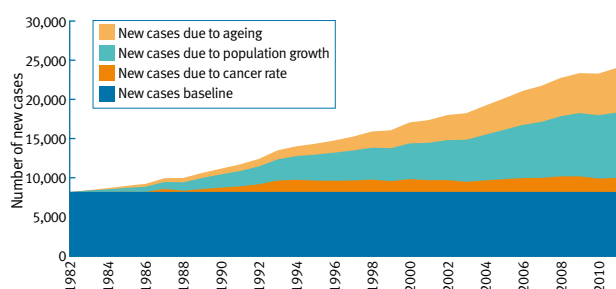
Table 8: All cancer and selected cancers, Queensland: summary facts

		Number of new cases*	Number of deaths**	% 5-year relative survival***	Median age at diagnosis	Median age at death	Lifetime risk of diagnosis	Lifetime risk of death	% of deaths that are premature
All cancers	Males	14,039	4,719	67	67	73	1 in 2	1 in 5	53
	Females	10,422	3,338	71	64	73	1 in 3	1 in 9	52
	Persons	24,461	8,057	69	66	73	1 in 2	1 in 7	53
Prostate	Males	3,989	681	92	67	80	1 in 6	1 in 44	27
Melanoma	Males	1,923	231	91	63	71	1 in 12	1 in 101	55
	Females	1,368	131	95	58	67	1 in 20	1 in 216	66
	Persons	3,291	362	93	62	70	1 in 16	1 in 139	59
Breast	Females	2,897	492	90	61	68	1 in 9	1 in 57	64
Colorectal	Males	1,671	430	67	70	73	1 in 13	1 in 40	58
	Females	1,279	354	68	72	75	1 in 19	1 in 66	47
	Persons	2,950	784	68	71	74	1 in 15	1 in 50	53
Lung	Males	1,305	1,008	13	70	71	1 in 16	1 in 21	61
	Females	790	607	18	68	71	1 in 27	1 in 35	60
	Persons	2,095	1,615	15	70	71	1 in 20	1 in 26	61
Cervical	Females	173	46	75	45	62	1 in 142	1 in 516	78

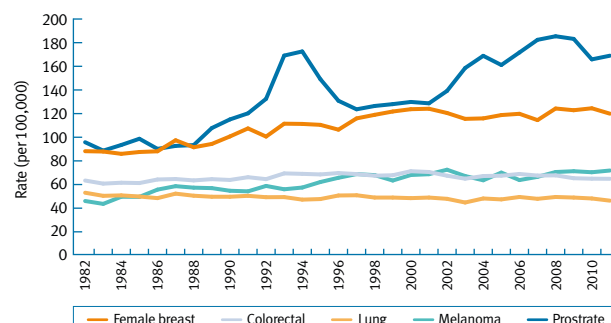
*2011 **2010 ***2007–2011

Figure 14: All cancers and selected individual cancer indicators, Queensland

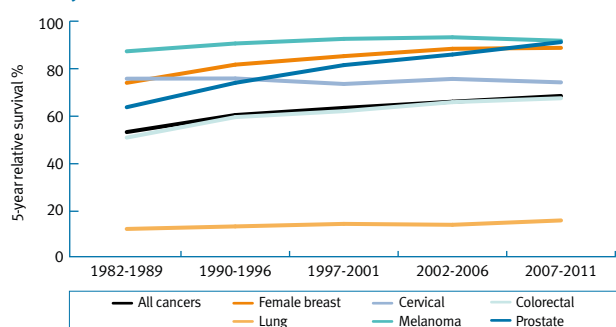
a. All cancer incidence trends, by contributing factors



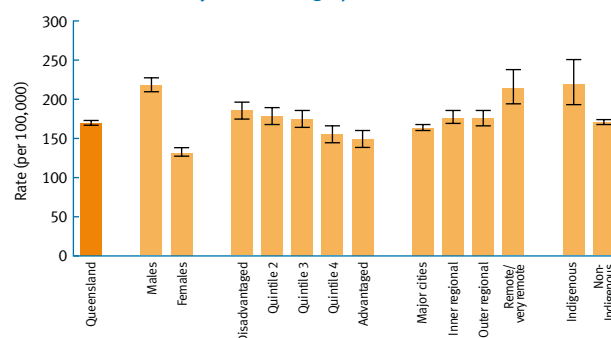
b. Trend in incidence of selected cancers



c. Five-year relative survival



d. All-cancer deaths by sociodemographic factors 2009–2010



Prostate cancer

- Prostate cancer was the most common cancer diagnosed in males and accounted for 28% of all male cancer cases in 2011, and 14% of all male cancer deaths in 2010 (*Table 8*).
- Between 2002 and 2011, the incidence rate increased by 20% (1.8% per year) while the number of new cases increased by 81% (6.1% per year).
- The prostate cancer death rate decreased by 10% between 2001 and 2010 (1.1% per year), while the number of deaths increased by 29% (2.8% per year).
- The five-year relative survival rate increased from 64% in the period 1982–1989 to 92% in 2007–2011.

Female breast cancer

- Breast cancer was the most common cancer in females and accounted for 28% of all female cancer cases in 2011 and 15% of all female cancer deaths in 2010 (*Table 8*).
- Between 2002 and 2011, there was a 5% increase in the incidence rate (0.5% per year) with a 34% increase in the number of new cases (3.0% per year).
- The death rate decreased by 19% (2.3% per year) between 2001 and 2010 while the number of deaths was unchanged.
- The five-year relative survival rate increased from 74% in the period 1982–1989 to 90% in 2007–2011.

Colorectal cancer

- Colorectal cancer was the third most common cancer diagnosed and accounted for 12% of all cancers in 2011 and 10% of all cancer deaths in 2010 (*Table 8*).
- The male incidence and death rates were higher than female rates—46% and 45% respectively.
- The incidence rate decreased by 5% (0.5% per year) between 2002 and 2011, while the number of new cases increased by 25% (2.3% per year).
- There was a 31% decrease in the death rate between 2001 and 2010 (4.0% per year) with no change in the number of deaths per year. Female rate decline (33%) was greater than for males (29%).
- The five-year relative survival rate increased from 51% in 1982–1989 to 67% in 2007–2011.

Melanoma and other skin cancers

- There are three main types of skin cancer: melanoma and the two non-melanoma skin cancers (NMSC), basal cell carcinoma and squamous cell carcinoma.
- Queensland has the highest rate of melanoma in Australia²³, and Australia and New Zealand the highest rates in the world in 2008.⁹¹⁻⁹³
- Melanoma was the second most common cancer diagnosed in 2011, accounting for 13% of all new cases (*Table 8*).
- The male melanoma incidence and death rates were higher than female rates—48% and 2.1 times respectively.

- Between 2002 and 2011, the incidence rate increased by 5% (8% for males and 2% for females), while the number of new cases diagnosed increased by 36% (3.1% per year). However, in young people the incidence rate has declined—for those aged 15–29 years by 38% over the 10 years (3.3% per year) (*Figure 1b, page 2*) 24—also discussed on *page 126*.
- The female melanoma death rate increased by 37% (3.6% per year) between 2001 and 2010, although there was no change in the rate for persons or males. During this period the number of melanoma deaths increased by 61% (52% for males, 81% for females).
- The five-year relative survival rate increased from 88% in 1982–1989 to 93% in 2007–2011.
- In 2012, 6% or about 200,000 adults in Queensland reported having ever been diagnosed with NMSC, with another 1.5% unsure about their skin cancer type.⁹⁴

Lung cancer

- Lung cancer accounted for 9% of all new cases diagnosed in 2011 and was the most common cause of cancer death in 2010, accounting for 20% of all cancer deaths (*Table 8*).
- The male incidence and death rates were higher than female rates—85% and 86% respectively.
- For males, there was an 8% decline (0.8% per year) in the incidence rate between 2002 and 2011 while for females the rate increased by 18% (1.7% per year). During this period, the number of cases increased by 24% (2.2% per year) for males and 56% (4.5% per year) for females.
- The death rate for males decreased by 16% per year between 2001 and 2010, with no rate change for females or persons. The number of lung cancer deaths increased by 26% in this period, (2.6% per year), 45% for females and 16% for males.
- The five-year relative survival rate for lung cancer increased from 11% in 1982–1989 to 15% in 2007–2011.

Cervical cancer

- Cervical cancer accounted for 2% of all new female cancer cases in 2011 and 1% of deaths in 2010 (*Table 8*).
- The median age of diagnosis was 45 years in 2011, substantially lower than other selected cancers, and the median age of death was 61 years in 2010.
- The incidence rate did not change between 2002 and 2011, while the number of new cases diagnosed increased by 10%.
- There was no change in the cervical cancer death rate between 2001 and 2010.
- There was no change in the five-year relative survival rate between 1982–1989 and 2007–2011.

Socioeconomic disadvantage

- The all-cancer incidence rate did not differ between advantaged and disadvantaged areas in 2010–2011. However, compared to advantaged areas, incidence rates for:
 - lung cancer were higher in all other areas, from 72% higher to more than double
 - colorectal cancer were higher in all other areas, from 26% to 94% higher
 - female breast cancer was 17% lower in disadvantaged areas.
 - melanoma was about 22% lower in disadvantaged areas.
- The all-cancer death rate in disadvantaged areas was 24% higher than the rate in advantaged areas in 2009–2010 (*Figure 14d*), with lung cancer the major cause—the death rate was 48% higher in disadvantaged areas than advantaged areas. There was no difference in rates of other cancers by areas of socioeconomic advantage and disadvantage.

*1 in 4 cancer deaths
was due to smoking.*

Remoteness and regions

- In 2010–2011, the all-cancer incidence rate for major cities and regional areas was about 14% higher than remote and very remote areas. Compared to major cities, incidence rates for:
 - lung cancer were 46% higher in remote and very remote areas
 - melanoma were 53% lower in remote and very remote areas
 - colorectal cancer were 27% lower in remote and very remote areas
 - breast cancer were 12% lower in outer regional areas.
- There was some variation in incidence rates in HHSs, although reporting for cervical cancer, and some HHSs (Cape York, Central West and North West for other cancers), was limited by insufficient case numbers for rate calculation. Regional variation occurs for diverse and complex reasons including exposure to environmental factors, socioeconomic status, access to health services including screening services, and chance. Recognising these caveats, in 2009–2011 the incidence rates for:
 - prostate cancer were 16% higher in Wide Bay, 14% higher in Mackay, 17% lower in Cairns and Hinterland and 10% lower in Metro South
 - female breast cancer were 16% lower in Townsville and 14% lower in Mackay
 - melanoma were 12% higher in Darling Downs, 11% higher in Metro North, and 21% lower in Central Queensland
 - colorectal cancer were 13% higher in Cairns and Hinterland
 - lung cancer were 17% higher in Central Queensland and 14% higher Wide Bay, 15% lower in Darling Downs and 13% lower in Gold Coast.
- The all-cancer death rate was 31% higher for remote and very remote areas than for major cities in 2010–2011 (*Figure 14d*), with lung cancer the major cause—rates were 42% higher in remote and very remote areas.
- Two HHSs had higher all-cancer death rates, 56% and 10% higher than Queensland in 2008–2010, and two were lower, 6% and 12% lower (*Table 36, page 166*).

Indigenous status

- There were 319 new cases of cancer diagnosed per year for Indigenous Queenslanders in 2010–2011, of which 52% were females (165 females, 154 male). The incidence rate for Indigenous Queenslanders was 11% higher than the non-Indigenous rate. For prostate cancer, it was 37% lower with no difference for other selected cancers.
- There were 125 cancer deaths per year for Indigenous Queenslanders in 2009–2010 (68 males, 57 female). The Indigenous Queensland death rate was 29% higher than the non-Indigenous rate—in major cities 64% higher (*Figure 14d*). For Indigenous Queenslanders the lung cancer death rate was 1.8 times the non-Indigenous rate, and there was no difference for other selected cancers.

National and OECD

- The all-cancer incidence rate for Queensland was 6% higher than the national rate in 2004–2008 and highest among the jurisdictions.⁹³ Higher rates of melanoma in Queensland explain this difference.
- The all-cancer death rate for Queensland was similar to the national rate in 2006–2010, with Queensland ranked fourth among the jurisdictions after Northern Territory, Tasmania and South Australia. However, Queensland had the highest rates of melanoma and prostate cancer deaths among the jurisdictions with the rates 34% and 13% higher than national respectively in 2010.²
- Australia was ranked tenth lowest among the 33 OECD countries for cancer death rates in 2009.⁷⁰ The Queensland rate was 72% higher than the best performing country, Mexico and 3% lower than the OECD country average.

Expenditure

The healthcare cost associated with cancer in Queensland was estimated at \$1.2 billion in 2011–12 making it the sixth largest cause of healthcare expenditure (*Table 3, page 17*).⁵³ This represented 7% of total health system expenditure on selected chronic diseases. Expenditure on hospital admitted patient services accounted for 79% of cancer expenditure nationally in 2008–09. The health and residential aged care expenditure for cancer was projected to increase nearly threefold, from \$3.49 billion in 2002–03 to \$10.11 billion in 2032–33 (*Figure 8, page 17*).¹⁸ More than half of the projected increase is associated with extra volume of services per case of cancer (56%) followed by ageing of the population (37%).

Between 2000–01 and 2008–09, expenditure on cancer increased nationally by 55%.⁵³ The total health system expenditure for males was 20% higher than for females (\$2.5 billion nationally for males, \$2.1 billion for females).

Causes and preventability

While there are a number of known chemical, physical and biological agents that trigger mistakes in the cell blueprint that cause cancer, not all the causes of cancer are fully known, or understood. Carcinogens include tobacco, ultraviolet radiation and asbestos. Infectious agents such as human papillomavirus (HPV) are associated with the development of some cancers, such as cervical cancer. A small proportion (5–10%) of cancers result from inherited faulty genes.⁹⁵ However, not all cancers are associated with risk factors—cancer can sometimes develop without any specific known cause. The largest non-modifiable risk factor for cancer is age. Although some cancers affect quite young children, the risk of a cancer diagnosis increases markedly with age, particularly from 50 years onwards.

Risk for some cancers is associated with lifestyle related behaviours and outcomes such as diet, physical inactivity and obesity. One-third (35%) of the total burden of cancer in Queensland in 2007 was due to 10 preventable risk factors, and one-fifth (21%) of total cancer burden was due to tobacco smoking alone.⁴⁰ One in 4 (25%) of all cancers and 30% of colorectal cancer in Australia is potentially preventable through improvement in diet and physical activity.⁹⁶ Exposure to ultraviolet radiation

is the principal cause of melanoma and other skin cancers (86% and about 90% respectively).^{97,98} Queensland has the highest rates of melanoma in the nation and one of the highest globally. Yet despite the high potential for prevention more than half of Queensland adults reported being sunburnt in the previous year, and less than 10% reported practicing the recommended five sun protection behaviours in summer or winter (*page 125*).⁹⁴

Screening plays a vital role in the early detection of some existing cancers and detection of cell abnormalities that may lead to invasive cancer. In Australia, population based screening programs are available for cancers of the breast, bowel and cervix. Increasing screening rates in eligible age groups, especially in those with low uptake, will reduce the burden of cancers detectable by screen. Details of cancer screening are described in Chapter 4.

Five-year survival has improved in the past 20 years from 5 in 10, to 7 in 10.

Challenges and opportunities

The immediate challenge of cancer is the impact of the growing burden on the health system. Although many cancer death rates are either stabilising or decreasing, the number of new cancers diagnosed is increasing, largely due to population growth and ageing.⁹⁹ Between 1982 and 2010, the number of new cases diagnosed in Queensland increased threefold and further growth is projected—a 40% increase between 2007 and 2020.

Much has been achieved in cancer survival with declining death rates evident for lung cancer (males only), prostate, breast, colorectal and some other cancers. The premature death rate due to all cancers has decreased markedly and led to longer, healthier lives for Queenslanders.

In particular, the melanoma incidence rate in young people has decreased. However, more can be done to address the preventable cancer burden through lifestyle change.¹⁰⁰ For example, melanoma incidence rates continue to increase as do female lung cancer deaths.²³ Building on success in smoking reduction and improved sun safety will help to reduce the incidence of these cancers as will improved diet and increased physical activity. An integrated and coordinated approach through education and prevention, awareness, early detection through screening and high quality treatment and care would significantly reduce the burden of cancer in Queensland.

Cardiovascular disease

Cardiovascular disease (CVD) is the largest cause of death in Queensland and the largest cause of health system expenditure. It has been a national priority in Australia since 1996.⁸⁹ It is highly preventable with about 67% of CVD deaths in Queensland due to the joint effect of modifiable risk factors in 2007.⁴⁰ CVD was the second largest cause of disease burden in 2007 (16% of total) where 67% was attributed to modifiable risks.^{40,90}

Over a 25-year period, the death rate due to CVD has decreased by about 65% leading to substantial gains in life expectancy—Australia has risen in ranking in the OECD from 11th highest in 1990 to fourth highest in 2010, with a gain of 4.5 years.⁹ Further death rate reduction has the potential to improve Australia's ranking internationally and lead to longer and more productive lives for many Queenslanders. However, the disability burden due to CVD has increased in the past two decades—people are living longer after a CVD event, which once may have been fatal.

In 2010, there were 8602 deaths due to CVD, 32% of all deaths in Queensland (29% for males and 35% for females). CVD was the second largest cause of premature death after cancer in 2010 (20% and 42% respectively). One in 4 CVD deaths was premature (*Table 9*). One in 6 Queenslanders (16%) reported a heart or long-term circulatory condition in 2011–12 (56% of those aged 65 years and older).¹⁰¹ The two main causes of CVD death are coronary heart disease (CHD) and stroke, together accounting for 75% of CVD deaths—CHD 49% and stroke 25%. These two conditions were also major causes of all deaths with CHD the largest specific cause in 2010 (16%), and stroke the third largest (8%).

Rheumatic heart disease and acute rheumatic fever are of concern for Indigenous Australians, particularly those in remote areas. In the most recent two years in Queensland, there were 77 deaths per year due to rheumatic heart disease (there were insufficient deaths of Indigenous Queenslanders to report) and about 670 hospitalisations per year (about 120 were for Indigenous Queenslanders). For acute rheumatic fever, there were insufficient deaths to report and about 110 hospitalisations per year (about 80 hospitalisations of Indigenous Queenslanders).

Twice as many people die prematurely of coronary heart disease in disadvantaged areas than advantaged areas.

Table 9: Cardiovascular disease, Queensland: summary facts

	CVD	CHD	Stroke
Deaths*			
Number	8,602	4,257	2,184
% of all deaths	32	16	8
% of CVD deaths	100	49	25
% premature	24	26	18
Median age of death – years	84	84	85
Annual rate change***	-4.0%	-5.4%	-3.9%
Hospitalisations**			
Number	103,949	32,801	11,472
% of all hospitalisations	6	2	1
% of CVD hospitalisations	100	32	11
Annual rate change***	-0.8%	-2.8%	-0.9%

* 2010 ** 2011–12

*** 2001–2010 for deaths, 2001–2002 to 2011–2012 for hospitalisations.

Coronary heart disease

In 2011, an estimated 69,900 Australians aged 25 years and older had an acute coronary event, that is a heart attack or unstable angina event that was sudden and life-threatening.¹⁰² The incidence rate of heart attack was twice as high in males as females. Assuming similar rates in Queensland, there were about 14,000 heart attack or unstable angina events in 2011 in this state.

Deaths

- There were 4257 deaths due to CHD in 2010 of which 53% were male (2227 males, 1980 females). The male rate was 62% higher than the female rate. If the male rate were the same as the female rate, there would have been about 900 fewer male deaths per year, reducing the total number of CHD deaths by 22%.
- Of the CHD deaths in 2010, 26% were premature (36% male and 14% female).
- In 2009–2010, the death rate was:
 - 34% higher in disadvantaged than advantaged areas with greater difference for males than females—39% and 24% higher respectively (*Figure 15a*). Considering only premature deaths, the socioeconomic differential was double. If all areas of Queensland had the same CHD death rates as the most advantaged areas, there would have been 600 fewer deaths per year, reducing the number of deaths by 14%
 - about 40% higher in remote and very remote areas than in major cities
 - 54% higher for Indigenous Queenslanders than non-Indigenous where there were about 90 deaths of Indigenous Queenslanders due to CHD per year. In major cities and outer regional areas, the Indigenous death rate was about 60% higher than the non-Indigenous rate and for other areas there was no difference (*Figure 15b*).

- Between 2001 and 2010 the CHD death rate decreased by 39% (5.4% per year)—a similar decrease for males and females (*Figure 15c*). The number of deaths decreased by 14%. There was a slowing in the rate of decline in younger people (under 55 years), from 3.0% per year between 2001 and 2006, to 1.7% per year between 2007 and 2010.
- The Queensland CHD death rate was 9% higher than the national rate and second highest of the states and territories in 2010.² If the rate in Queensland were the same as the national rate there would have been about 350 fewer CHD deaths.
- Australia was a middle ranking country, 18th lowest among 33 OECD countries for CHD deaths in 2009.⁷⁰ The Queensland rate was 2.9 times that of the best performing country (Japan) and 10% lower than the OECD country average.

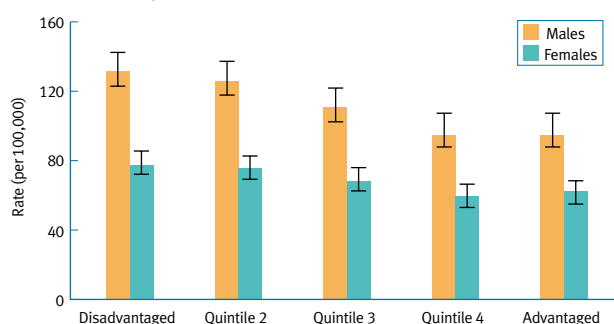
Coronary heart disease and stroke rates in Queensland are 8–9% higher than Australia.²

Hospitalisations

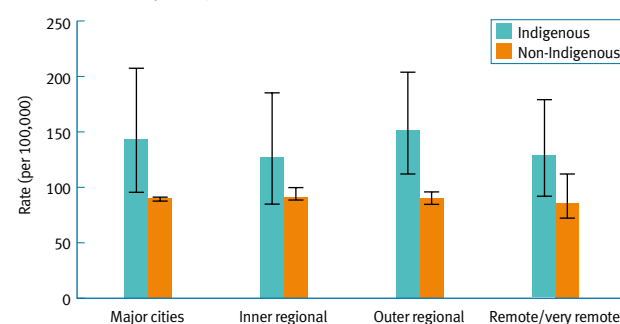
- There were 32,801 hospitalisations due to CHD in 2011–12 of which 65% were male (21,471 males, 11,330 females). The male hospitalisation rate was double the female rate (2.1 times).
- In the two-year period 2010–11 to 2011–12, the hospitalisation rate:
 - was 84% higher in disadvantaged areas than advantaged areas with greater difference for females than males—2.2 times and 66% respectively. If all areas had the same hospitalisation rates as those in advantaged areas, there would have been about 10,000 fewer hospitalisations per year, a reduction of 30% due to CHD.
 - was lowest in major cities and increased with increasing remoteness from 20–30% higher in regional areas to 65% higher in remote and very remote areas
 - for Indigenous Queenslanders was 2.3 times the non-Indigenous rate—3 times for females and 2 times for males.
- Between 2001–02 and 2011–12, the hospitalisation rate for CHD decreased by 25% (2.8% per year) while the number of hospitalisations each year remained steady (*Figure 15c*).

Figure 15: CVD, selected indicators, Queensland

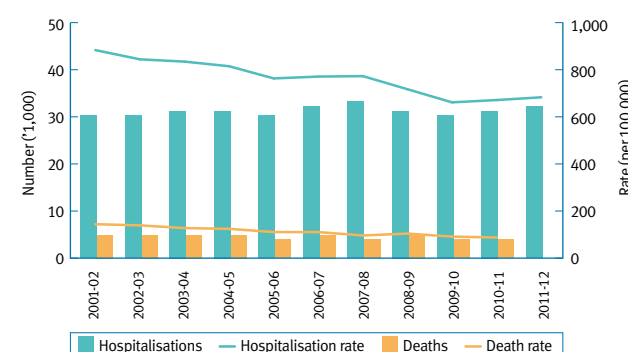
a. CHD deaths by socioeconomic status and sex, 2009–2010



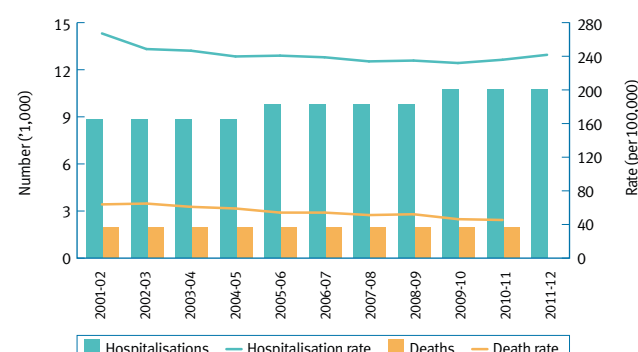
b. CHD deaths by Indigenous status and remoteness, 2009–2010



c. Trend in deaths and hospitalisations due to CHD



d. Trend in deaths and hospitalisations due to stroke



Stroke

Deaths

- In 2010 there were 2184 deaths due to stroke of which 60% were female (1313 females, 871 males). The female rate did not differ from the male rate.
- Of the stroke deaths in 2010, 18% were premature (25% male and 13% female).
- In 2009–2010 the death rate due to stroke:
 - was 68% higher in disadvantaged areas than advantaged areas for premature death but did not differ for all deaths
 - did not differ by remoteness
 - was similar for Indigenous Queenslanders and non-Indigenous people, noting there were about 30 deaths of Indigenous Queenslanders per year on average due to stroke.
- Between 2001 and 2010 the stroke death rate decreased by 30% (3.9% per year)—a similar decrease for males and females (*Figure 15d*). There was no change in the number of deaths over this period.
- The Queensland stroke death rate was 8% higher than the national rate and third highest of the states and territories in 2010.² If the rate in Queensland were the same as the national rate, there would have been about 150 fewer stroke deaths.
- Australia was ranked eighth lowest among 33 OECD countries for stroke death rates in 2009.⁷⁰ The Queensland rate was 46% higher than the best performing country (Switzerland) and 21% lower than the OECD country average.

Hospitalisations

- There were 11,472 hospitalisations due to stroke in 2011–12, of which 53% were male (6083 male, 5389 female). The male rate was 34% higher than the female rate.
- The hospitalisation rate in the two-year period 2010–11 to 2011–12 was:
 - 60% higher in disadvantaged areas than advantaged areas
 - 85% higher in remote and very remote areas than in major cities
 - 93% higher for Indigenous Queenslanders than non-Indigenous Queenslanders—2.2 times for females and 65% higher for males.
- Between 2001–02 and 2011–12, the hospitalisation rate for stroke decreased by 9% (0.9% per year), where this decrease was associated with female not male rate reduction. In the same period the number of hospitalisations for stroke increased by 26% (2.4% per year)—despite the rate reduction (*Figure 15d*). This resulted in an increase of about 220 hospitalisations each year for stroke, largely because of an ageing population.

CHD and stroke deaths by HHS

For the three-year period 2008–2010, the death rate due to CHD varied markedly between HHSs (*Figure 16, Table 36, page 167*).

- Six HHSs had higher CHD death rates than the state and varied from 48% to 9% higher.
- Three HHSs had lower CHD death rates than the state rate and varied from 7% to 28% lower.
- If the CHD death rates across the state were the same as the HHS with the lowest rate (Sunshine Coast) there would have been about 1100 fewer deaths per year due to CHD. These deaths could have been avoided across the state as all HHSs except Gold Coast, had higher rates than Sunshine Coast, and varied from about 30% higher to about double.

For stroke, in 2008–2010 (*Table 36, page 167*):

- Two HHSs had lower death rates than the state and both were about 13% lower.
- If the stroke death rates across the state were as low as the lowest (Sunshine Coast) there would have been about 250 fewer stroke deaths per year. These deaths could have been saved in HHSs across the state with rates up to 30% higher in five HHSs.

The median age of death due to CVD varied markedly in HHSs across Queensland. For Queensland, it was 84 years in 2008–2010. However, people died of CVD about 15–25 years earlier in parts of north Queensland compared to parts of the south-east (*Figure 17*). The median age of death in Torres Strait–Northern Peninsula was 61 years, Cape York 62 years, and in North West 70 years. In contrast, it was 85 years in Sunshine Coast, Metro North and Metro South.

Figure 16: CHD deaths by HHS, 2008–2010

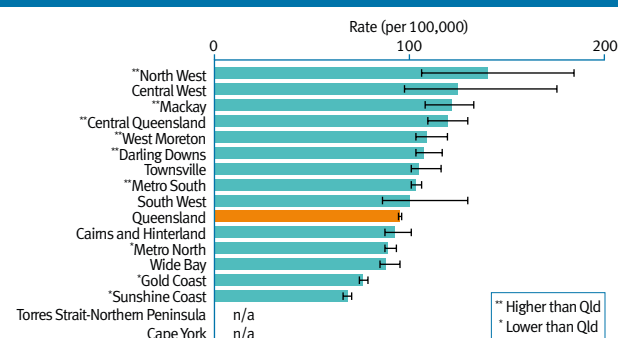
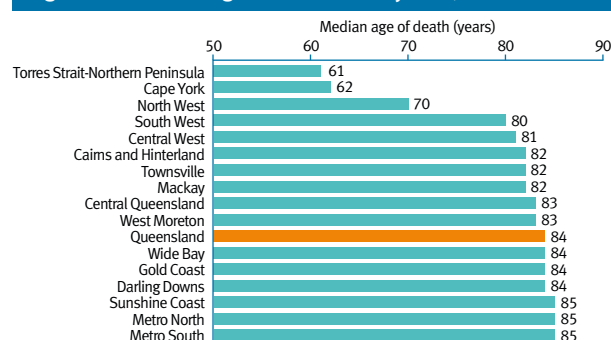


Figure 17: Median age of CVD death by HHS, 2008–2010



Expenditure

Cardiovascular diseases were the largest cause of allocated healthcare expenditure in Australia in 2008–09.⁵² It is estimated that healthcare costs associated with CVD in Queensland were \$2.01 billion in 2011–12 (*Table 3, page 17*). This represents 10% of total allocated recurrent health expenditure and 7% of total recurrent expenditure. Of the total national CVD expenditure:

- 58% was for hospital care, where CVD accounted for 12% of total national admitted patient Expenditure
- 22% was for prescription and non-prescription drugs, where CVD accounted for 16% of total prescription pharmaceutical Expenditure
- 20% was for out-of-hospital medical services, where CVD accounted for 10% of total out-of-hospital medical service expenditure.

The greater proportion of CVD expenditure is borne by governments (70%) with individuals bearing 18% of total costs.

Health and residential aged care expenditure for CVD was projected to more than double nationally in the 30-year period from 2002–03 to 2032–33 from \$9.33 billion to \$22.56 billion annually (*Figure 8, page 17*).¹⁸ A large proportion of the projected increase was associated with ageing of the population (39%), along with increasing population and volume of services per treated case (48%). The declining disease rate was projected to offset the gross increase by about 20%. These projections clearly illustrate the impact of demographic changes on future costs. Without the projected disease rate decline, this expenditure would have increased a further \$3.2 billion. There is substantial potential for reduction in national health expenditure by ongoing reduction in CVD rates.

Causes and preventability

Age is the leading risk for CVD.¹⁰³ The World Health Organization (WHO) describes ageing as the most powerful risk factor for CVD with the risk of stroke doubling every decade after the age 55 years. As the body ages, the organs and body functions change, become less healthy and may suffer damage especially when defence, repair and maintenance mechanisms are inadequate.¹⁰⁴ Factors such as not smoking, limiting alcohol intake, physical activity, a healthy diet and keeping a healthy weight are likely to limit this damage and slow the impact of ageing in some people. In addition, non-modifiable risk factors such as sex, family history and ethnicity can affect the incidence of CVD.

Although the cardiovascular diseases are commonly associated with ageing, they nevertheless represent a very significant preventable cause of early death and disability. Over 80% of the CHD burden and about 70% of stroke burden was associated with lifestyle and physiological risk factors in 2010⁸—high blood pressure and high cholesterol being the leading causes along with high body mass, physical inactivity, smoking and poor nutrition (Chapter 4).¹¹⁸ Irrespective of age and sex, the presence of multiple risk factors places people at higher risk of a cardiovascular event such as heart attack, stroke, angina or atherosclerosis. Australian adults with three or more risk factors were 2.1 times more likely to have had a heart attack than those with no risk factors and 3.9 times more likely to have angina.⁷⁶

Many Queenslanders are at risk of CVD:

- 5 in 10 adults have untreated high cholesterol¹⁰⁵
- 1 in 10 has untreated high blood pressure¹⁰⁵
- 3 in 10 are obese and another 3 to 4 are overweight¹⁰⁵
- 1 in 12 has diabetes¹⁰⁵
- 2 in 3 have one of four risk factors that have been described as the deadly quartet for CVD risk—high blood pressure, high cholesterol, obesity and diabetes, and 1 in 7 adults reported at least three of the four risks^{19,106}
- 4 in 10 are insufficiently active¹⁰⁷
- 9 in 10 (at least) are not consuming the recommended serves of fruit and vegetables daily¹⁰⁷
- 1 in 10 smoke daily.¹⁰⁷

One third of HHSs have higher coronary heart disease death rates than the state.

Challenges and opportunities

CVD plays a key role in reduced longevity and health inequalities. Maintaining the downward trend in CVD death rates will improve the life expectancy of Queenslanders. CVD has the greatest potential influence on life expectancy because it is the largest cause of death and second largest cause of premature death. Furthermore, it is highly preventable. Past gains in CVD have delivered substantial improvements and more gains are achievable. However, the slowing in the downward trend in CHD rates in Queensland and nationally among males and females aged under 55 years would suggest future gains from CVD may be harder to achieve.²² There are CVD disparities that can be addressed with targeted strategies. There is a greater male CVD burden than female and a higher burden in disadvantaged areas and among Indigenous Queenslanders. People die of CVD much earlier in some areas of Queensland than others. There is potential to make significant gains in life expectancy for these populations and reduce the gap in health outcomes by further tackling CVD prevention and treatment.

CVD is the largest cause of health expenditure. Treatment involves hospital services, out-of-hospital support and rehabilitation services, as well as the relatively high costs for pharmaceuticals. CVD was the largest cause of prescription pharmaceuticals in Australia in 2008–09, accounting for 1 in 6 dollars spent.⁵² The cost of admitted hospital services increased 55% in seven years, and was the

largest inflation-adjusted component of CVD expenditure in Australia.⁷⁴ Preventing CVD from occurring in the first place would reduce overall health expenditure, freeing up resources to treat non-preventable conditions, particularly as the population ages and conditions such as dementia, musculoskeletal conditions and neurological diseases rise in prominence.

The prevention of CVD requires reduction of risk. It will focus on better diagnosis and management of blood pressure and cholesterol across the adult population. Addressing the obesity epidemic is critical, because obesity raises the risk of CVD and diabetes, which is itself a risk factor for CVD. It will involve getting people active at all ages. Tobacco smoking increases the risk of CVD, so an ongoing focus on smoking reduction should be maintained. Targeting multiple risk factors is important because it is the clustering of risk that has the greater impact. The National Vascular Disease Prevention Alliance recommends the use of a CVD calculator as a first step in assessing risk for adults 45 years and older (35 years and older for Indigenous Australians).¹⁰⁸ The calculator is a tool for the management of CVD risk in the primary healthcare setting.¹⁰⁹ It is available for public use along with clinical management guidelines and consumer resources. The focus is on comprehensive risk assessment and management of modifiable risks through lifestyle changes and, where needed, pharmacological therapy.



Diabetes

Diabetes is a chronic condition often resulting in lifelong health complications. These include heart disease, kidney failure, limb amputations and diabetic eye disease, all of which have a major impact on the individual and the health system. Diabetes complications are the leading cause of potentially preventable hospitalisations and have a substantial effect on the quality of life and wellbeing of the individual. Diabetes was recognised as a national priority in 1997.⁸⁹ It was the sixth largest cause of disease burden in 2007 at 7% of total burden⁹⁰, and 69% was attributed to modifiable risks.⁴⁰ The burden rate for diabetes for Indigenous Queenslanders was 4.7 times the non-Indigenous rate in 2007.⁶¹

There are three main types of diabetes, with type 2 the most common (about 85% of all cases), followed by type 1 (12% of cases). Gestational diabetes is estimated to occur in about 5% of pregnancies. This section refers to diabetes type 1 and type 2 combined unless otherwise stated.

Diabetes affects everyday life. Australians with diabetes were twice as likely as those without to have a disability and almost 3 times as likely to have a severe or profound limitation.¹¹⁰ Among working-age people, those with diabetes and disability were twice as likely to be unable to work permanently, compared to those without the condition. People with diabetes reported higher rates of high blood pressure, high cholesterol, heart disease, stroke, depression, vision loss and kidney related disorders than those without diabetes.

Diabetes is diagnosed by measurement of blood glucose. There are three main ways of detecting elevated blood glucose and each contributes to the accurate assessment of the prevalence of diabetes in the population:

- Fasting plasma (blood) glucose test—the standard clinical test in Australia.
- Oral glucose tolerance test—the gold standard.
- HbA1c —more recently the measurement of HbA1c in the blood of a non-fasting person is being used to detect and monitor diabetes.¹¹¹

The diagnostic tools used for measurement limit the accuracy of estimates of population prevalence. A recent assessment of data sources in Queensland was used to inform the analysis of prevalence in this report and includes data from the *Australian health survey 2011–12*.^{105,111}

The National Diabetes Register (NDR) is a database of information collected about people who use insulin as part of their treatment for diabetes. However, not every person with diabetes uses insulin so the register cannot provide an estimate of the prevalence of diabetes in the population.

Table 10: Diabetes, Queensland: summary facts

Diabetes	
Deaths*	
Number	745
% of all deaths	2.8
% premature	36
Median age of death – years	80
Annual rate change***	no change
Hospitalisations**	
Number (principal diagnosis)	8,209
% of all hospitalisations	0.4
Number (other diagnosis)	44,870
% of all hospitalisations	2.4
Median age of hospitalisation – years	57
Annual rate change***	not reportable

* 2010 ** 2011–12

*** 2001–10 for deaths, 2001–02 to 2011–12 for hospitalisations.

All new cases of type 1 diabetes in Australia are, however, recorded on the NDR. There were an estimated average of six new cases of type 1 diabetes diagnosed every day between 2000 and 2009 in Australia and about 50 new cases of insulin dependent type 2 diabetes.¹¹² The incidence rate for type 1 diabetes in Australian children (0–14 years), increased between 2000 and 2004 by an average of 6.7% a year, but has not changed since then.¹¹³ For people aged 15 years and older the incidence rate decreased between 2000 and 2009, with the largest decrease for those aged 40 years and older.

Not everyone with type 2 diabetes needs insulin to treat their condition. Lifestyle modifications such as regular exercise and a healthy diet, along with medication, can often control the disease and form a key foundation of treatment programs.^{114,115} However, as the duration of diabetes and the age of the person with diabetes increase, many people with type 2 diabetes will need to use insulin. Between 1999–2000 and 2011–12 the proportion of people aged 25 years and older (at baseline) who managed their diabetes by diet alone decreased by 65%, while the use of tablets and/or insulin increased by 30%.¹¹⁶

Prevalence, incidence and actions

- In 2011–12, using composite information from national studies and surveys, it was estimated that about 1 in 12 adult Queenslanders had diabetes.¹⁰⁵ In 2013, 9.2% of Queensland adults self reported diabetes or high blood sugar.¹¹⁷
- For every four diagnosed cases, there was one newly diagnosed at survey.¹¹⁸
- An estimated average of 17,000 new adult cases of diabetes were diagnosed each year in Queensland since 2000, about 50 cases per day.¹⁰⁵
- The prevalence of self reported diabetes is estimated to have increased by about 25% in 12 years.¹⁰⁵

About 1 in 12 adults have diabetes, with about 50 cases diagnosed each day.

- The prevalence of diabetes and high blood sugar among Indigenous Australians was 3.2 times the non-Indigenous prevalence in 2012–13 (4.6 times for females and 2.7 times for males).¹¹⁹
- Of Queensland adults aged 18–69 years with known diabetes, 46% were effectively managing their condition, similar to national (51%) in 2011–12.¹²⁰
- Many people with diabetes (61%) were taking medications to manage their disease with about 1 in 5 (21%) using insulin daily.¹²¹
- People with diabetes are undertaking lifestyle change to help manage their condition. In 2011–12, about two-thirds (61%) had changed their diet, one-quarter exercised most days (24%) and one-fifth had lost weight (18%).¹¹⁸

Deaths

- There were 745 deaths due to diabetes in 2010, a similar number for males and females (373 males, 372 females), although the male rate was 28% higher (*Figure 18a*) (*Table 10*).
- Of the diabetes deaths in 2010, 36% were premature (41% male and 31% female). The median age of death was 80 years.
- The death rate in 2009–2010 (*Figure 18a*):
 - in disadvantaged areas was double the rate in advantaged areas, and if the rates in all areas were the same as those in the most advantaged areas, there would have been 206 fewer deaths due to diabetes, 27% of all diabetes deaths
 - in remote and very remote areas was 5 times the major city rate
 - for Indigenous Queenslanders was 5.9 times the non-Indigenous rate (5.2 times for males and 6.6 times for females), where diabetes caused 55 deaths per year of Indigenous Queenslanders.
- The number of deaths per year increased by 55% between 2001 and 2010, with no change in the rate.

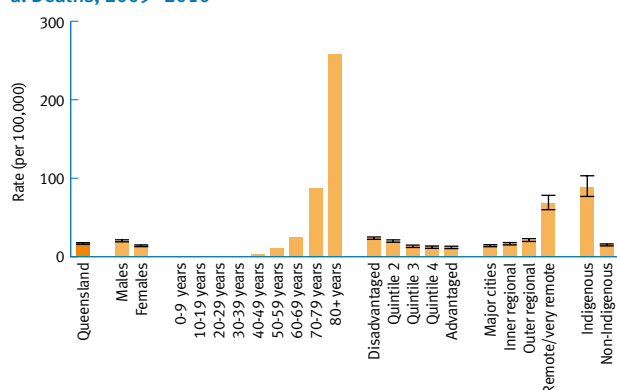
- The Queensland death rate was 5% higher than the national rate in 2010.²
- Australia was a middle ranking country for diabetes death rates among OECD countries in 2009.⁷⁰ The Queensland rate was 9% lower than the OECD country average and 2.9 times the best performing country, Finland. Diabetes is a complex disease and subject to coding variation which may limit the reliability of international comparisons.

Hospitalisations

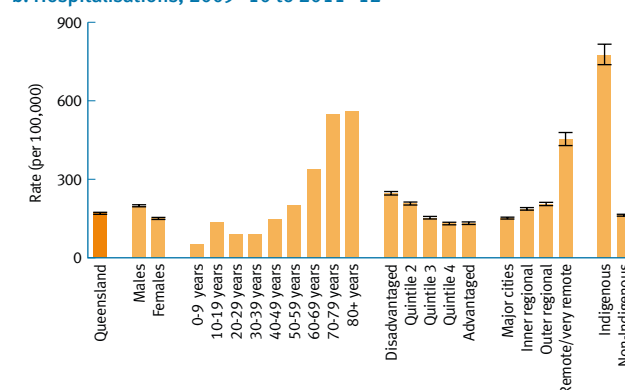
- There were 8209 hospitalisations due to diabetes in 2011–12 of which 56% were male (4627 males, 3582 females). The male rate was 34% higher than the female rate.
- There were an additional 44,780 hospitalisations where diabetes was associated with the hospitalisation but not necessarily the primary cause—56% were for males. The remainder of this section refers to hospitalisations where diabetes was the primary diagnosis.
- The hospitalisation rate increased with age with a small peak in the age group 10–19 years (*Figure 18b*) and a steady increase from 55 years, peaking at 80 years and older.
- The hospitalisation rate in the two-year period 2010–11 to 2011–12 (*Figure 18b*):
 - was 87% higher in disadvantaged areas than advantaged areas with greater difference for females than males—2.4 times higher and 54% higher respectively
 - was lowest in major cities and increased with increasing remoteness from about 25–35% higher in regional areas to 3 times the major city rate in remote and very remote areas
 - for Indigenous Queenslanders was 4.8 times the non-Indigenous rate—5.6 for females and 4.1 times for males.
- Trends in the hospitalisation rate for diabetes cannot be assessed due to changes in coding over the past decade.

Figure 18: Diabetes by sociodemographic factors, Queensland

a. Deaths, 2009–2010



b. Hospitalisations, 2009–10 to 2011–12



Deaths and hospitalisations by HHS

There are insufficient cases to compare death rates or median age of death across all HHSs although death rate differences were evident for some HHSs (*Table 36, page 167*). The diabetes hospitalisation rate varied markedly across the HHSs. For the three-year period 2009–10 to 2011–12 (*Table 37, page 168*):

- Ten had higher rates than the state and varied from 5 times the Queensland rate in Torres Strait–Northern Peninsula to 9% higher in Wide Bay (*Figure 19*).
- Four had lower hospitalisation rates than the state, and varied from 8% lower in Cairns and Hinterland to 29% lower in Sunshine Coast (*Figure 19, Table 37, page 168*).
- The median age of hospitalisation varied from 39 years to 56 years for Indigenous Queenslanders, and from 54 years to 67 years for non-Indigenous Queenslanders. The greatest Indigenous/non-Indigenous difference was in South West (25 years) and the least was in West Moreton and Torres Strait–Northern Peninsula (two years) (*Figure 20*).

Figure 19: Diabetes hospitalisations by HHS, 2009–10 to 2011–12

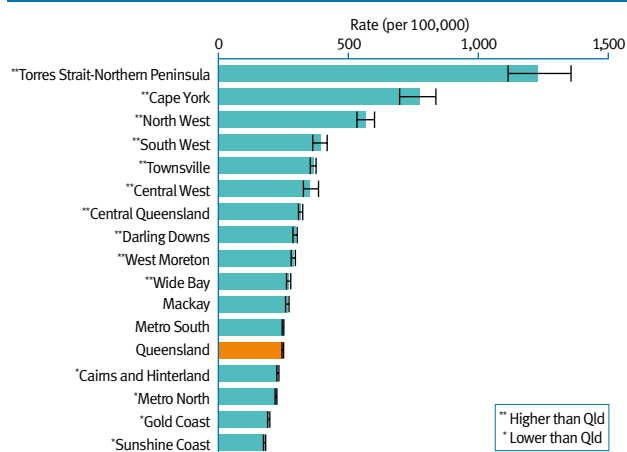
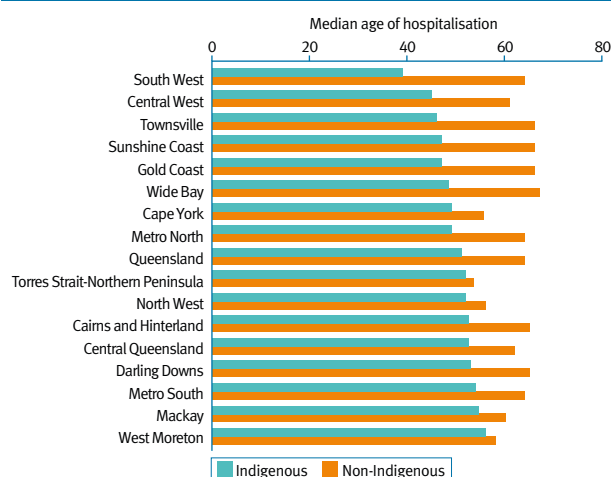


Figure 20: Median age of hospitalisation for diabetes by HHS, 2009–10 to 2011–12



Expenditure

It is estimated that healthcare costs associated with diabetes in Queensland were \$0.37 billion in 2011–12 (*Table 3, page 17*).⁵² This represents 2% of total allocated recurrent health expenditure and 1.4% of total recurrent expenditure. Of the total national diabetes expenditure:

- 43% was for hospital care, where diabetes accounted for 1.7% of total national admitted patient expenditure
- 35% was for prescription and non-prescription drugs, where diabetes accounted for 5% of total prescription pharmaceutical expenditure
- 25% was for out-of-hospital medical services, where diabetes accounted for 2.4% of total out-of-hospital medical service expenditure.

In the eight years between 2000–01 and 2008–09, healthcare expenditure allocated to diabetes increased by 86% from \$811 million to \$1507 million nationally.¹²² The largest increase was for admitted hospital patients with expenditure more than doubling in this period. Type 2 diabetes accounted for 60% of diabetes expenditure in 2008–09.

Health and residential aged care expenditure for diabetes was projected to increase more than fivefold nationally in the 30-year period between 2002–03 and 2032–33 from \$1.6 billion to \$8.6 billion annually (*Figure 8, page 17*).¹⁸ A large proportion of the projected increase was associated with volume of services per treated case (36%) and increased prevalence of disease (26%). Ageing of the population (20%), along with increasing population (14%) will also contribute to increased costs. The projected increase in expenditure for diabetes in the 30-year period was about double the average increase (based on proportional change) and greater than any other disease group.

Diabetes healthcare expenditure has doubled in eight years and is projected to increase at double the rate of all diseases.

Causes and preventability

Type 1 diabetes is caused by biological interactions and exposures among people genetically predisposed to the disease.¹²³ Although it is usually first diagnosed in childhood, cases are also diagnosed across the lifespan, but at low incidence rates. Type 2 diabetes is highly preventable, with obesity a key determinant. In 2007, 66% of the burden of diabetes in Queensland was due to the joint effect of high body mass and physical inactivity. There is a sixfold increase in the lifetime risk of diabetes for obese adult females and ninefold for males compared to those of healthy weight.¹²⁴ The development of type 2 diabetes is also influenced by family history, ethnic background and age.

Aside from the major effects of high body mass and physical inactivity, there is evidence that a number of other factors either directly or indirectly increase the risk of type 2 diabetes and its complications, with variation in the strength of the evidence. These include depression, elevated stress, poor foetal nutrition, high blood pressure, high blood cholesterol and smoking.¹²⁵ The clustering of

a number of these common risk factors is described as metabolic syndrome, which substantially increases the risk of type 2 diabetes. In 1999–2000 it was estimated that the annual incidence of diabetes in those who had the metabolic syndrome (as defined by the International Diabetes Federation—one of many definitions) was approximately 4 times that of those who did not have the syndrome.¹²⁵

In 2012, using self reported information, obese Queensland adults were 4.5 times more likely than healthy weight adults to also report diabetes, and those who were overweight were twice as likely.¹²⁶ Undertaking sufficient physical activity had a modest protective effect on the likelihood of diabetes. Among overweight and obese adults, those who were insufficiently active were 1.4 times more likely to report diabetes than those who were sufficiently active. A study of Australian overweight and obese women has shown that a 5.5kg reduction in body weight would reduce the incidence of type 2 diabetes by 23% up to eight years later.¹²⁷

Challenges and opportunities

The burden due to diabetes is increasing. Based on ageing of the population alone, the number of people with type 2 diabetes is projected to double between 2000 and 2051 and healthcare costs increase 2.5 times.¹²² If the current trend in obesity prevalence continues, and combined with current inactivity levels, the cost of treating type 2 diabetes could quadruple. Assuming these trends continue, just over 2 million Australians (11.4% of the population) will have diabetes by 2025. Averting this future burden will be an important challenge.

Three strategies were assessed to identify potential benefits in Australia.¹²⁸ The first was a ‘junk food’ tax as a population-wide prevention intervention. The second was prevention in those at high risk of developing diabetes. This involved intensive behavioural modification programs for those with high blood glucose levels and typically included six counselling sessions aimed at reducing fat and saturated fat in the diet, increasing fibre, participating in at least four hours of moderate physical activity

per week and achieving a weight loss of more than 5% over 8–12 months. The third strategy was surgically induced weight loss (adjustable gastric banding) for morbidly obese individuals with newly diagnosed diabetes, with modelling showing a 73% remission rate.

The high-risk prevention strategy was found to potentially be the most effective, averting an estimated 10% or 220,000 cases nationally by 2025 (about 44,000 in Queensland), and reducing the projected prevalence of diabetes from 11.4% to 10% of the population. The junk food tax prevention and surgically induced weight loss interventions were estimated to prevent approximately 38,000 cases and 65,000 cases nationally respectively during this period. Given the costly complications associated with diabetes, reducing the burden by even 10% is likely to have a profound influence on the healthcare system. Focusing on lifestyle intervention programs will ensure the best success in reducing the future burden of diabetes.

Mental health

The impact of mental illness in the community is becoming increasingly apparent with about 1 in 2 Queensland adults aged 18–65 years reporting a mental disorder at some time in their life and about 1 in 5 in the previous 12 months (based on a national diagnostic survey in 2007).¹²⁹

Mental health disorders are a leading cause of disability in Australia and in much of the developed world.^{8,130} Mental health was one of the first four national health priorities identified in 1996.⁸⁹ Mental disorders were the third largest cause of disease burden in 2007 (14% of total) where 26% was associated with modifiable risks.^{40,90} They were the largest cause of burden for Indigenous Queenslanders overtaking cardiovascular disease in 2007 (page 21).

Mental health is a complex concept and includes a sense of vitality, happiness and wellbeing. Mental illness includes mood and behavioural problems, and clinically diagnosed conditions such as schizophrenia, major depression and bipolar disorder. Mental health means different things to different people and, as with physical health, cannot be assessed by a single measure. Data to inform this complex concept is increasing and this section includes a selection of epidemiological data from national and state sources, representing a broad range of concepts related to mental health and wellbeing.

Self reported health

Self rated health is an effective measure of health status. Personal perception of physical and mental health has been shown to be a powerful, independent predictor of actual health across many populations irrespective of age, sex, illness, disability, personality and social support.^{131,132} Most Queenslanders rate their health highly (Table 11):

- 45% rated their health as excellent or very good—young people had the highest prevalence and older people the lowest in 2012, with female prevalence 10% higher than males (Figure 21a).¹²⁶ People living in advantaged areas were 40% more likely to report very good health than those in disadvantaged areas, and those in major cities 13% more likely than those in outer regional, remote and very remote areas.
- 37% rated their health as good with little variation by age or sex.¹²⁶
- 17% of adult Queenslanders rated their health as either fair or poor with older people 3 times more likely to do so than younger in 2012. There were no sex differences. People living in disadvantaged areas were 72% more likely to report poorer health than those in advantaged areas.¹²⁶

Table 11: Mental health indicators, Queensland: summary facts

	Age group	Persons	Males	Females
Self reported health (%)*	15+			
Excellent/very good		55.1	54.5	55.7
Fair/poor		14.6	14.7	14.6
Quality of life (%)**	18+			
Good/very good		89.5	89.5	89.5
Satisfaction with health (%)**	18+			
Satisfied/very satisfied		77.5	76.7	78.3
Psychological distress (%)*	18+			
High/very high		10.8	8.8	12.7
Mental and behavioural problems (%)*	0–85+			
Total population		14.4	12.6	16.1
Hospitalisations	0–85+			
All mental disorders		76,552	33,860	42,692
Anxiety and depression		33,714	14,205	19,509
Mental disorders due to psychoactive substance use		13,115	7,412	5,703
Schizophrenia		10,191	5,676	4,515

* 2011–12 **2011

- Obese adults were twice as likely as those of healthy weight to report poorer health in 2011–12 (Figure 21b).¹³³ Daily smokers were 86% more likely to report fair or poor health than non-daily smokers, insufficiently active adults were 90% more likely, sedentary adults were twice as likely, and those who consumed insufficient fruit daily were 30% as likely to report fair or poor health as others.
- Adults with long-term chronic conditions were more likely to have poorer health. In 2011–12, adults with a heart condition were 4 times more likely to report poor health than those without such a condition and those with diabetes 3 times more likely than those without (Figure 21c).¹³⁴ Adults with mental and behavioural disorders, arthritis, back pain, deafness or asthma were about twice as likely as those without these conditions to report poor health.
- About 90% of Queensland adults in 2011 rated their quality of life as good or very good, and 78% were satisfied with their health¹³⁵, noting that about 1 in 10 (9%) experienced severe bodily pain in the previous four weeks.

*1 in 2 adults reported
a mental health disorder
in their lifetime.*

Psychological distress

Psychological distress is a measure of mental health and wellbeing. It is based on a 10-question index, which includes measures of nervousness, agitation, psychological fatigue and depression in the previous four weeks.

- In 2011–12, 1 in 8 or 11% of adult Queenslanders reported high or very high levels of psychological distress, with female prevalence 44% higher than male (*Table 11*).¹⁰¹
- Levels of psychological distress did not vary between population groups, although prevalence was generally higher in younger than older people.^{101,136}
- There has been no change in the prevalence of high or very high psychological distress in Queensland since 2001, although a downward trend of 1.3% per year was evident nationally.¹⁰¹
- In 2011–12, Queensland prevalence did not differ from national.¹⁰¹

Mental and behavioural problems

About 1 in 7 Queenslanders (including children and adults) self reported a long-term mental or behavioural problem in 2011–12 (*Table 11*).⁷⁵

- Mood disorders were the most commonly reported (10% of all persons) followed by anxiety related problems (4%). Less than 1% reported an alcohol or drug related mental health problem.
- Females were 28% more likely to report a mental or behavioural problem than males. They were 72% more likely to report an anxiety related problem and 62% more likely to report a mood disorder. However, they were 66% less likely than males to report an alcohol or drug related problem and 40% less likely to report any other mental or behavioural problem.
- The prevalence of mental and behavioural problems was 61% higher in disadvantaged areas than advantaged areas. For unemployed persons, the prevalence was 3 times that of employed persons.
- The prevalence of mental and behavioural problems in Queensland was similar to national.
- Between 2001 and 2011–12, the proportion of persons reporting a mental or behavioural problem in Queensland increased by 3.4% per year, and nationally by 2.8% per year.
- Of those Australians who reported a mental or behavioural problem, 68% had consulted a GP in the previous 12 months. This was lower than for all Australians, where 84% reported having consulted a GP in the previous 12 months.¹²¹

- About 1 in 3 Australians (31%) reported having time away from study or work in the previous 12 months because of their mental or behavioural problem in 2011–12, more than twice the proportion of all Australians (13%).¹²¹
- Three-quarters of Australians with mental and behavioural problems reported taking medication for the problem in the previous two weeks with anti-depressants, tablets for anxiety and sleeping tablets the most commonly used.¹²¹

Family stressors

Experience of family stress and major life events are likely to affect mental health and wellbeing.¹³⁷ In 2011–12, 53% of Queensland adults reported that selected stresses had been a problem for them or their family in the previous 12 months¹⁰¹ (*Table 11*) where:

- 21% reported the death of a family member or close friend
- 19% reported serious illness or disability
- 12% reported problems with job loss or inability to get a job
- 9% reported divorce or separation
- females were 18% more likely than males to report a problem from any family stress
- Indigenous Australians were 44% more likely than non-Indigenous Australians to report a problem associated with a broad range of family stressors (73% compared to 51%).¹¹⁹

Hospitalisations for mental and behavioural disorders

While hospitalisation rates may reflect underlying levels of disease in the population, they are also dependent on the availability of ambulatory care services, access to hospital care and hospital admission practices. As access and admission practices vary across Queensland, particularly for mental health conditions, caution is required when interpreting rates between areas such as HHSs as a measure of mental health status. Noting this caveat, there were 76,552 hospitalisations for mental and behavioural disorders in Queensland, 4.2% of all hospitalisations in 2011–12. The hospitalisation rate increased markedly with age from the teenage years, with median age of hospitalisation of 47 years for males and 43 years for females. In 2011–12:

- The most common cause was anxiety and depression, accounting for 44% of all hospitalisations for mental disorders, and 1.8% of all hospitalisations, similar to the proportion due to coronary heart disease. More females were hospitalised for anxiety and depression than males (58% of total) and female rates were 42% higher than male rates. The median age of hospitalisation was 59 years for males and 44 years for females.

- Mental disorders due to psychoactive substance use accounted for 17% of all mental disorder hospitalisations and 57% were for males—rates were 32% higher than female rates. The median age of hospitalisation was 43 years for males and 45 years for females (*Figure 21d*).
- There were 10,191 hospitalisations for schizophrenia, and 56% were for males—rates were 29% higher than female rates. The median age of hospitalisation for schizophrenia was 35 years for males and 42 years for females.
- Hospitalisation rates for all mental disorders in the two-year period 2010–11 to 2011–12 were:
 - about 50% higher in advantaged areas than disadvantaged areas
 - about 60–80% higher in major cities than all other areas
 - about 50% higher for Indigenous Queenslanders than non-Indigenous (80% for males, 30% for females).
- The hospitalisation rate was steady between 2001–02 and 2011–12, while the number of hospitalisations increased by 41% (3.5% per year).
- Hospitalisation rates for mental and behavioural disorders varied markedly across HHSs—Metro North had the highest rate (54% higher than the state rate) and Townsville the lowest rate (58% lower) in the three-year period 2009–10 to 2011–12 (*Table 37, page 168*).
- There was a 15-year difference in median age of hospitalisation for mental and behavioural disorders in HHSs in the three-year period 2009–10 to 2011–12, from 49 years in Sunshine Coast and Gold Coast to 34–35 years in North West, Cape York and Torres Strait–Northern Peninsula.

Burden of mental health disorders

In Australia, major depressive disorders were the second largest cause of disability burden in 2010.^{4,8} Data for Queensland in 2010 was not available. Anxiety disorders were the sixth largest cause in Australia and seventh largest cause globally. The disability ranking of major depressive disorders did not change between 1990 and 2010 in Australia or globally, remaining in second highest position. Major depressive disorders are a leading cause of direct disability burden and contribute indirectly to the burden of suicide and coronary heart disease.¹³⁸

Globally in 2010, mental and substance use disorders combined were the leading cause of disability worldwide.¹³⁰ The burden of mental and substance use disorders increased globally by 38% between 1990 and 2010, which was mostly driven by population growth and ageing.

Expenditure

Mental disorders were the third largest cause of allocated healthcare expenditure in Australia in 2008–09.⁵²

It is estimated that the healthcare costs associated with treating mental disorders in Queensland was \$1.56 billion in 2011–12 (*Table 3, page 17*).

This represents 8.6% of total allocated recurrent health expenditure and 5.9% of total recurrent expenditure. Of the total national expenditure on mental health, 42% was for hospital care, 27% for community services, 15% for prescription and non-prescription drugs and 11% for out-of-hospital medical services.

Health and residential aged care expenditure for mental disorders is projected to more than double nationally in the 30-year period between 2002–03 and 2032–33 from \$5.15 billion to \$12.11 billion annually (*Figure 8, page 17*).¹⁸ The projected increase was associated with volume of services per treated case (63%) and increasing population (32%). Price and disease rate change were predicted to have little impact, while ageing was projected to reduce total expenditure.

Preventability

Initiating intervention activities early in life, early in illness and early in each episode, is key to effective prevention and treatment, to reduce disability from mental disorders and potential relapse.¹³⁹ Promotion of behaviours and living conditions that support good mental health and resilience from an early age such as self care, community connectedness and engagement are effective primary prevention activities. While not all mental illnesses can be prevented, appropriate care during the critical early years of illness can reduce the negative impacts of mental illness and this approach is highly cost effective.¹⁴⁰

By starting well, developing well, living well and ageing well, fewer people will develop mental health problems.¹⁴¹

Challenges and opportunities

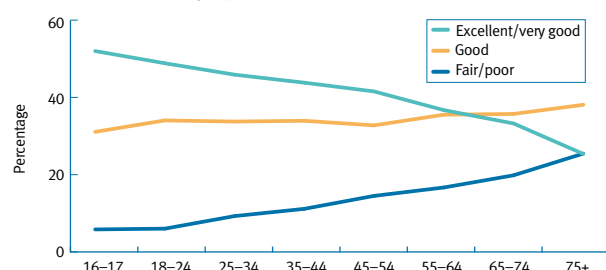
Mental health problems are prevalent, with half the adult population experiencing a mental health problem at some time in their life. This is not surprising given the commonality of family stress and major life events that pose problems.¹³⁷ In addition, loss of physical health, particularly as people age may result in loss of wellbeing and the experience of mood and anxiety problems. Stigma associated with mental health problems is a continuing issue as it may prevent people from seeking assistance.

Addressing the underlying mental health needs of the population is a challenge. This will require the building of individual and community resilience, effectively targeting risk and protective factors, and early intervention in known high risk groups and life stages such as the teenage years and early adulthood.

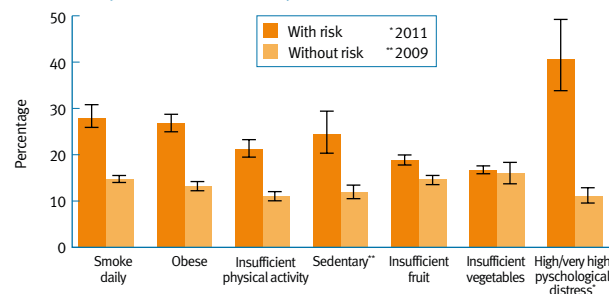
People with mental illness, particularly those living with severe or complex problems, may require particular support and assistance in ensuring access to housing, employment and healthcare. Early identification and treatment is necessary, with streamlined care pathways to improve access to specialist services when needed. Physical health issues, and alcohol and other drug problems commonly co-occur with mental illness. Recognising these co-morbidities, the need for coordinated and integrated responses to improve health outcomes for all Queenslanders is increasingly recognised.

Figure 21: Mental health, selected indicators, Queensland

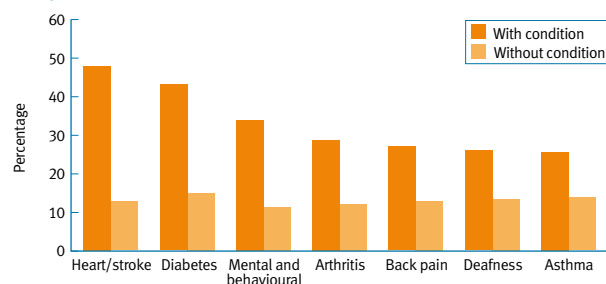
a. Self rated health by age, 2012¹²⁶



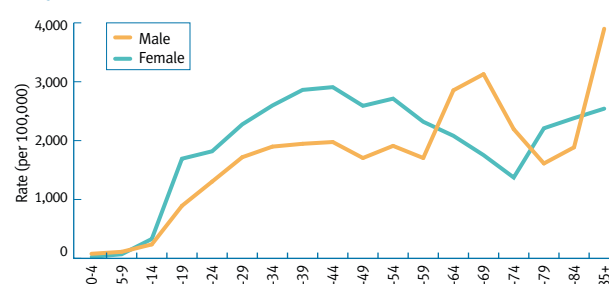
b. Self rated poor or fair health by selected risk factors, 2011–12¹³³



c. Self rated poor or fair health by selected long-term condition, 2011–12¹³⁴



d. Hospitalisations for mental and behavioural disorders by age, 2011–12



Suicide and self-inflicted injury

Suicide was the leading cause of death in young people in 2010 when there were twice as many suicide deaths as road transport deaths in those aged 15–44 years. Suicide and self-inflicted injury was responsible for 1.9% of the total burden of disease and injury in Queensland in 2007 and 4.2% of the total premature death burden.⁶³

Suicide is defined as the intentional taking of one's own life or deliberately causing one's own death. The coroner must examine all deaths due to external causes such as suicide to establish intent.¹⁴² Revisions in the coronial coding process for suicide and other deaths due to external causes have occurred since 2007 and have been retrospectively applied to deaths from 2006 onwards, limiting comparability of suicide reporting prior to 2006.¹⁴² For a hospitalisation to be recorded as due to an attempted suicide or other self-inflicted injury, intent must be documented in the hospital record by a clinician. Self inflicted injury or self harm is defined as the intentional, direct injuring of body tissue, not necessarily done with suicidal intentions.

Deaths

- There were 569 suicide deaths in Queensland in 2010—3 times as many males as females (425 males, 144 females) (*Table 12*). About 1 in 4 were of 15–29 year olds.
- The median age of death was 44 years (similar for males and females).
- In 2010, 94% of suicides occurred before the age of 75 years (92% males, 97% females) (*Figure 22a*).
- In the two-year period 2009–2010 the suicide rate (*Figure 22b*):
 - in disadvantaged areas was 2.3 times the rate in advantaged areas
 - in remote and very remote areas was 2.3 times the major city rate
 - for Indigenous Queenslanders was 70% higher than the non-Indigenous rate.
- There are insufficient cases to compare suicide rates across all HHSs.
- Between 2006 and 2010 there was no change in the suicide rate, nor in the number of suicides per year (about 520 on average).
- The Queensland suicide rate was about 20% higher than the national rate in 2010, consistent with recent years, and was fourth highest of the states and territories.²
- Australia was ranked twelfth lowest among 33 OECD countries for suicide in 2009.⁷⁰ International comparisons are subject to limitations due to differing cultural attitudes and beliefs about suicide that may affect coding of deaths. The Queensland rate was 8% higher than the OECD country average.

Table 12: Suicide and self-inflicted injuries, Queensland: summary facts

	Suicide and self-inflicted injury
Deaths (2010)	
Number	569
% of all deaths	2.1
% premature	94
Median age of death – years	44
Annual rate change*	no change
Hospitalisations (2011–12)	
Number	7,468
% of all hospitalisations	0.4
Median age of hospitalisation – years	34
Annual rate change**	no change

*2011–2012 **2011

Hospitalisations

- There were 7468 hospitalisations due to self-inflicted injuries in 2011–12 (4556 females and 2912 males) (*Table 12*). The female hospitalisation rate was 56% higher than the male rate.
- The median age of hospitalisations was 34 years (36 years for males, 32 years for females).
- In the two-year period 2010–11 to 2011–12, the hospitalisation rate (*Figure 22c*) was:
 - 80% higher in disadvantaged areas than advantaged areas
 - 40% higher in remote and very remote areas than in major cities
 - 2.1 times the non-Indigenous rate for Indigenous Queenslanders, 2.5 times for males and 1.9 times for females.
- Between 2001–02 and 2011–12, there was no change in the hospitalisation rate for self-inflicted injury, although the number of hospitalisations increased by 34% (3.0% per year) (*Figure 22d*).

Suicide rate is twice as high in disadvantaged areas and also in remote areas.

Causes and preventability

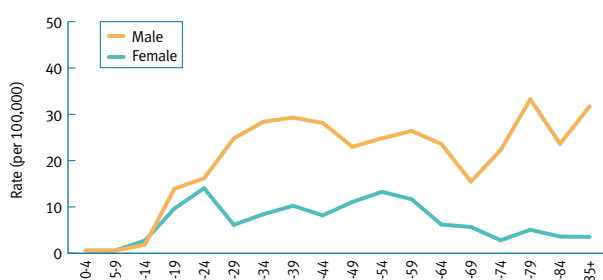
The causes of suicide and self-inflicted injury are complex. People who take their own lives usually have many risk factors and few protective factors.¹⁴³ A number of risk factors surrounding the personal characteristics of the individual and their life events such as losing one's home or job or the end of a relationship, can increase the risk of suicide and self-inflicted injury. Protective factors include a positive attitude to life, adaptive coping skills, self esteem, social support, and mental and physical health. Mental illness is one of the strongest contributing factors for suicide with up to 90% of people who committed suicide having some kind of mental illness at the time.¹⁴⁴⁻¹⁴⁶ A previous hospitalisation due to self-inflicted injury increases suicide risk. Misuse of drugs or alcohol, or having a close relative who had died from suicide may also increase the risk.¹⁴⁷

Challenges and opportunities

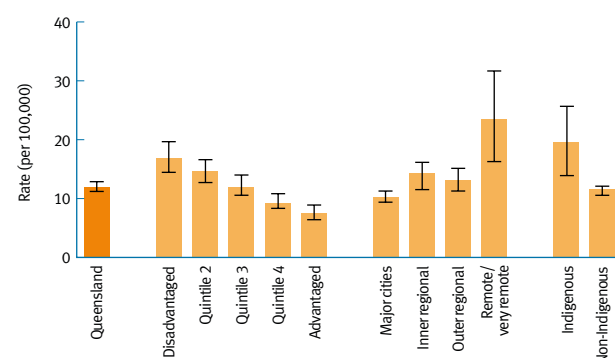
The human cost of suicide is substantial, impacting on families and communities. It goes well beyond the single loss of a life. Suicide prevention is a focus for both government and non-government organisations.¹⁴² The prevention of suicide requires a continuum of activities, including identification of high risk individuals, restricting access to the lethal means of suicide, early detection of mental health conditions, improved access to health and social services, and responsible reporting of suicide by the media. Adequate prevention and treatment of depression and alcohol and substance abuse can substantially reduce suicide rates.¹⁴⁸

Figure 22: Suicide and self-inflicted injury, selected indicators, Queensland

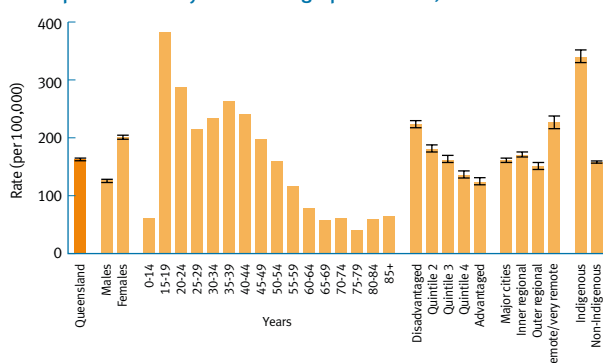
a. Suicide by sex and age group, 2009–2010



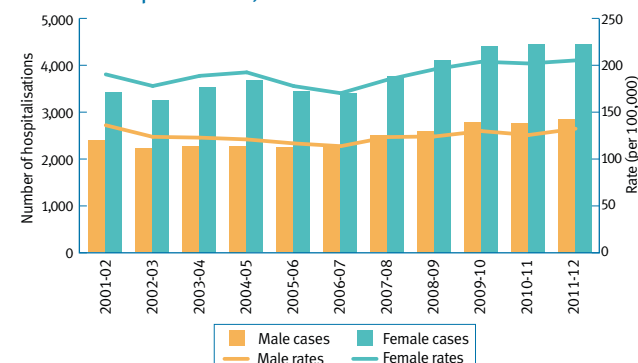
b. Suicide by sociodemographic factors, 2009–2010



c. Hospitalisations by sociodemographic factors, 2010–11 to 2011–12



d. Trend in hospitalisations, 2001–02 to 2011–12



Injury

Injury is a major cause of preventable death and disability in Queensland. It affects people of all ages and leaves many with serious disability or long-term impacts.¹⁴⁹ Injury prevention and control has been a national health priority in Australia since 1996.⁸⁹ Injury caused 7% of the total burden of disease in 2007⁹⁰, and 31% was attributed to modifiable risks.⁴⁰ The intentional injury burden rate for Indigenous Queenslanders was 3 times the non-Indigenous rate in 2007.⁶¹

Injuries are classified according to the type of injury, how and where the injury occurred and why it occurred, that is, whether by intent or not. Intentional injuries include those that were self inflicted such as suicide and assault. Unintentional injuries include falls, transport related injuries, accidental poisoning, drowning and burns. Falls and road transport injury were responsible for the greatest proportion of the unintentional injury burden, and are the focus of this section. Suicide and self-inflicted injury is described on *page 52*.

In 2010, there were 1779 deaths due to all injuries (excluding complications of medical and surgical care)—1180 males and 599 females (*Table 13*). The male death rate was 2.3 times the female rate. The median age of death from injury was 51 years in 2010—64 years for females and 47 years for males. Of all injury deaths, 73% were premature. About 70% of all deaths in the 15–24 year age group were due to injuries. The injury death rate in disadvantaged areas was double that of advantaged areas in 2009–2010. The largest cause of injury death in 2010 was suicide (32% of all injuries) followed by transport related deaths (18%) where road transport was the cause of 15%, falls (23%) and accidental poisoning (13%) (*Figure 23a*). Drowning accounted for 3%, and assault 2% of injury deaths.

There were 126,014 hospitalisations for all injuries in 2011–12, where 56% were males (70,363 males, 55,651 females). The male hospitalisation rate was 39% higher than the female rate. The median age of hospitalisation was 45 years (38 years for males, 57 years for females). The hospitalisation rate was 63% higher in disadvantaged than advantaged areas in the two years, 2010–11 to 2011–12. Falls were the largest cause of injury hospitalisation, accounting for 27%, followed by road transport (9%), self inflicted injury (6%), assault (5%) and accidental poisoning (2%).

There were 64 drowning deaths in Queensland in 2012–13, 22% of the nation-wide figure.¹⁵⁰ The majority (84%) were males. About 1 in 10 (11%) occurred in children aged 0–4 years, and 39% in people aged 55 years and older. In 2012–13 in Australia, there was a 30% increase in drowning deaths of those aged 55 years and older compared to the previous 10-year average, while for 0–4 year olds there was a 6% decline.

Table 13: Injury, Queensland: summary facts

	All injuries*	Falls (all ages)	Falls (65+ years)	Road transport
Deaths (2010)				
Number	1,779	404	354	260
% of all deaths	6.6	1.5	1.3	1.0
% of injury deaths	100	22.7	19.9	14.6
% premature	73.4	18.8	n/a	91.5
Median age of death – years	51	86	n/a	37
Annual rate change**	No change	No change	No change	No change
Hospitalisations (2011–12)				
Number	126,014	34,080	16,683	10,698
% of all hospitalisations	6.8	1.8	0.9	0.6
% of injury related hospitalisations	100	27.0	13.2	8.5
Annual rate change***	+1.0	+2.3	+2.8	No change

* Excluding complications of medical and surgical care.

** 2001–10 for death, 2001–02 to 2011–12 for hospitalisations.

Falls (65 years and older)

Deaths

- Of the 404 falls related deaths in 2010, 354 were people aged 65 years and older (88%)—217 females and 137 males (*Figure 23a*). Although 61% of falls in older people were for females, there was no difference between the male rate and the female rate.
- There was no difference in death rates for falls in older people between advantaged and disadvantaged areas in 2009–2010, and insufficient cases to report rates by remoteness, for Indigenous Queenslanders or by HHS.
- There was no change in the death rate between 2001 and 2010 although the number of deaths increased by 46% (4.3% per year).
- The death rate for falls in all age groups in Queensland was 8% lower than the national rate and fourth lowest of the states and territories in 2010.²

Hospitalisations

- Of the 34,080 falls related hospitalisations in 2011–12, 16,683 were for people aged 65 years and older (49%). A greater proportion of falls related hospitalisations for older people were for females (11,338 females, 5345 males) and the female rate was 55% higher than the male rate. One in 5 (20% of all falls), occurred in those aged 85 years and older.
- The hospitalisation rate for older people was similar across areas of socioeconomic status and remoteness in the two-year period 2010–11 to 2011–12. The Indigenous Queensland rate was 15% lower than the non-Indigenous rate—male rates did not differ and the female rate was 22% lower.

- Three HHSs had higher hospitalisation rates for falls in older people, and varied from 20% higher than the state rate in South West to 7% higher in Metro North. Four HHSs had lower hospitalisation rates, from 5% lower in Metro South to 46% lower in Torres Strait–Northern Peninsula (*Table 37, page 168*).
- Between 2001–02 and 2011–12, there was a 31% increase (2.8% per year) in the rate for falls for older people, while the number of hospitalisations increased by 87% (6.4% per year) (*Figure 23b*).

Road transport injuries

Deaths

- There were 260 deaths due to road transport injury in 2010—75% were male (196 males, 64 females) (*Figure 23a*). The male rate was 3.1 times the female rate.
- The median age of death from road transport injury was 37 years (37 years for males, 41 years for females). About one-third of road transport deaths (82) were for young people aged 15–29 years.
- For males in 2010, 95% of road transport deaths were premature and for females, 81%.
- In 2009–2010 the road transport death rate (*Figure 23c*):
 - in disadvantaged areas was 3.9 times that of advantaged areas—4.4 times for premature deaths. If all areas had the same road transport death rates as the most advantaged areas, there would have been 157 fewer deaths per year, reducing the number of deaths by 54%
 - in remote and very remote areas was 3.9 times that of major cities—4.2 times for premature deaths. If all areas had the same road transport death rates as major cities, there would have been 100 fewer road transport deaths per year, reducing the number by about one-third, 34%
 - for Indigenous Queenslanders did not differ from the non-Indigenous rate.
- There are insufficient cases to compare death rates or median age of death across all HHSs.
- The Queensland transport related death rate (including road transport deaths) was 14% higher than the national rate and the fourth lowest of the states and territories in 2010.²
- Between 2001 and 2010, there was no change in the death rate or the number of deaths.
- Australia was a middle ranking country, 17th lowest among 33 OECD countries, for transport deaths in 2009.⁷⁰ The Queensland rate was 2.3 times that of Sweden (the best performing country), and 11% higher than the OECD country average.

Hospitalisations

- There were 10,698 hospitalisations due to road transport injury in 2011–12 of which 64% were male (6898 males, 3800 females). The male rate was 83% higher than the female rate.
- The median age of hospitalisation was 34 years (similar for males and females).
- In the two-year period 2010–11 to 2011–12, the road transport injury hospitalisation rate:
 - in disadvantaged areas was 2.1 times the rate in advantaged areas
 - increased with increasing remoteness—60–70% higher in regional areas than major cities and 2.8 times for remote and very remote areas
 - for Indigenous Queenslanders was 14% higher than the non-Indigenous rate, 20% for females and 13% for males.
- Ten HHSs had higher hospitalisation rates for road transport injury, and varied from 3.3 times the state rate in Central West to 10% higher in Sunshine Coast. Five HHSs had lower hospitalisation rates, from 10% lower in Townsville to 30% lower in Torres Strait–Northern Peninsula (*Table 37, page 168*).
- There was no change in the hospitalisation rate between 2001–02 and 2011–12, although the number of hospitalisations increased by 21% (1.9% per year) (*Figure 23b*).

Expenditure

Unintentional injury was the fifth largest cause of health system expenditure, accounting for \$1.27 billion in 2011–12 (*Table 3, page 17*). This represented 7% of the national allocated health expenditure and 4.8% allocated recurrent health expenditure.⁵⁰ Health and residential care expenditure for injuries was projected to more than double nationally, from \$6.65 billion to \$14.35 billion over the 30-year period, from 2002–03 to 2032–33 (*Figure 8, page 17*).¹⁸ Of the projected growth in expenditure, 61% (\$4.7 billion) will be associated with the volume of services per treated case.

*For falls in older people
the number of deaths are up 46%
and hospitalisations up
87% in a decade.*

Premature deaths from road transport are about 4 times greater in disadvantaged areas and also in remote areas.

Cause and preventability

Most physical injuries can be prevented by identifying their causes and removing them, or reducing people's exposure to them. In 2007 in Queensland, six key risk factors were responsible for 31% of the injury burden. Excess alcohol consumption was the leading risk factor accounting for 19% of the total burden from injuries.⁴⁰ The risk of injury due to alcohol consumption in the short-term is significant and varies substantially by the amount of alcohol consumed.¹⁵¹ The odds of injury within six hours of drinking up to four standard drinks, were 80% higher than those who had not drunk any alcohol. After drinking more than four standard drinks the risk of injury rises to about fivefold. In recognition of the impact of alcohol related harm, the NHMRC, has set national guidelines for safe consumption (*pages 108, 179*).⁵

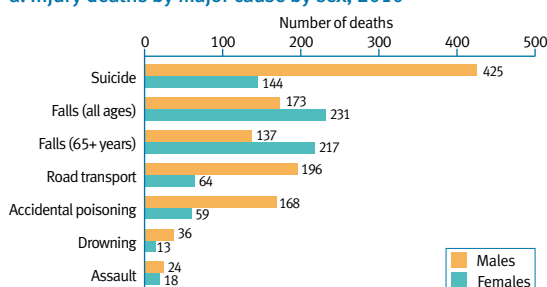
Falls are a significant health burden for Queenslanders. Other than the economic cost for treatment and care, they also have a considerable impact on the health and well-being of older people.¹⁵² Hip fractures, which constitute a large proportion of hospitalised fall injuries in Australia, are particularly burdensome due to the resultant loss or limit of independence requiring personal or residential care. About 20% of older Australians who were discharged from hospital following a fall went directly to residential aged care facility.¹⁵³

Risk factors for falls include age, sex, medication use and predisposing medical conditions such as Parkinson's disease, stroke, incontinence and vision problems.¹⁵² Socioeconomic factors such as poor living conditions can also affect the risk of falls for older people. Having been admitted to hospital for any reason increases an older person's risk of falling as does having had one fall.¹⁵⁴ A fear of falling, which may result in reduced activity levels, can also increase the risk of a fall.¹⁵⁵

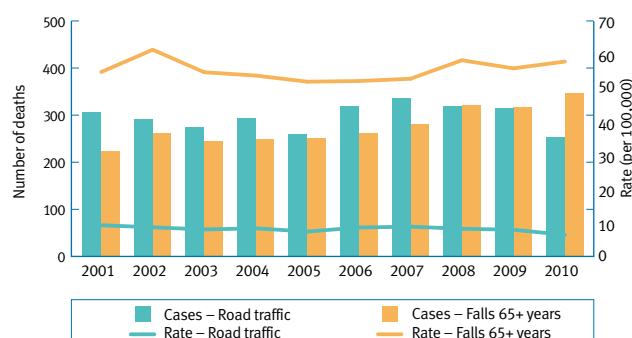
Road transport injuries have many causes. These include road conditions, the environment, vehicles, road users and their interaction. Prevention and control of road transport injury requires a multi-strategy approach, using the 'Haddon's matrix' which identifies risk factors before, during and after a transport accident.¹⁵⁶ The *Queensland road safety action plan 2013–15*¹⁵⁷ recognises these opportunities and focuses on a comprehensive set of measures. These are safer road design and infrastructure, improved consumer awareness of vehicle safety features, safer vehicles, reduced speed limits and strengthened enforcement, increased awareness of road safety issues, and enhanced delivery of road safety programs.

Figure 23: Injury: selected indicators, Queensland

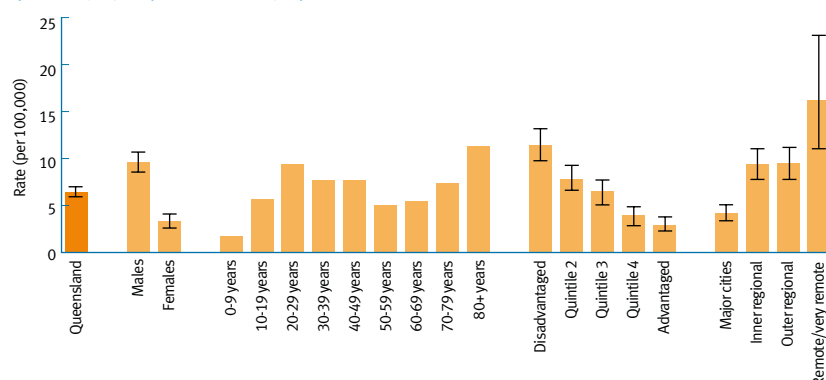
a. Injury deaths by major cause by sex, 2010



b. Trend in falls and road transport related hospitalisations



c. Road transport deaths by sex, age group, sociodemographic factors, 2009–2010



Challenges and opportunities

The burden of injury differs substantially within the Queensland population. Males are at markedly greater risk than females. Falls in older people are a particular concern. Children and younger adults are at higher risk of drowning and accidental poisoning than people of all other ages. There are also disparities in injury burden by socioeconomic status and remoteness, particularly for road transport injuries.

Other than deaths and permanent disability, injuries are also responsible for higher demand for hospitalisation. In 2010–11 in Australia, the average length of stay in hospital as a result of injury was four days.¹⁵⁸ For people aged 65 years and older, it was nine days. The majority of injury hospitalisations in older people was

associated with falls. With the increased older population due to ageing, the number of falls is likely to increase and so will the injury-related hospitalisation rate and associated costs.¹⁵²

Injuries are highly preventable and the key to injury prevention is to identify the causes and minimise exposure to the preventable risks, in particular excess alcohol consumption. There are opportunities for prevention by a coordinated approach involving individuals, families and communities and to target those injuries that have greatest impact. These include falls in older people, particularly in older females, transport injuries, accidental poisoning and drowning in young people and occupational and alcohol related injuries at all ages.



Respiratory conditions

Respiratory conditions were the third largest broad cause of death in 2010 and a major cause of hospitalisation. One in 4 (27%) Queenslanders reported a long-term respiratory condition in 2011–12.⁷⁵ Chronic respiratory disease caused 7% of the total burden of disease in 2007⁹⁰, where 29% was due to modifiable risks.⁴⁰

In 2010, there were 2180 respiratory deaths, 8% of all deaths in Queensland and the third largest cause of premature death—614 were premature, 363 males and 251 females (*Table 14*). The death rate for all respiratory conditions decreased by 16% between 2001 and 2010 (1.9% per year), and the number of respiratory deaths remained steady at about 2000 per year.

Chronic obstructive pulmonary disease (COPD), influenza and pneumonia, and asthma are the most prevalent chronic respiratory diseases, together contributing 70% of respiratory deaths in 2010. Asthma has been a national health priority since 1999.⁸⁹ It predominantly affects children and young adults whereas COPD affects mainly older people. Influenza and pneumonia have a high hospital burden particularly during the winter months. Notification rates are reported on *page 70*.

Asthma

Prevalence and actions

- In 2011–12, 10.2% of Queenslanders reported asthma as a long-term condition.¹⁰¹
- The prevalence of asthma did not vary by sex, or by age, or between socioeconomically disadvantaged or advantaged areas, or between major cities and regional or remote areas.
- The Queensland prevalence did not differ from national prevalence—both 10.2%. Of the jurisdictions, Queensland was equal fourth highest with ACT in 2011–12.
- 1 in 5 Indigenous Australians (19%) reported asthma in 2012–13, almost double the non-Indigenous prevalence (10%) after adjustment for age differences.¹¹⁹
- Among Australians with current asthma in 2011–12¹²¹:
 - 24% reported having a written asthma action plan—24% of males, 25% of females
 - 31% went to hospital or emergency department at least once in the previous 12 months due to their asthma being worse or out of control—36% of males, 29% of females.

Deaths

- There were 65 asthma deaths in 2010 of which 66% were female (22 males, 43 females).
- Of the asthma deaths in 2010, 55% were premature (73% of male deaths, 47% of females).
- The median age of asthma death was 71 years (51 years for males, 76 years for females)

Table 14: Respiratory conditions, Queensland: summary facts

	All respiratory diseases	Asthma	COPD	Influenza and pneumonia
Deaths (2010)				
Number	2,180	65	1,064	389
% of all deaths	8.1	0.2	4.0	1.4
% of respiratory deaths	100	3	49	18
% premature	28	55	34	17
Median age of death – years	82	71	79	87
Annual rate change*	-1.9	No change	-2.4	-8.1
Hospitalisations (2011–12)				
Number	80,078	7,209	13,067	15,684
% of all hospitalisations	4.3	0.4	0.7	0.9
% of respiratory hospitalisations	100	9	16	20
Annual rate change*	No change	No change	No change	No change

*2001–10 for death, 2001–02 to 2011–12 for hospitalisations.

- There are insufficient cases to compare asthma death rates by socioeconomic status, remoteness or Indigenous status.
- The asthma death rate did not change between 2001 and 2010 and there was no change in the number of deaths per year, about 65 on average (*Figure 24a*).

Hospitalisations

- There were 7209 hospitalisations due to asthma in 2011–12 and 55% were female (3257 males, 3952 females). The female rate was 22% higher than the male rate (*Figure 24b*).
- The median age of asthma hospitalisation was 15 years (7 years for males, 30 years for females). The burden of asthma changes with age. For children aged 0–14 years, the hospitalisation rate for boys was 50% higher than for girls, while for young females (15–29 years) the rate was about double the male rate, increasing to 2.5 times among females 30 years and older.
- In the two-year period 2010–11 to 2011–12, the asthma hospitalisation rate was (*Figure 24c*):
 - 38% higher in disadvantaged than advantaged areas—49% higher for females and 26% higher for males
 - 42% higher in remote and very remote areas than major cities—50% higher for females and 39% higher for males
 - double the non-Indigenous rate for Indigenous Queenslanders—2.4 times for females and 1.8 times for males.
- There was no change in the asthma hospitalisation rate between 2001–02 and 2011–12 and no change in the average number of hospitalisations (about 6700 annually) (*Figure 24a*).

COPD

Deaths

- There were 1064 COPD deaths in 2010 and 57% were male (604 males, 460 females). The male rate was 69% higher than the female rate.
- Of the COPD deaths in 2010, 34% were premature — similar for males and females.
- In 2009–2010, the COPD death rate was (*Figure 24d*):
 - 87% higher in disadvantaged areas than advantaged areas and for premature deaths 3.2 times higher. If all areas had the same death rates as advantaged areas there would have been 190 fewer premature deaths per year, reducing the number of premature COPD deaths by about 50%
 - 50% higher in remote and very remote areas than in major cities
 - 2.5 times the non-Indigenous rate for Indigenous Queenslanders.
- The Queensland COPD death rate was 9% higher than the national rate and third highest of the states and territories in 2010.²
- The COPD death rate declined by 19% between 2001 and 2010 (2.4% per year), while the number of deaths was steady at about 960 per year on average (*Figure 24a*). Death rate decline was evident for males (26% decrease over the decade) with no change in female rates.
- Australia was a middle ranking country, 16th lowest among 32 OECD countries, for COPD deaths in 2009.⁷⁰ The Queensland rate was 3.6 times that of Japan, the best performing country and the same as the OECD country average.

Hospitalisations

- There were 13,067 hospitalisations due to COPD in 2011–12 and 55% were male (7228 males, 5839 females). The male rate was 43% higher than the female rate.
- The median age of COPD hospitalisation was 72 years (similar for males and females).
- In the two-year period 2010–11 to 2011–12, the hospitalisation rate:
 - in disadvantaged areas was 2.5 times the rate in advantaged areas
 - increased with increasing remoteness—25–51% higher in regional areas than major cities and 2.6 times higher in remote and very remote areas
 - for Indigenous Queenslanders was 4.5 times the non-Indigenous rate, 5.4 times for females and 3.9 times for males.
- There was no change in the hospitalisation rate between 2001–02 and 2011–12 although the number of hospitalisations increased by 39% (3.4% per year).

Influenza and pneumonia

Deaths

- There were 389 deaths due to influenza and pneumonia in 2010 of which 55% were female (175 males, 214 females). The male rate was 24% higher than the female rate.
- 17% of deaths were premature (22% male and 13% female).
- There was no difference in death rates by areas of socioeconomic status, between major cities and regional areas or by Indigenous status in 2009–2010.
- There was a 53% decrease in the death rate for influenza and pneumonia between 2001 and 2010 (8.1% per year) with no change in the number of deaths, an average of about 500 per year.

Hospitalisations

- There were 15,684 hospitalisations due to influenza and pneumonia in 2011–12, of which 53% were male (8280 males, 7404 females). The male rate was 27% higher than the female rate.
- The median age of hospitalisation was 65 years (similar for males and females).
- The hospitalisation rate in the two-year period 2010–11 to 2011–12 was (*Figure 24e*):
 - 79% higher in disadvantaged areas than advantaged areas with higher difference for males than females—80% and 74% higher respectively
 - lowest in major cities and increased with increasing remoteness from 16–24% higher in regional areas to 2.8 times the major city rate in remote and very remote areas
 - for Indigenous Queenslanders was 3.2 times the non-Indigenous rate—similar differences for males and females.
- Between 2001–02 and 2011–12, the hospitalisation rate remained steady although the number of hospitalisations increased by 43% (3.7% per year).

**1 in 10 Queenslanders
have asthma**

Deaths and hospitalisations by HHS

Deaths

- There is limited comparability of death due to asthma, influenza and pneumonia or COPD across HHSs due to insufficient cases in some HHSs to report rates (*Table 36, page 167*).

Hospitalisations

For the three-year period 2009–10 to 2011–12 (*Table 37, page 168*):

- Asthma hospitalisation rates were higher than the state rate for seven HHSs—67% to 7% higher, and five were lower, varying from 9% to 24%.
- COPD hospitalisation rates were higher than Queensland for 11 HHSs and varied from 2.5 times the state rate to 9% higher (*Figure 24f*). Four HHSs had lower COPD hospitalisation rates, 6% to 29% lower.
- Influenza and pneumonia hospitalisation rates for nine HHSs varied from 3.3 times the state rate to 12% higher. The rate was lower than the state for five HHSs, from 29% to 3%.

Expenditure

Respiratory diseases were the seventh largest cause of health system expenditure, accounting for \$1.13 billion in 2011–12 (*Table 3, page 17*). This represented 6.2% of the nationally allocated health expenditure and 4.2% of the allocated recurrent health expenditure.⁵²

Health and residential aged care expenditure for respiratory diseases was projected to treble nationally, from \$7.19 billion to \$21.95 billion over the 30-year period from 2002–03 to 2032–33, where 84% of the projected increase was associated with extra volume of services per case of disease (\$12.4 billion) (*Figure 8, page 17*).¹⁸ This projected increase reinforces the need for enhanced prevention and protection measures to minimise the treatment and care expenditure for respiratory disease.

Causes and preventability

The single largest cause of COPD is tobacco smoking.^{159,160} Smoking accounted for 70% of the COPD burden in males and 60% in females in 2007.⁴⁰ Current smokers are 10 times more likely to have COPD than non-smokers.¹⁶¹ Despite this fact, many people with COPD continue smoking. In 2007–08, the prevalence of current smoking was twice as high among people aged 55 years and older with COPD (22%) compared to those without the disease (11%).¹⁶² Other less dominant risk factors for COPD are outdoor air pollution, smoke from burning fuels of plant or animal origin, fumes and dusts in the environment or workplace, childhood respiratory infections and chronic asthma.¹⁶³ While COPD cannot be cured, quitting smoking, early diagnosis and improved disease management will reduce the burden of COPD.

Influenza is a highly contagious viral infection commonly reported in colder months. The virus that causes influenza is mainly spread from person to person by respiratory droplets through coughing or sneezing. Influenza can be complicated by pneumonia, which is a serious infection of the lungs. Being vaccinated provides individual protection against pneumonia and influenza by building immunity to the virus and preventing transmission in the community. Prevention through vaccination, infection control and early detection provides protection against these conditions. More information about vaccination is reported on *pages 70 and 131*.

The causes of asthma are not completely understood. However, a combination of genetic predisposition and environmental exposure to inhaled substances and particles such as dust, pollens, moulds, tobacco smoke, chemical irritants and air pollution may trigger allergic reactions or irritate the airways causing asthma symptoms.¹⁶⁴ The data related to occupational exposure to elements that cause or aggravate respiratory disease are scarce. However, available data from Australia suggest that about 10% of adult asthma episodes are caused by occupational exposures which can be avoided if exposure to triggering agents in the workplace is removed.¹⁶²

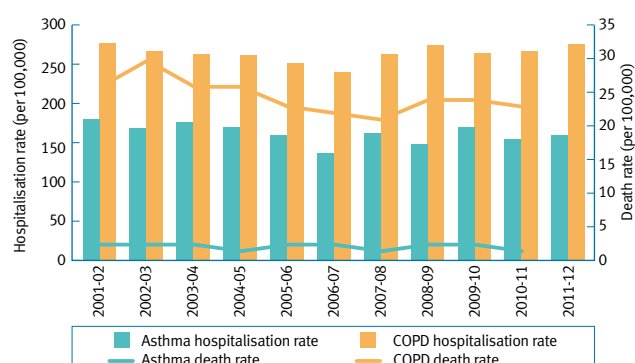
People who have asthma and who smoke experience more respiratory symptoms, worse asthma control, more airway inflammation, an inferior short-term response to inhaled corticosteroid treatment, and an accelerated decline in lung function than those who do not smoke.^{159,165} Despite the known adverse effects, people of all ages with asthma smoke at least as much as people without asthma and people aged 55 years and older with asthma were 17% more likely to smoke than those without in 2007–08.¹⁶²

Women with poorly-controlled asthma during pregnancy are at increased risk of experiencing pregnancy-induced hypertension and pre-eclampsia.¹⁶⁶ Available evidence suggests that asthma management during pregnancy could potentially improve maternal asthma outcomes and is recommended for use in clinical practice.¹⁶⁷

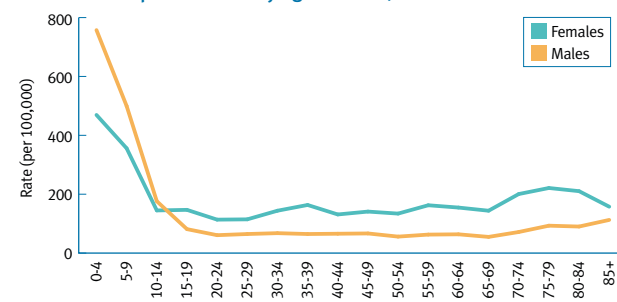
Premature deaths due to COPD are 3 times higher in disadvantaged areas.

Figure 24: Respiratory conditions, selected indicators, Queensland

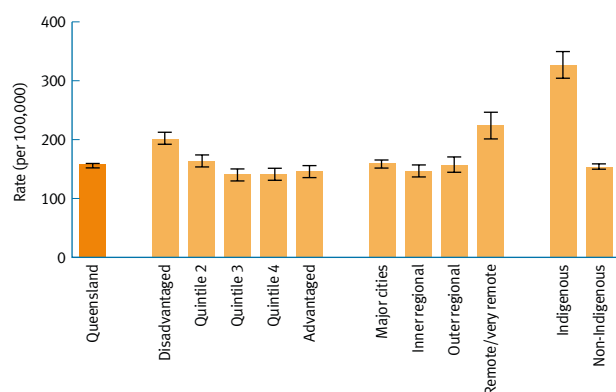
a. Trend in hospitalisations and death



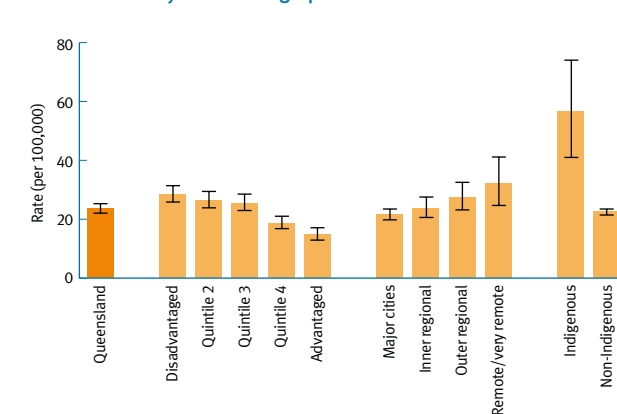
b. Asthma hospitalisations by age and sex, 2001-02 to 2011-12



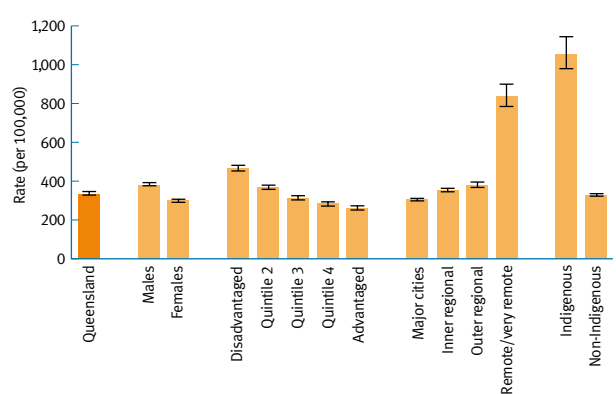
c. Asthma hospitalisations by sociodemographic factors, 2001-02 to 2011-12



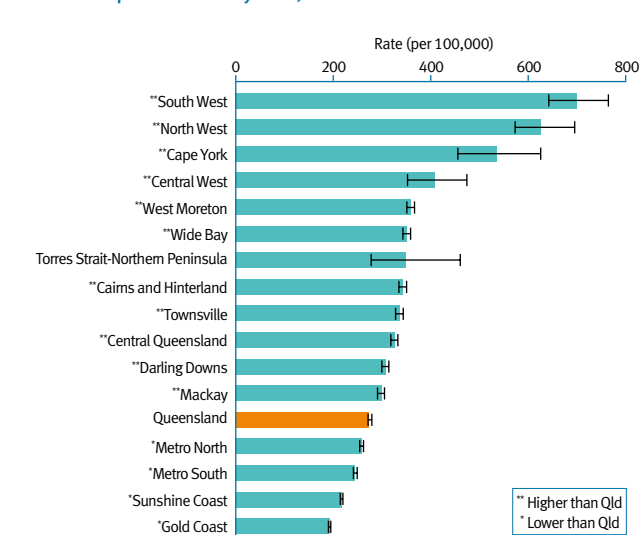
d. COPD deaths by sociodemographic factors 2001-02 to 2011-12



e. Influenza and pneumonia hospitalisations by sociodemographic factors, 2001-02 to 2011-12



f. COPD hospitalisations by HHS, 2009-10 to 2011-12



Challenges and opportunities

The burden of respiratory conditions varies between population groups. While there are many factors that contribute to health disparities including socioeconomic, social and cultural factors^{159,162}, there are opportunities to reduce the health burden in population groups. Vaccination programs are effective against influenza and pneumonia as described on *page 131*.

Although asthma cannot be cured, appropriate management can reduce the disease burden. A written management plan enables people with asthma to identify deterioration of their condition promptly and respond appropriately to prevent or reduce the severity of acute asthma episodes. Unfortunately, despite national guidelines recommending their use for the past 20 years, more than 3 out of 4 Australians with asthma (76%) did not have a written asthma management plan in 2011–12.^{121,162}

The impact of the reduction of smoking on COPD deaths is already evident.¹⁶² Further gains are possible in reducing smoking rates which will reduce the asthma and COPD burden as well as other smoking-related illnesses. A coordinated approach involving public and private sectors and communities to implement these measures will prevent or delay disease progression, improve quality of life and reduce the burden of disease and health system cost.

Dental disease

Dental disease and oral health related issues affect almost everyone at some stage of life. Dental diseases include any disease of the mouth, teeth and gums. The two main conditions are dental caries (tooth decay) and periodontal disease (gum disease). Expenditure on dental disease is the second largest of all disease groups nationally and in Queensland. Behaviours which contribute to oral health status, and the use of fluoride to improve oral health are reported on *page 129*.

Prevalence

- In 2010–12, 50% of Queensland children (5–10 years) had a history of tooth decay in their primary teeth.¹⁶⁸ Decay experience includes treated or untreated decay and filled or missing teeth (dmft). Prevalence was similar for girls and boys and increased with age from 41% in 5–6 year olds to 54% in 9–10 year olds.
- In 2010–12, 30% of children (6–14 years) had decay experience in their permanent teeth (DMFT).¹⁶⁸ Prevalence was similar for girls and boys and increased with age from 10% in 6–8 year olds to 47% in 12–14 year olds.
- The prevalence of decay experience in 2010–12 was higher among children from households where parents had less education and lower incomes, and for some indicators by Indigenous status.¹⁶⁸ Children from Townsville, which has been fluoridated since 1964, had the lowest prevalence of decay experience and the lowest mean scores, compared with other recently fluoridated and non-fluoridated communities.
- The latest national collection was 2007, and the proportion of Queensland children with decay experience was about 10% higher than national, and third highest of the states and territories.¹⁶⁹
- One in 4 Queenslanders aged 15 years and older in 2004–2006 had untreated decay (28%).¹⁷⁰ Untreated decay was higher in males than females, in remote and very remote areas than in cities, and among uninsured people than those insured.
- 1 in 4 (24%) Queenslanders aged 15 years and older had gum disease in 2004–2006 and prevalence increased with age from 12% in 15–34 year olds to 47% at age 55 years and older.¹⁷¹ Prevalence was higher in Australian males (29%) than females (19%), and 2.3 times higher in remote and very remote areas than in major cities (33% compared with 14%).

Hospitalisations

- There were 12,655 hospitalisations for dental conditions in Queensland in 2011–12 with similar rates for males and females (*Figure 25a*).
- About 1 in 3 hospitalisations (37%) occurred in infants and young children (0–9 years). For Indigenous Queenslanders about 60% of hospitalisations were in this age group.
- The major cause was tooth decay, accounting for 53% of the hospitalisations for dental conditions. In children aged 0–9 years, 82% of hospitalisations for dental conditions were for tooth decay compared with 32% in those aged 10 years and older.
- Hospitalisation rates in the two years 2010–11 to 2011–12 were:
 - 34% higher in the second most socioeconomically disadvantaged area than in the most advantaged areas, and 22% higher in the most disadvantaged areas
 - about 80% higher in remote and very remote areas compared to cities
 - 32% higher for Indigenous Queenslanders than non-Indigenous, although rates for young Indigenous children (0–9 years) were 43% higher than non-Indigenous.

- Between 2001–02 and 2011–12, the hospitalisation rate increased by 1.2% per year (*Figure 25b*). The rate in public hospitals decreased by 1.5% per year, while the rate in private hospitals increased by 3.4% per year. It is likely these differing trends are associated with changes in access, admission practises and service delivery rather than changes in underlying disease.
- The Queensland hospitalisation rate in 2011–12 was similar to the national rate.⁸³

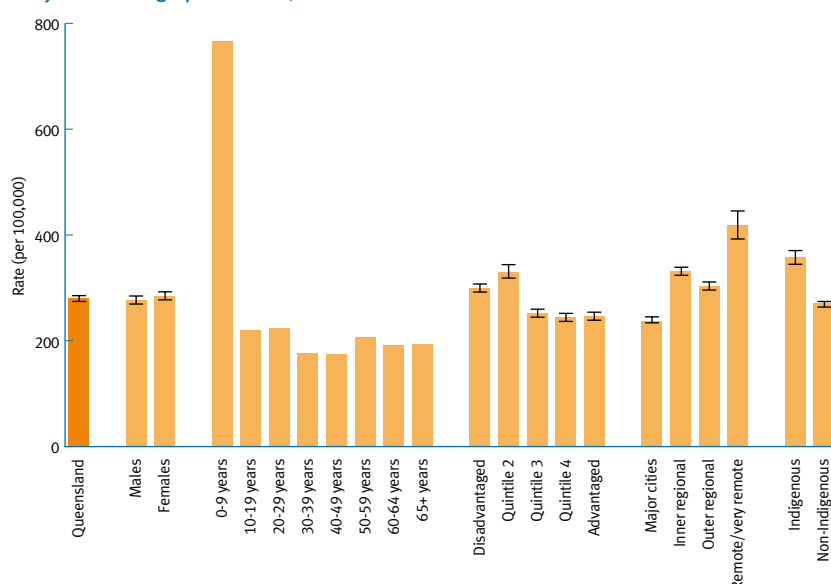
Expenditure

In 2011–12, \$10.6 billion was spent on dental services in Australia, \$1.8 billion in Queensland. This was the second largest disease group cause after cardiovascular disease (*Table 3, page 17*).⁸³ The majority of expenditure on dental disease is derived from non-government sources, principally individuals (72%).

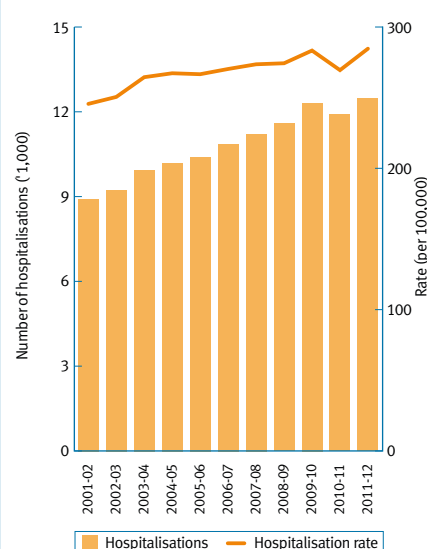
30% of children had decay experience in permanent teeth.

Figure 25. Hospitalisations for dental conditions, Queensland

a. By sociodemographic factors, 2010–11 to 2011–12.



b. Trend



Musculoskeletal conditions

Musculoskeletal conditions are common chronic conditions, affecting 27% of the Queensland population.¹⁰¹ They have been a national health priority since 2002.⁸⁹ They are a major cause of disability, with symptoms affecting everyday life.¹⁰¹ Arthritis, back problems and osteoporosis are the three most prevalent musculoskeletal conditions and are the focus of this section.

In 2010, low back pain was the leading cause of disability accounting for 13% of the disability burden in Australia, and the second largest cause of total disease burden (page 18).⁸ People with musculoskeletal conditions are more likely to have employment restrictions such as being unable to work, needing special assistance in the workplace and being restricted in the hours of work they can undertake. Of those Australians aged 15 to 64 years with back problems, 80% experienced employment restrictions, while for those with osteoporosis, 74% experienced restrictions and 66% of those with arthritis.⁵² In 2009–10 in Queensland, 10% of all GP consultations were related to a musculoskeletal condition.¹⁷²

All musculoskeletal conditions

Prevalence¹⁰¹

- In 2011–12, 1 in 4 or 27% of Queenslanders reported a musculoskeletal condition with females 8% more likely than males to do so (Figure 26a).
- The prevalence increased with age, from 4% of those aged 0–24 years to 59% in people aged 65 years and older.

Hospitalisations

- In 2011–12 there were 88,939 hospitalisations for all musculoskeletal conditions (5% of all hospitalisations) where 51% were male (45,063 males, 43,876 females).
- The male hospitalisation rate was 8% higher than the female rate.
- The median age of hospitalisation was 58 years (56 years for males, 60 years for females).
- In the two-year period 2010–11 to 2011–12, the hospitalisation rate was:
 - 5% higher in disadvantaged areas than advantaged areas
 - 5% higher in inner and outer regional areas than major cities
 - 21% higher for non-Indigenous Queenslanders than Indigenous Queenslanders.
- The hospitalisation rate was higher than the Queensland rate for seven HHSs and lower for six (Figure 26b).
- Between 2001–02 and 2011–12, the hospitalisation rate increased by 26% (2.3% per year), while the number of hospitalisations increased by 67% (5.2% per year) from about 56,000 per year to about 88,000 per year.

Arthritis

Prevalence¹⁰¹

- In 2011–12, 1 in 8 Queenslanders (13%) reported any type of arthritis, 8% had osteoarthritis, 2% had rheumatoid arthritis, and 5% had an unspecified type of arthritis, noting that some people have more than one type of arthritis.
- Females were 37% more likely than males to have arthritis.
- The prevalence of arthritis increased with age, from 26% of people aged 45–64 years to 43% of people aged 65 years and older (Figure 26a).
- Between 2001 and 2011–12, prevalence decreased by 8% in Queensland.
- Queensland prevalence was similar to national prevalence in 2011–12 and third lowest among the states and territories.

Back problems

Prevalence¹⁰¹

- In 2011–12, 1 in 8 Queenslanders reported a back problem with males 12% more likely than females to do so (12%) (Figure 26a).
- The prevalence increased with age, from 15% of people aged 25–44 years to about 21% of those aged 45 years and older.
- The prevalence of back problems halved in Queensland between 2001 and 2011–12. A similar pattern was evident nationally.
- Queensland prevalence was similar to national prevalence in 2011–12 and second lowest of the jurisdictions after Tasmania. An international comparison of back pain is limited by data sources and lack of consistent case definition. This includes the assessment of disease burden undertaken by GBD in 2010 (page 18).⁶⁸

1 in 4 Queenslanders have a musculoskeletal condition.

Osteoporosis

Prevalence

- The prevalence of osteoporosis in Queensland is unknown. It is most accurately diagnosed by bone mineral density assessment using X-ray. A Victorian study reported that 6% of males and 23% of females aged 50 years and older had osteoporosis in 2006.¹⁷³ This is about double the prevalence obtained from self report surveys in this age group.¹⁰¹
- By self report in 2011–12, 3% of Queenslanders reported osteoporosis as a long-term condition (Figure 26a).¹⁰¹
- Females were 5 times as likely as males to self report osteoporosis.
- The prevalence of self reported osteoporosis increased with age, from 5% of people aged 45–64 years to 14% of people aged 65 years and older.
- Between 2001 and 2011–12, the prevalence of osteoporosis increased by 88% in Queensland.
- Queensland prevalence was similar to national prevalence in 2011–12 and fourth lowest of the jurisdictions.

Expenditure

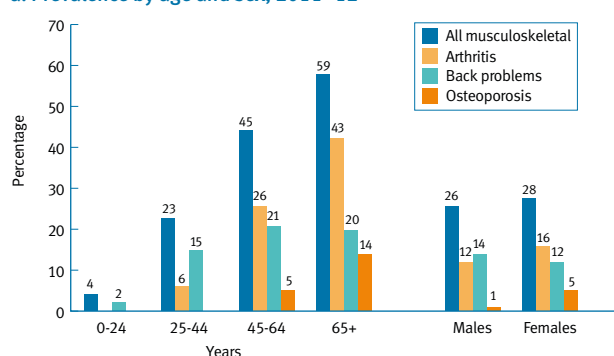
In 2011–12, musculoskeletal conditions were the fourth largest cause of healthcare expenditure in Queensland, accounting for \$1.39 billion (Table 3, page 17). Based on current data, the health and residential care expenditure for musculoskeletal conditions is projected to more than triple nationally over the 30-year period (2002–03 to 2032–33) from \$4.4 billion to \$14.2 billion (Figure 8, page 17).¹⁸ A large proportion of the projected increase in expenditure was associated with population ageing (36% or \$3.5 billion), followed by extra volume of services per treated case (34% or \$3.3 billion).

People with osteoarthritis use healthcare services at a higher rate than people of a similar age group without osteoarthritis.¹⁷⁴ Osteoarthritis is also a predominant condition leading to hip and knee replacement surgery.¹⁷⁵ Over 90% of patients aged 60 years and older who experience a fracture in the neck of femur require joint replacement surgery.¹⁷⁶ It was estimated that \$1.31 billion of potential taxation revenue will be lost due to the reduced participation in the paid workforce of people with arthritis.¹⁷⁷

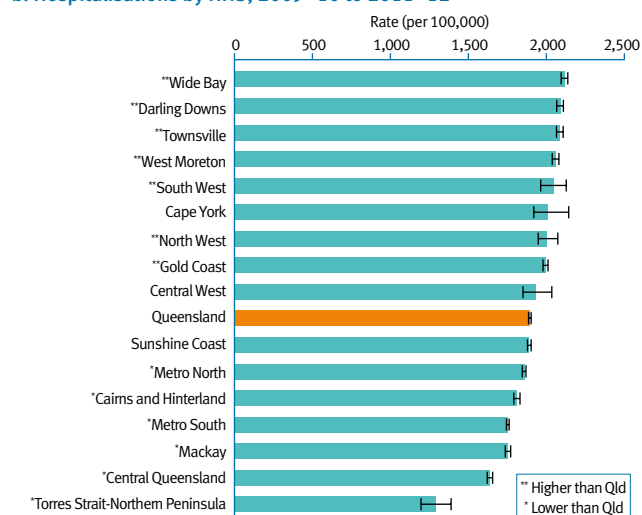
In 2010, the projected total cost of fractures associated with osteoporosis was estimated to be \$569 million nationally in 2020.¹⁷⁸ Between 2003 and 2012, the number of hip procedures increased by 41% and the number of knee procedures by 69% in Australia.¹⁷⁵ With the projected increase in the prevalence of osteoporosis associated with an ageing population, the number of hip and knee replacement procedures undertaken each year will increase. Promoting healthy ageing, early diagnosis, effective and timely intervention and management of pain and disability, and psychosocial wellbeing measures will minimise the burden of musculoskeletal conditions.

Figure 26: Musculoskeletal conditions, Queensland: selected indicators

a. Prevalence by age and sex, 2011–12



b. Hospitalisations by HHS, 2009–10 to 2011–12



Dementia

Dementia is an umbrella term that describes a syndrome associated with more than 100 different conditions that are characterised by the impairment of brain functions, including language, memory, perception, personality and cognitive skills.¹⁷⁹ Dementia is not a natural part of ageing, although the great majority of people with dementia are older people.

There are many types of dementia, the most common being Alzheimer's disease which accounts for 50% of all cases.¹⁸⁰ Although the type and severity of symptoms and their pattern of development varies with the type of dementia, its onset is usually gradual, progressive in nature and irreversible. Dementia was recognised as the ninth national health priority in 2012.⁸⁹ While age is the major risk factor for dementia, there are other non-modifiable factors such as sex, family history and some genetic factors, as well as modifiable factors including hypertension, smoking and obesity that increase the risk of developing dementia.^{180,181}

Prevalence

Data to determine the prevalence of dementia in the population is limited. There are a number of reasons for this including lack of recognition of the symptoms, slow progress of the disease, lack of clinical knowledge specific to the condition and lack of diagnostic tools and biomarkers.¹⁸² These factors all lead to under-diagnosis and under-disclosure. Lack of national data is not unique to Australia. Prevalence data is based on meta-analyses applied to the population and benchmarked with international reporting. Although this approach has shortcomings, it is the method used in Australia.^{180,183} Recognising these caveats, in 2011:

- 1.3% or 298,000 Australians were estimated to have dementia—about 49,000 Queenslanders.^{179,180,183}
- The prevalence of dementia increases with age—from less than 1 in 10 among those aged under 65 years to about 1 in 3 of those aged 85 years and older (Figure 27).

- Of all cases of dementia in 2011, 97% were aged 65 years and older (92% of cases nationally), however of all persons aged 65 years or older, 9% were estimated to have dementia.¹⁸⁰
- Female prevalence was higher than male—1.6% of females of all ages compared with 1.0% of males in 2011.
- There is insufficient data to identify a change in the age specific prevalence of dementia. Projections are based on the assumption that current rates will prevail into the future and that population growth and ageing alone will drive changes in prevalence estimates. The number of cases of dementia in Australia is projected to quadruple from about 250,000 in 2010 to about 1,130,000 in 2050. It is likely that the relative increase over the 40 years in Queensland will be greater, a 5.5-fold increase from 47,000 people in 2010 to 238,000 in 2050 due to relative ageing of the population.¹⁸³

Hospitalisations

In 2011–12 in Queensland:

- There were about 16,000 hospitalisations for dementia (primary or other diagnosis). For the majority of hospitalisations, the reason for the hospitalisation was not primarily associated with dementia, 94% were attributed to other diagnoses. This section refers to primary and other diagnoses combined.
- Male hospitalisation rates were 14% higher than female.
- The median age of hospitalisation was 84 years—97% of hospitalisations were for those aged 65 years and older.
- The dementia hospitalisation rate did not vary by socioeconomic status.
- The rate in remote and very remote areas was 22% higher than the major city rate in the two-year period, 2010–11 to 2011–12.
- Five HHSs had higher rates than Queensland and five had lower rates in 2009–10 to 2011–12 (Figure 28).
- The hospitalisation rate for dementia decreased by 14% (1.5% per year) between 2001–02 and 2011–12, while the case numbers increased by 23%, increasing by about 330 cases per year on average.

Dementia cases projected to increase 5.5 fold in 40 years.

Burden of disease

Alzheimer's disease and other dementias were ranked 12th largest cause of total disease burden in Australia in 2010, and accounted for 2.3% of the total burden.⁴ Over the previous 20 years the burden due to Alzheimer's disease and other dementias in Australia more than doubled (137% increase), a substantially larger increase than any of the other top 25 conditions. Data for Queensland for 2010 was not available. However, in 2007, dementia caused 3.9% of total disease burden in Queensland.⁹⁰ The 2007 Queensland analysis cannot be directly compared with the more recent global study due to change in methodologies, including disability weights. The greater proportion of dementia burden in Queensland in 2007 was due to disability (70%) rather than premature death. In older people (65 years and older) dementia was the second largest cause of disease burden in females and third largest for males.¹⁸⁴ The burden due to dementia in Queensland was projected to double between 1993 and 2023.⁶⁶

Expenditure

Total direct health and aged care system expenditure for people with dementia in Australia was estimated to be at least \$4.9 billion in 2009–10, of which about \$2.0 billion was directly attributable to dementia.¹⁸⁰ About half (55%) or \$1.1 billion of this directly attributable expenditure was by the Australian Government for permanent residents in subsidised residential aged care facilities. Expenditure on community aged care services was estimated at \$408.0 million nationally (21% of directly attributable expenditure). In addition, an estimated \$144.5 million (7% of directly attributable expenditure) was spent on hospitalisations for which the primary diagnosis was dementia, with the average cost for such hospitalisations estimated at \$664 per patient day. Expenditure for the National Respite for Carers Program of \$119.8 million, pharmaceutical expenditure of \$79.9 million, and flexible aged care services expenditure of \$42.7 million were also attributed to dementia.

Figure 27: Prevalence of dementia, Australia, 2011¹⁸⁰

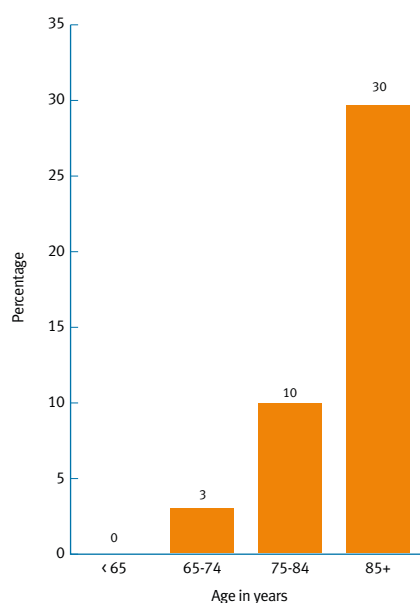
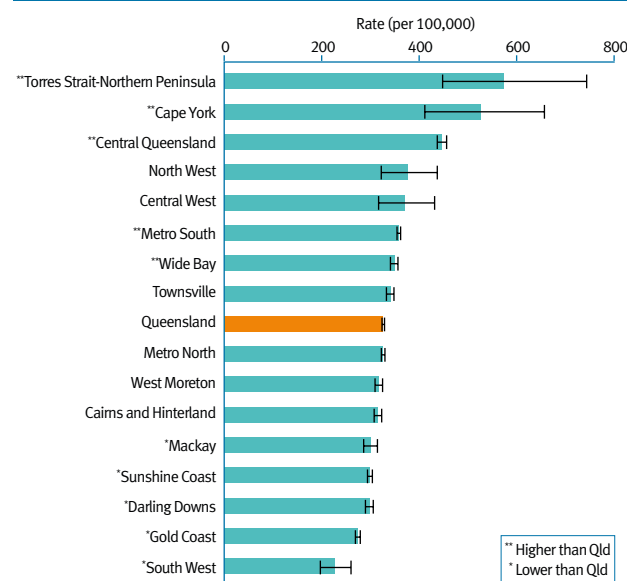


Figure 28: Dementia hospitalisations (principal and other diagnoses), by HHS, Queensland, 2009–10 to 2011–12



Vision disorders and hearing loss

Vision and hearing are primary senses involved in communication, mobility and learning.⁵² Vision disorders affect the eyes and eyesight and are a common cause of mild disability, and may result in diseases that lead to hospitalisation. The major reason for hospitalisation for an ear disease was middle ear infections (60% of total) such as otitis media, particularly in young children (about 90%). Otitis media is common among Indigenous Australians, affecting about 5 in 10 children living in remote communities in Northern Australia.¹⁸⁵ It affects the child's general health, their development and educational outcomes, as well as families and the communities to which these children belong.

Vision loss due to uncorrected refractive error and cataract can be avoided by the provision of appropriate services and rehabilitation. Vision loss is a complication of diabetes. In 2009, among Australians with vision loss, 17% reported diabetes.¹¹⁰ Rising levels of diabetes will affect the prevalence of vision disorders. Almost all people with type 1 diabetes, which typically develops in childhood, and 60% of those with type 2 diabetes, will develop some form of diabetic eye disease and many will go on to experience vision loss or blindness as a result within 20 years of their diabetes diagnosis.¹⁸⁶

In Australia, it is estimated that there were about 550 children (20 per 10,000 live births) born with a congenital hearing impairment.¹⁸⁷ Early detection, particularly in the neonatal period, and access to services can improve long-term outcomes for many of these children.¹⁸⁸ Interventions such as hearing aids and cochlear implants enhance a person's ability to communicate. However, the majority of people with hearing loss (85%) do not have such devices.¹⁸⁹

Vision disorders and diseases of the eye

Prevalence¹⁰¹

- Vision disorders and diseases of the eye affected 1 in 2 or 52% of Queenslanders in 2011–12.
- The most common disorders were long sightedness (29%), short sightedness (22%), and astigmatism and presbyopia (9%).
- The prevalence increased with age from 18% in 0–24 year olds to 97% in those aged 65 years and older (*Figure 30a*).
- Among children and young people (0–24 years), 6% were long sighted and 8% were short sighted.

- Females were 20% more likely than males to have a vision disorder or eye disease.
- Between 2001 and 2011–12, the prevalence of long sightedness increased by 16% in Queensland.
- The prevalence of long sightedness in Queensland was 7% higher than national prevalence and highest of all the jurisdictions in 2011–12, after adjusting for age differences in the population.

Hospitalisations

- There were about 61,000 hospitalisations in 2011–12 for diseases of the eye and adnexa (3.3% of all hospitalisations), where 54% were female (32,903 females, 28,167 males). The female rate was 4% higher than the male rate.
- Over 80% of hospitalisations were for people aged 60 years and older with highest rates in the age range 75–84 years (*Figure 30a*).
- In the two-year period, 2010–11 to 2011–12, the hospitalisation rate was:
 - 4% lower in disadvantaged areas than advantaged areas
 - about 3% lower in regional areas than in major cities, and 19% lower in remote and very remote areas
 - 57% higher for non-Indigenous than Indigenous Queenslanders.
- The hospitalisation rate was higher than the Queensland rate for five HHSs and lower for seven. The rate in Townsville, Gold Coast, Sunshine Coast, Wide Bay and West Moreton was 5–23% higher than the state rate (*Table 37, page 168*).
- Between 2001–02 and 2011–12, the hospitalisation rate increased by 31% (2.7% per year), while the number of hospitalisations increased by 77% (5.9% per year) (*Figure 30b*).

Hearing loss and diseases of the ear

Prevalence¹⁰¹

- About 1 in 10 Queenslanders experienced deafness in 2011–12 (11%) and an additional 4% had other ear diseases.
- Male prevalence was 26% higher than female prevalence (*Figure 29*).
- Deafness increases with age, from 3% in children and young people (0–24 years) to 31% in those aged 65 years and older (*Figure 29*).
- Between 2001 and 2011–12, the prevalence of deafness decreased by 10% in Queensland.
- The prevalence of deafness in Queensland was similar to national prevalence in 2011–12 and fourth highest of the jurisdictions, after adjusting for age differences.

Hospitalisations

- There were about 12,000 hospitalisations in 2011–12 for diseases of the ear and mastoid process (0.7% of all hospitalisations), where 54% were male (6508 male and 5557 female). The male rate was 17% higher than the female rate.
- About 50% of hospitalisations were for children (0–14 years) and highest rates were in the very young (0–4 years) (*Figure 30a*).
- The rate was about 40% higher in remote and very remote areas than in major cities in the two-year period 2010–11 to 2011–12 but did not differ by socioeconomic status.
- The rate for Indigenous Queenslanders was 22% higher than the non-Indigenous rate, and was higher for all ages, except the very young and elderly. The rate in children aged 10–14 years was double the non-Indigenous rate.
- The hospitalisation rate was higher than the Queensland rate for five HHSs (Cape York, North West, Metro South, Metro North and West Moreton) and lower for five (Sunshine Coast, Townsville, Gold Coast, Cairns and Hinterland and Darling Downs) in the three years 2009–11 to 2011–12 (*Table 37, page 168*).
- Between 2001–02 and 2011–12, the hospitalisation rate remained steady with a small increase in cases—18% (1.6% per year) (*Figure 30b*).

Expenditure

The total economic cost of vision loss in Australia was estimated to be \$16.6 billion in 2009 or \$28,905 for each person aged 40 years and older with vision loss.¹⁹⁰ About 20% of total costs were associated with the health system (\$2.98 billion), 14% with productivity losses and 57% with loss of wellbeing.

In 2004, the financial cost of hearing loss was estimated to be \$11.75 billion or 1.4% of GDP.¹⁸⁹ This was \$3314 for every person with hearing loss. Productivity losses accounted for the largest proportion of the total cost—57% of total or \$6.7 billion. The second largest component was the cost of informal carers, 27% of total or \$3.2 billion. Direct health system costs accounted for 6% of total financial cost or \$0.674 billion and included spending on devices, allied health services such as audiologists and speech pathologists, and inpatient and outpatient costs.

Figure 29: Prevalence of sight and hearing disorders, Queensland, 2011–12¹⁰¹

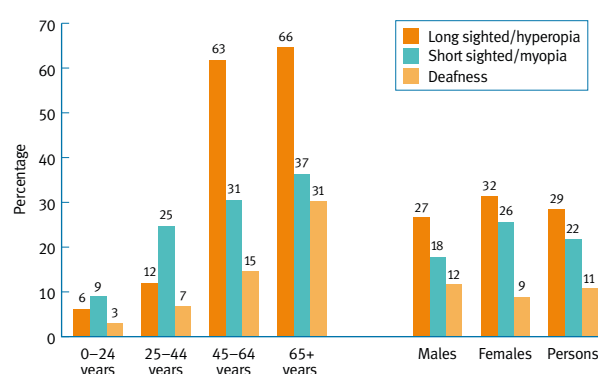
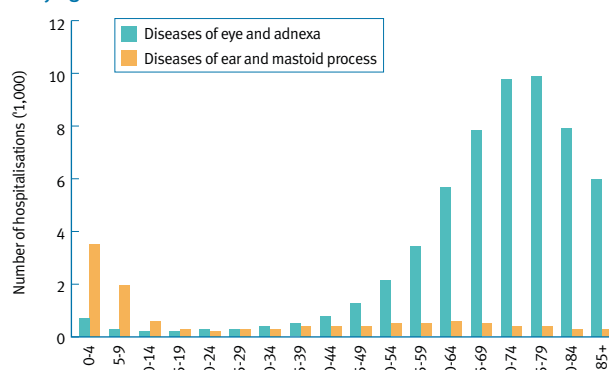
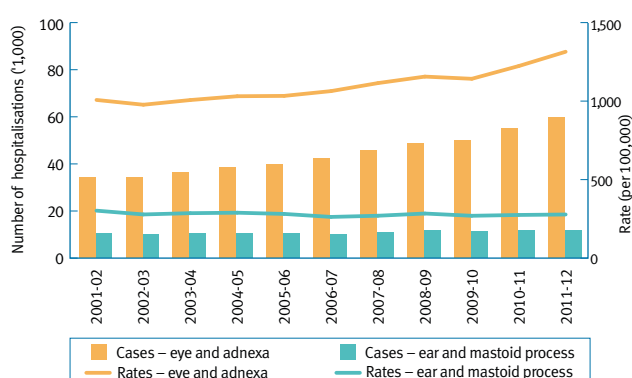


Figure 30: Hospitalisations for diseases of the eye and ear, Queensland, 2010–11 to 2011–12

a. by age



b. trend



Communicable diseases

For many decades various means have been used to control the spread of communicable diseases including vaccines, antibiotics and other antimicrobials, personal protective equipment, hand hygiene, and other sterile techniques. The pattern of communicable diseases in 2013 is a reminder that while the burden of illness and death for many communicable diseases has been reduced, continued vigilance and investment in prevention and response strategies is required to avoid preventable infections. In this section, selected key conditions are reported.

Influenza

In 2013, there were 5528 notifications of laboratory-confirmed influenza, a large decrease from the 16,927 notifications in 2012 (*Figure 31a*). The winter influenza season was mild in 2013, and commenced later than the previous two years, with notifications rising in June, peaking in September and some influenza activity continuing through December 2013. Queensland Health distributed over 765,000 doses of funded influenza vaccine in 2013.

Pneumococcal

In 2013, pneumococcal notifications were lower than in the previous two years and similar to 2009 and 2010 counts (*Figure 31b*). Notification rates had dropped after the introduction of pneumococcal vaccine for all infants at 2, 4 and 6 months of age in 2005. The increase in rate between 2009 and 2012 was due to an increase in cases caused by pneumococcal bacteria types not covered by the childhood vaccine. In July 2011, a newer vaccine which covers more types was introduced, leading to the reduction in notifications and rates seen in 2013.

Pertussis

Whooping cough (pertussis) rates peaked in 2011 during the nationwide epidemic, and returned to baseline levels in 2012 and 2013 (*Figure 31c*).

Measles

The number of notifications was higher in 2009 and 2013 when local outbreaks of measles were caused by international disease importation and subsequent local spread (*Figure 31d*).

Rotavirus

Rotavirus became notifiable in 2006 and rotavirus vaccination was introduced to the infant immunisation schedule in mid-2007 (*Figure 31e*). There was an early and sustained reduction in rotavirus activity following vaccine use.

Tuberculosis

Notifications of tuberculosis have fallen since a peak of 221 notifications in 2011 (*Figure 31f*). The majority of notifications in Australia continue to be in people born overseas.

Salmonellosis

Salmonella is predominantly a foodborne illness which causes gastroenteritis. On average, Queensland is notified of approximately 2630 cases of salmonellosis each year (*Figure 31g*). Salmonella notification rates declined by about 30% between 2004 and 2008. Notification rates have increased again in recent years, and in 2013 are very close to the 2004 peak. Eight salmonella outbreaks were investigated in 2013, affecting at least 425 people, which would contribute to this observed increase.



Staphylococcus aureus bloodstream infection

Staphylococcus aureus bloodstream infection (SAB) is a key national hospital performance indicator and one of six targets specified in the *Blueprint for better healthcare in Queensland*.¹⁹¹ SAB causes serious complications and substantial excess healthcare costs. SAB surveillance data from 23 major public hospitals show annual SAB cases fluctuating between 268 and 308 (Figure 31h). There has been a downward trend in SAB incidence rates to be consistently below the national target of no more than 2 cases per 10,000 patient bed days.

Dengue

There has been an increase in the number of overseas acquired cases of dengue returning to Queensland in 2013 (Figure 31i). Local transmission is documented only in north Queensland, with the largest outbreak recorded in 2008–2009.

Legionellosis

Notifications of legionellosis were stable over the period 2009 to 2011 with a slight increase in 2012 (Figure 31j). Following the outbreak of two cases of *Legionella pneumophila* at the Wesley Private Hospital in June 2013, there was a large increase in notifications, likely to be a result of increased community awareness and testing.

Syphilis

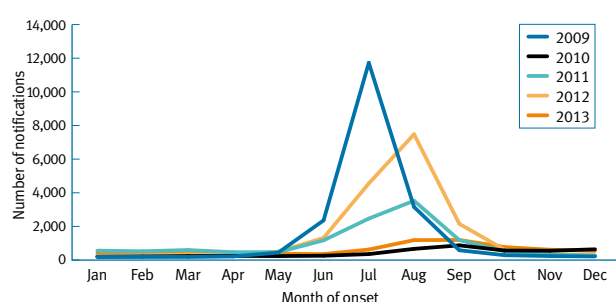
Enhanced surveillance of infectious syphilis began in 2002. Syphilis notifications in men who have sex with men have been increasing throughout Australia since the early 2000s (Figure 31k). An outbreak of syphilis in northwest Queensland accounted for the high rate of syphilis in Queensland in 2011–2012.

HIV

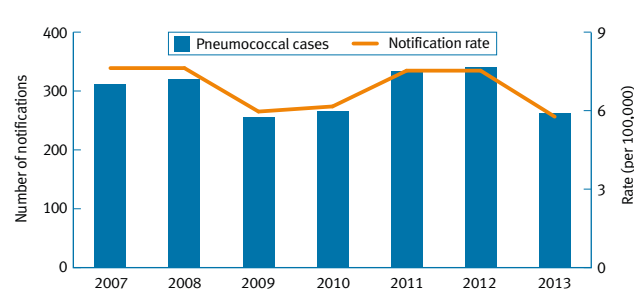
Notifications of new HIV diagnoses in Queensland decreased in 2013 (181 compared with 206 in 2012), although there has been an increasing trend in the notification rate since the late 1990s (Figure 31l). There has been a similar trend nationally, although the national rate has stabilised in the last few years. The majority of HIV notifications in Queensland (75% in 2013) continue to be in men who have sex with men, consistent with national data.

Figure 31: Communicable diseases, Trend in selected indicators, Queensland

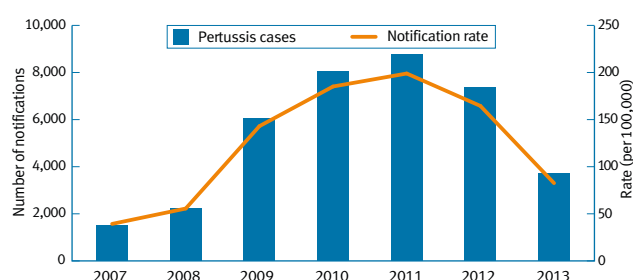
a. Influenza



b. Pneumococcal



c. Pertussis



d. Measles

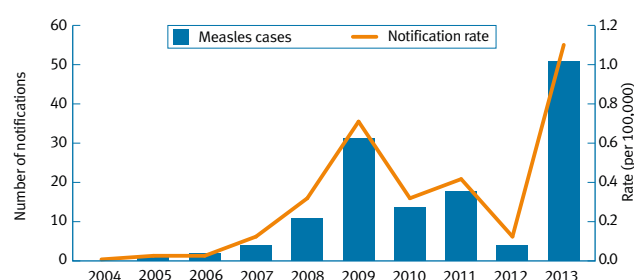
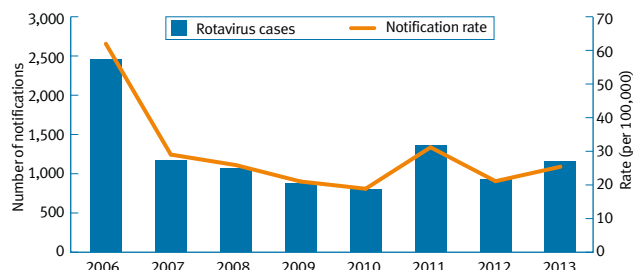
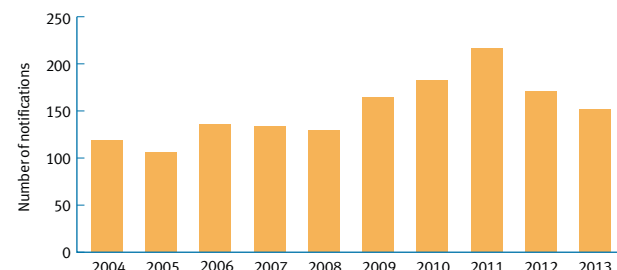


Figure 31: Communicable diseases, Trend in selected indicators, Queensland

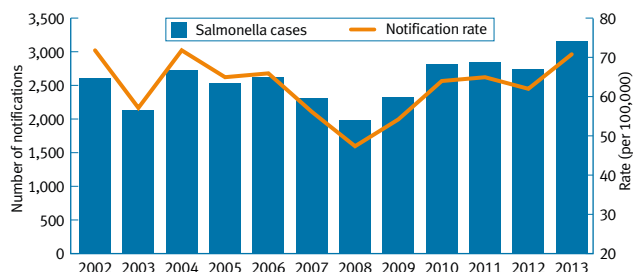
e. Rotavirus



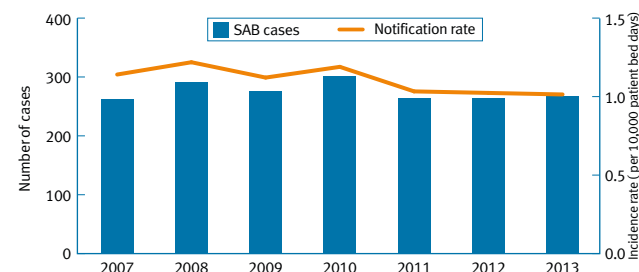
f. Tuberculosis



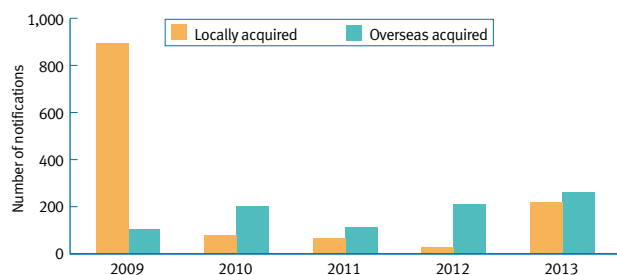
g. Salmonellosis



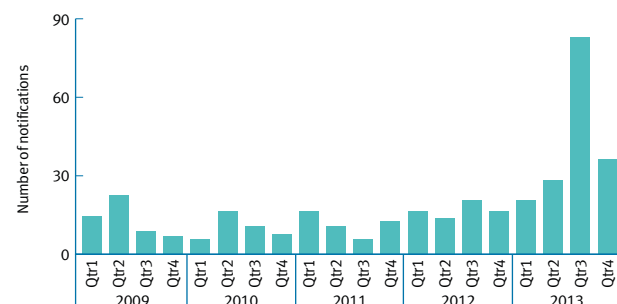
h. Staphylococcus aureus bloodstream infection



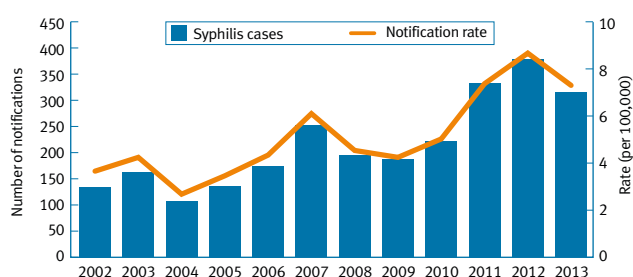
i. Dengue



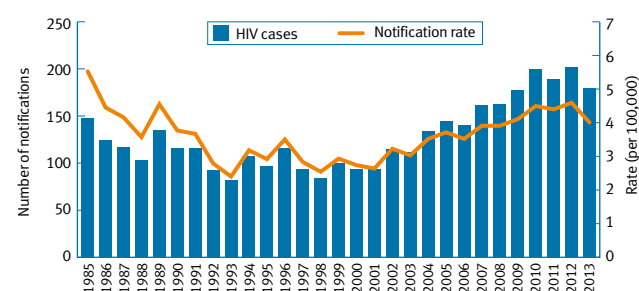
j. Legionellosis



k. Syphilis



l. HIV



Chapter 4 Risk and protective factors

A healthy lifestyle adds years to life and life to years. Known risk factors have a major impact on health outcomes, highlighting the potential preventability of the health burden in this state. They also reduce the quality of life and wellbeing of the population and the greater the burden of risk a person carries, the greater the loss of self rated health, quality of life and satisfaction with health. Higher burden of risk in the population will therefore lead to productivity loss through more illness and loss of wellbeing.

In Queensland in 2007, 13 lifestyle, physiological, social, and environmental risk factors explained about one-third of the total disease and injury burden (31% for the total Queensland population⁴⁰ and 36% for Indigenous Queenslanders⁶¹). About 40% of deaths in 2007 were due to the joint effect of these modifiable risks, 43% of premature deaths. For Indigenous Queenslanders, 49% of deaths were due to modifiable risk factors. The relationship between risk factors and specific disease outcomes is further described in Chapter 3. There is a section on the clustering of risk factors and how this affects health and wellbeing in this chapter, while mental health and its risks are in *Chapter 3, page 48*.

Many Australians are taking action to change their lifestyle choices and improve their health. In 2011–12, 40% of adults discussed lifestyle change with their GP at some time in the previous 12 months, with reaching a healthy weight and eating a healthy diet the most common topics.¹²¹ Obese adults were more likely than any other risk group to discuss lifestyle change. For about 1 in 3 (31%) it was reaching a healthy weight, for 1 in 6 (17%) healthy eating, and for a similar proportion (16%) it was increasing their physical activity. Smokers were also likely to have discussed lifestyle change, with quitting was the issue for 1 in 3 (29%). Alcohol consumption was one of the less common issues discussed (2.7%). Those who reported exceeding the guidelines for safe consumption were more likely to discuss drinking in moderation, although such discussions were not common (8% of lifetime risky drinkers and 5% of single occasion risky drinkers).

This chapter focuses on a number of these risk and protective factors. Information is provided for the whole Queensland population as well as subpopulations. Causes, trends and impacts are described systematically. Each risk factor section identifies key challenges and opportunities. Historical prevalence data is in *Table 1, page 4* and at www.health.qld.gov.au/cho_report/

In this chapter:

- Multiple risks
- Overweight and obesity
- Food and nutrition
- Physical activity
- Smoking
- Alcohol consumption
- Illicit drug use
- Blood pressure and cholesterol
- Cancer screening
- Sun safety
- Oral health and fluoride
- Immunisation



Multiple risks

Chronic diseases were the largest cause of death (60%) in Queensland in 2010, and 70% of these were caused by cancers and cardiovascular diseases (CVD), both of which are typified by multiple causes and risks.⁷³

For many chronic diseases, the clustering of risk has a more pronounced effect on disease development than the individual risks.⁸⁰ For example, the clustering of high blood pressure and cholesterol, high plasma glucose and central adiposity have been defined as the 'metabolic syndrome' or 'deadly quartet', and together substantially increase the risk of CVD and diabetes.¹⁹² Diabetes is associated with similar factors although the ranking differs, with obesity the largest and dominant factor, followed by physical inactivity.⁴⁰ Cancers are associated with smoking, dietary factors, high body mass, physical inactivity and alcohol excess.⁴⁰ While each factor independently increases the risk of disease, it is the clustering through direct interactions and mediated pathways that add to the complexity of prevention and treatment.^{52,80,193}

Multiple risk factors have a detrimental effect on quality of life and wellbeing. Self rated health and wellbeing is strongly associated with the number of risk factors a person reports. In 2012, with each additional chronic disease risk factor (daily smoking, obesity, physical inactivity, low fruit and vegetable consumption, and lifetime risky alcohol consumption), there was a 70% reduction in quality of life, self rated health and satisfaction with health, irrespective of age, sex and other sociodemographic variables.¹⁹

Very few Queenslanders are free of preventable disease risk. Fewer than 1 in 3 adults (29%) had no exposure to any of the four main CVD risks in 2011–12 (*Table 18*).¹⁹ Fewer than 1 in 7 (15%) reported a healthy lifestyle based on having none of the selected chronic disease risks factors in 2012. Even among healthy weight adults, relatively few people reported a healthy lifestyle profile (*Table 15*). Considering all adults (excluding those underweight), 1 in 12 (8%) was a healthy weight and reported a healthy lifestyle, 1 in 4 (27%) while being of healthy weight, reported an unhealthy lifestyle. Conversely 1 in 10 (10%) was overweight or obese but had a healthy lifestyle and about half (55%) were overweight or obese and had an unhealthy lifestyle.

Table 15. Prevalence of lifestyle related risk by weight status, adults, Queensland¹⁹

	% healthy lifestyle**	% risky lifestyle**
Healthy weight*	8	27
Overweight or obese*	10	55

* Based on measured prevalence 2011–12.

**Based on self reported prevalence of 5 chronic disease risk factors 2012, where healthy is defined as 0 of 5 risks.

The majority of Queensland adults (85%) reported at least one of five selected key risk factors for chronic disease, based on self reported prevalence in 2012.¹⁹ These risks were: low fruit and vegetable consumption (less than five serves in total), insufficient physical activity, obesity, daily smoking and lifetime risky alcohol consumption. There is a clustering of risk (*Table 17*):

- 1 in 5 adults (21%) reported three of five risk factors, defined as higher chronic disease risk.
- Males were 80% more likely to report higher risk than females.
- Compared to younger adults, middle aged adults (35–64 years) were 53% more likely to report higher risk and older adults (65 years and older) were 30% more likely.
- Adults in socioeconomically disadvantaged areas were 78% more likely to be at higher risk than those in advantaged areas. Those in areas outside major cities reported higher risk, 23% higher in outer regional areas, 30% higher in remote and very remote areas.
- Five HHSs reported excess prevalence of higher chronic disease risk than the state rate (*Figure 67e, page 164*).

More than two-thirds of Queensland adults (71%) had some exposure to one or more of the main risks for CVD, based on measurement of diabetes (diagnosed by fasting plasma glucose), high blood pressure, abnormal lipids and obesity in 2011–12.¹⁹ There is a clustering of risk:

- One adult in 7 (14%), had three or more of the four main CVD risks, defined as higher risk using measured data (*Table 18*).
- The prevalence of diabetes was about 7 times higher in adults who were measured as hypertensive, 4.2 times higher in obese adults and 3.6 times higher in those who were dyslipidaemic, than those who did not have these risks (*Table 16*).

Table 16. Prevalence of clustered cardiovascular disease risk factors by measurement, adults, Queensland, 2011–12¹⁹

	Prevalence (%) of:			
	obesity	hypertension	dyslipidaemia	diabetes (FPG)
Obese		51.4	81.2	10.9
Not obese		17.7	56.5	2.6
Ratio		2.9	1.4	4.2
Hypertensive	52.6		81.4	13.8
Not hypertensive	18.4		55.3	*1.9
Ratio	2.9		1.5	7.3
Dyslipidaemic	36.5	35.7		6.8
Not dyslipidaemic	14.4	13.1		*1.9
Ratio	2.5	2.7		3.6
Diabetes (FPG)	63.1	73.3	86.8	
No diabetes	26.8	24.9	63.1	
Ratio	2.4	2.9	1.4	

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

More than two-thirds of adults have one of the deadly quartet of risk factors for cardiovascular disease.

- The prevalence of obesity was 2.9 times higher in those who were hypertensive, 2.5 times higher in those who were dyslipidaemic and 2.4 times higher in those with diabetes, than those who did not have these risks (Table 16).
- Older adults were about 8 times more likely than young adults to have higher exposure to CVD risk (self reported estimates) in 2012.
- Adults in socioeconomically disadvantaged areas were 80% more likely to have higher risk than those in advantaged areas (self reported estimates) in 2012.

Challenges and opportunities

As almost all adults have some modifiable risk of chronic disease at some time during their life, addressing lifestyle factors will improve their long-term health outlook, reduce the risk of premature death from cancer and cardiovascular disease, and improve their quality of life and wellbeing across the life course.

Addressing risk factors in the population has twin benefits. It will reduce the burden of ill health both now and in the future, and therefore reduce health system pressure and improve productivity. It will also improve the individual's experience of wellbeing, their quality of life and satisfaction with their health.

The clustering of selected risk factors for cardiovascular disease provides an important opportunity to reduce the burden associated with these diseases. Cardiovascular disease is the largest cause of death in Queensland and nationally. A steady downward trend in the cardiovascular disease death rate over recent

decades in Australia has generated substantial improvements in life expectancy. Risk factor management is important for further gains to be achieved—in the primary healthcare setting for high blood pressure, high cholesterol and diabetes, and population-wide strategies for obesity, smoking and nutrition.

Cancer is the second largest cause of death and largest cause of premature death. Risk factors such as smoking, obesity, physical inactivity, poor nutrition and sun safety are important for the prevention of many of the most burdensome cancers. A continued focus on the suite of preventive factors will bring benefit to many Queenslanders.

Those adults with the least number of risk factors report the highest levels of quality of life and satisfaction with their health. Promoting healthy lifestyles will improve the health and wellbeing of the population, with resultant productivity improvements.

Table 17. Prevalence of higher self reported risk for chronic disease, by sociodemographic factors, adults, Queensland, 2012¹⁹

		Prevalence (95%CI)	
		3+ chronic disease risk factors	
18+ years	Persons	21.2	(20.2 – 22.3)
	Male	26.0	(24.5 – 27.6)
	Female	16.3	(15.0 – 17.7)
Persons	18–34 years	17.1	(14.9 – 19.4)
	35–54 years	24.2	(22.7 – 25.8)
	55+ years	21.9	(20.6 – 23.3)
Socioeconomic status	Disadvantaged	26.4	(24.4 – 28.6)
	Quintile 2	24.8	(22.5 – 27.3)
	Quintile 3	22.1	(19.9 – 24.4)
	Quintile 4	19.3	(17.0 – 21.9)
	Advantaged	15.1	(13.0 – 17.4)
Remoteness	Major city	18.7	(17.3 – 20.1)
	Inner regional	23.4	(21.3 – 25.6)
	Outer regional	26.0	(23.6 – 28.5)
	Remote	28.0	(25.1 – 31.0)
	Very remote	27.5	(24.5 – 30.7)

Table 18. Prevalence of multiple risk factors for cardiovascular disease by sex, adults, Queensland and Australia^{19,118,126}

		Data source		
		Measurement 2011–12 %		Self report 2012 %
		Queensland	Australia	Queensland
Persons	No risk factors	28.9	26.2	41.7
	1 risk factor	35.7	37.2	30.5
	2 risk factors	21.7	23.8	18.6
	3 risk factors	11.3	10.6	7.1
	4 risk factors	2.4	2.2	2.2
Males	No risk factors	28.2	25.4	41.7
	1 risk factor	33.8	36.3	30.4
	2 risk factors	22.3	24.2	18.2
	3 risk factors	12.6	11.4	7.2
	4 risk factors	*3.1	2.7	2.5
Females	No risk factors	29.6	27.1	41.7
	1 risk factor	37.7	38.0	30.5
	2 risk factors	21.0	23.3	19.0
	3 risk factors	10.0	9.8	6.9
	4 risk factors	*1.6	1.7	1.9

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

Overweight and obesity

Around the world, obesity has risen steeply among children and adults over recent decades. This rise is leading to significant consequences for the health of affected individuals, along with an increasing burden on health services, social support and economic productivity.¹⁹⁴ Obesity was recognised as a national priority in 2008.⁸⁹

Queenslanders are getting heavier over time with very little change in height. Between 1995 and 2011–12, the average adult male put on 2.7kg and female 4.0kg, while height increased slightly (3cm increase for males and 2cm for females) based on measured height and weight.^{101,195} Over the same 16-year period the average Australian adult put on 4kg (3.9kg for males and 4.1kg for females) with less than 1cm increase in height.¹⁹⁶

About 1.1 million Queensland adults were obese based on measurement in 2011–12. If the current upward trend continues, by 2020 there will be about 1.5 million obese adults—the average Queensland adult (male and female) will have put on a further 2.5kg.

The estimation of obesity and related categories is based on body mass index (BMI). The physical measurement of height and weight is the most accurate method for measuring the true prevalence of overweight and obesity in the population. Self reported height and weight is the alternative. There are limits to the comparability of self report and measured data. Adults tend to underestimate their weight and overestimate their height, leading to the underestimate of BMI by self report. Proxy reporting of children's height and weight by parents and carers in Queensland shows very close agreement with measured estimates.

The source of measured estimates is limited to three-yearly national health surveys which provide limited state prevalence information. In contrast, annual estimates and trends in self reported or proxy reported overweight and obesity in Queensland are undertaken from the state surveillance system. This section includes the most recent measured estimates from the *Australian health survey 2011–12*⁷⁵ as well as self report data for adults from 2014 and proxy reporting for children in 2013. Children are defined as aged 5–17 years unless otherwise noted. Where not explicitly stated, the data refers to self report.

Figure 32: Measured BMI, children and adults, Queensland, 2011–12^{75,197}

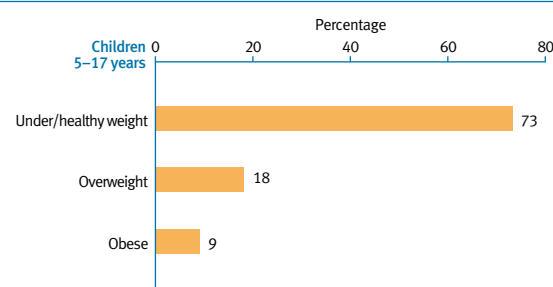
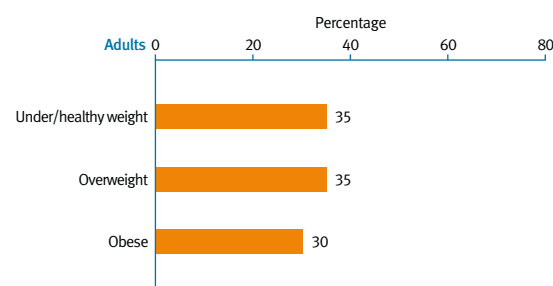
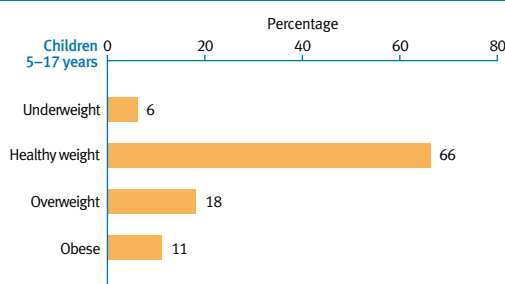
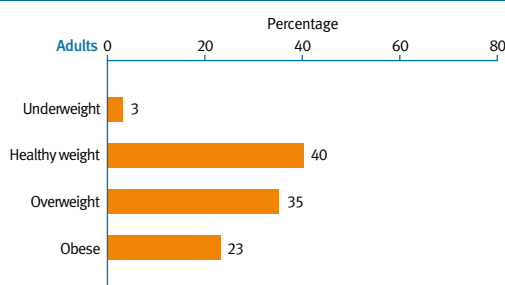


Figure 33: Self/proxy reported BMI, children 2013¹⁹⁸ and adults 2014¹⁹⁹, Queensland



2 in 3 adults and 1 in 4 children are measured overweight or obese.

What is the prevalence?

By physical measurement in 2011–12 (*Figure 32, Table 19*):

- 1 in 3 adults was a healthy weight or underweight (35%)
- 2 in 3 adults were overweight or obese (65%)
 - 1 in 3 was overweight (35%)
 - 1 in 3 was obese (30%)
- 3 in 4 children were healthy weight or underweight (73%)
- 1 in 4 children was overweight or obese (28%)
 - 1 in 5 was overweight (18%)
 - 1 in 10 was obese (9%).

By self report or proxy report (*Figure 33, Table 20, Table 21*):

- 1 in 3 adults was a healthy weight (40%) in 2014
- At least 1 in 2 was overweight or obese (58%)
 - 1 in 3 was overweight (35%)
 - 1 in 4 was obese (23%)
- 1 in 25 adults were underweight (2.6%)
- 2 in 3 children were healthy weight (66%) in 2013
- 1 in 4 was overweight or obese (29%)
 - 1 in 5 was overweight (18%)
 - 1 in 10 was obese (11%)
- 1 in 20 children was underweight (5%).

Is it the same for everyone?

Sex

Adult males were less likely to be a healthy weight than females in 2014 (21% less likely) (*Table 20*). This is mainly due to their 31% higher prevalence of self reported overweight where obesity prevalence was similar (*Table 20*). Based on self report in 2011–12, the average Queensland male weighed 86.4kg and was 178.3cm tall, while the average female was 70.6kg and 164.1cm.¹³³ By measurement in 2011–12, the average Queensland male weighed 87.5kg and was 176.2cm, while the average female weighed 72.3kg and was 162.6cm.¹⁰¹

For children, there was no difference in the weight categories between girls and boys in 2013 based on proxy reporting (*Table 21*) or measurement in 2011–12.¹⁹⁸

Age

There is a steady increase in the prevalence of overweight and obesity with age from the teenage years onwards (*Table 20*).²⁰⁰ There was a doubling in prevalence between 18–24 years and 35–44 years in 2014 (*Figure 34e*). Peak levels are maintained across the age range of 35–74 years with at least two-thirds of males self reporting overweight or obesity and about 60% of females. Peak levels of obesity are reached in the age range 55–64 years.

Children aged 8–11 years had the highest prevalence of overweight in 2013 and this was similar for girls and boys (*Table 21*).¹⁹⁸ The classification of BMI status is complex in children and may not fully account for the developmental stages of all individuals so it is important not to overstate age group differences.

Socioeconomic status

The prevalence of self reported adult obesity in disadvantaged areas was about 80% higher than in advantaged areas in 2014, but did not differ for overweight (*Table 20*). Considering overweight and obesity together there was a 26% difference. The average adult in disadvantaged areas was 3.9kg heavier than in advantaged areas in 2011–12, with no difference in average height. There was a greater weight difference for females (5.5kg) than males (1.8kg) (*Figure 34a*).¹³³ Over the past decade, females in disadvantaged areas have had a greater weight increase than males.²⁰⁰

The prevalence of childhood obesity in disadvantaged areas was double that in advantaged areas in 2013 while overweight and obesity combined was 59% higher (*Table 21*).¹¹⁷

Remoteness

The prevalence of self reported adult obesity in very remote areas of Queensland was 48% higher than major cities in 2014, and while overweight prevalence did not differ, the combined category of overweight and obesity was 20% higher (*Table 20*). There was no difference in the average height, however the average adult in very remote areas was 5.5kg heavier than in major cities in 2011–12, with a greater difference for females (6.3kg) than males (3.8kg) (*Figure 34a*).¹³³

No difference was evident in the prevalence of childhood obesity between remote areas and major cities in 2013 (*Table 21*).¹¹⁷

Indigenous Queenslanders

In 2012–13, more than two-thirds (70%) of Indigenous Queenslanders adults were measured as overweight or obese—30% were overweight and 40% were obese.²⁰¹ The Queensland prevalence was the same as national prevalence for those aged 15 years and older (66% overweight or obese) and third highest of the states and territories after NSW and Western Australia.¹¹⁹

Compared to non-Indigenous Queenslanders, Indigenous Queenslanders adults were 12% more likely to be overweight or obese after adjusting for age differences.²⁰¹ They were 39% more likely to be obese and were 25% less likely to be healthy weight.

For Indigenous Queensland children (5–17 years) in 2012–13, 30% were measured as overweight or obese, 17% were overweight and 13% were obese.²⁰¹ The prevalence did not differ from non-Indigenous Queensland children (27% were overweight or obese) or Indigenous Australian children (33% were overweight or obese).

Regional Queensland

In 2011–12, the majority of HHSs had higher prevalence of self reported adult obesity than the state, varying from 77% higher in Torres Strait–Northern Peninsula to 14% higher in West Moreton (*Figure 34b*).⁹⁴ Sunshine Coast and Gold Coast had lower prevalence than the state, 26% and 16% lower respectively. The prevalence of adult overweight and obesity combined was similarly varied, although the relative difference to Queensland was not as great. Among HHSs the average weight of adults varied by 9.2kg while height varied by less than 2cm, with areas of higher prevalence of overweight and obesity reflecting highest average adult weight among the HHSs (*Figure 34a*).¹³³

Data for childhood obesity by HHS is due for release in 2015.

How do we compare?

In 2011–12, the prevalence of measured overweight and obesity in Queensland adults did not differ from national prevalence, and Queensland had the third highest prevalence of the jurisdictions (*Table 19*).⁷⁵

However, the rate of measured adult obesity in Queensland was 10% higher than the national rate and highest of the jurisdictions. If the rate of adult obesity in Queensland were the same as the national rate there would have been about 100,000 fewer obese adults. The prevalence of overweight in Queensland adults did not differ from national prevalence.

In 2011–12, the prevalence of measured overweight and obesity in Queensland children was second highest of the states and territories although similar to national prevalence (*Table 19*).^{75,197} Although not significantly different from national, the prevalence of childhood obesity in Queensland was 26% higher, but the same for overweight. The prevalence of childhood obesity in Queensland was highest of the jurisdictions in 2011–12, and a similar pattern was also evident in 2007–08.¹⁹⁷ While the difference between Queensland and the nation for childhood obesity did not reach statistical significance, it is supported by the higher waist circumference data for Queensland reported below.

Queensland had the highest proportion of children with a larger waist circumference than other jurisdictions and nationally.¹⁹⁷ In 2011–12, 22% of Queensland children aged 5–17 years had a waist circumference of 80cm or greater—compared with 18% nationally—a 22% difference. No adjustment was made for differing age structures within the population. However, as Queensland's profile within the age group 5–17 years was generally younger than nationally (and therefore more likely to have smaller waist circumferences), this finding is a conservative assessment of excess.

Internationally, the prevalence of measured adult obesity in Australia was third highest among selected OECD countries in 2011 (for both males and females).²⁰² The US had the highest prevalence, followed by Mexico. For children in 2011, using the most recent estimates of overweight and obesity for OECD countries, Australian girls (5–17 years) were ranked 12th highest among 28 OECD countries and boys were equal 17th highest.²⁰³ The prevalence among Australian girls was 14% higher than the OECD average and boys were 4% lower.

Obesity in Queensland adults is highest in Australia, adding 40,000 each year in the state.

Obesity in Australian children appears to have plateaued.

What are the trends?

There was a 13% increase in the prevalence of self reported adult overweight and obesity between 2004 and 2013 (1.4% per year, age adjusted) (*Figure 34c*).²⁰⁰ The increase was similar for males and females and did not differ by socioeconomic status or remoteness. If this trend continues, it is estimated that about 65% of adults will be overweight or obese by 2020—a 12% increase over the six years. As this estimation is based on self reported trends, it is likely the true prevalence will be greater. There is insufficient data to report long term trends in measured prevalence, although between 2007–08 and 2011–12 there was a 7% increase in overweight and obesity prevalence in Queensland, contrasting with a 2% increase nationally.¹⁹⁷ The increase in Queensland was second highest in the nation after South Australia.

The prevalence of self reported adult overweight did not change between 2004 and 2013 and neither was there a change in measured prevalence between 2007–08 and 2011–12.¹⁹⁷ In 2012, there were 1.2 million overweight adults, based on measured prevalence.

There has been a substantial increase in adult obesity over several decades and this is evident in short term measured data as well as longer term self report data, with ongoing surveillance needed to monitor these trends:

- Self reported obesity increased by 34% (3.0% per year) between 2004 and 2014 and this increase was evident for males and females, for most age groups and areas of advantage and disadvantage.²⁰⁰ Over the longer term, since 1993, self reported obesity has increased by 4.5% per year, a 2.5-fold increase. Of note, over the past four years, there has been no change in the prevalence of self reported adult obesity (*Figure 34c*). The socioeconomic differential in obesity has not changed in the past decade, with the rate in disadvantaged populations about 60% higher than advantaged populations (*Figure 62f, page 152*).
- Measured obesity increased by 22% (4.1% per year) between 2007–08 and 2011–12.⁷⁵ This increase was about double that of Australia (12% increase), and, along with South Australia, was the largest of the states and territories (*Table 19*). The number of obese adults is increasing steeply as the prevalence increases and the population grows (*Figure 34d*). Over the period 2001 to 2014, the average annual increase in the number of obese adults was about 40,000 per year (*Figure 1d, page 3*).

For children, between 2007–08 and 2011–12 there was no change in the prevalence of measured overweight and obesity in Queensland or nationally.^{75,197} Over the long term there has been a steady increase in childhood obesity nationally (noting the limited data to track change), however, a plateau appears to have been reached in recent years.⁷⁵ Nevertheless, in 2014 based on measurement in 2011–12, there were about 75,000 obese Queensland children and 146,000 overweight.

An assessment of trends and patterns of overweight and obesity globally was released in 2014.¹² There have been widespread increases in overweight and obesity among children and adults globally between 1980 and 2013—by 28% for adults and 47% for children. Based on prevalence of obesity alone, in 2013 Australia was ranked 16th highest of 187 countries for adult males, 44th for adult females, 75th for boys and 68th for girls. In developed countries, the rate of increase in overweight and obesity is slowing, while in developing countries the rapid upward trend is continuing. No country had significant decreases in obesity in the past 33 years. Wide variation in the rate of increase in obesity between countries over time suggests there is scope to modulate weight gain in populations. However, the reasons for the slower rate of increase in some countries than others has not yet been established. There are, in fact, no national success stories in the fight against this global challenge, that is, the reduction of the population prevalence of obesity.

What is the cause?

A person's weight gain is generally caused by an imbalance between energy intake and energy expenditure. While this appears simple, the factors driving this imbalance at a population level are complex, making simple solutions elusive. There is growing evidence that changes in society are the main driver of unhealthy lifestyles.²⁰⁴ Broadly, the current obesity epidemic is driven by the interplay between people's choices, cultural and socioeconomic factors, genetic predisposition to weight gain, and modern environments such as sedentary lifestyles and excess consumption of energy-dense foods.²⁰⁵

Obesity levels in the population are sensitive to relatively modest increases in daily food intake. From the mid-1980s to the mid-1990s, the daily energy intake of Australians increased by around 13% for children and 3% to 4% for adults.²⁰⁶ The increase of around 350kJ a day for adults (about half a can of soft drink, or a slice of bread) equates to an eventual weight gain of around 3.5kg over a decade.

The twin drivers of obesity are the ready availability, affordability and consumption of foods high in energy, and increasingly sedentary lifestyles. It has been suggested that prior to the 1960s, decreased levels of physical activity was the dominant change, but had no observable effect on population weight status as food remained a limiting factor. Subsequent to the 1960s, the rapid changes in food availability, composition and marketing drove rapid increases in population weight, now against a backdrop of minimal activity.²⁰⁷

While this assessment of change implies the obesity epidemic is a result of personal choice, the environment has undergone substantial change over the past few decades. Many people now have sedentary jobs,

transport options increasingly focus on car travel to the exclusion of walking or cycling, and there is high access to and use of electronic devices and screens for entertainment. In addition, high fat and high sugar foods and drinks are often more accessible and perceived to be more affordable than healthy food. These are the characteristics of the obesogenic environment.

Eating out is part of contemporary life. Purchasing and eating foods away from home is common practice for many people, starting with breakfast on the run to takeaway dinner in the evening and snacks in between. Australians now spend 42 cents in every food dollar eating out of home.²⁰⁸ Eating out poses challenges and choices for the consumer. Portion sizes are often larger and, in most cases, purchased meals will contain more energy, saturated fat and salt than meals prepared at home. Pastries, cakes, sugary drinks, alcoholic drinks, snacks, confectionery and sugar products are widely consumed, particularly when eating outside the home, and contributed 37% of total energy intake among Queenslanders aged two years and older in 2011–12.²⁰⁹ Australia is in the top 10 global markets for sugar sweetened beverages based on per capita consumption.²¹⁰

Maintaining a healthy weight is an essential part of a healthy lifestyle. While 35% of Queensland adults were a healthy weight, only 1 in 4 of these reported a healthy lifestyle—8% compared with 27% who reported an unhealthy lifestyle (*Table 15, page 74*).¹⁹ Conversely, two-thirds of adults were overweight or obese and yet 1 in 7 of these reported an otherwise healthy lifestyle—10% compared with 55% who did not.

Clearly, our food and activity environments must be the focus in efforts to tackle population weight gain. However, there is a need to focus on specific influences including uterine environment, the effect of stress on weight gain and perceptions about body image:

- At an individual level, the in utero environment influences the future child's weight and chronic disease pathways, with both under- and over-nutrition linked to excess weight gain later in life.
- Psychosocial stress, including both perceived stress and life events stress, is positively associated with weight gain but not weight loss.²¹¹
- Having an accurate and realistic perception of body weight is an important factor in maintaining a healthy weight and avoiding weight gain or excessive loss of weight. While most Queensland adults (72% in 2011) accurately self assessed their weight category, 27% made an incorrect assessment.²¹² Of those adults who were overweight or obese, one-third (33%) thought they were an acceptable weight. Adult males were twice as likely as females to consider themselves to be in an acceptable weight range when in fact they were obese.

What are its impacts?

Longer duration of overall obesity and particularly abdominal obesity is associated with the development of coronary heart disease and its progression through midlife, independent of the degree of adiposity.^{213,214} Preventing or at least delaying the onset of obesity in young adulthood may lower the risk of developing atherosclerosis through middle age. The lifetime risk of diabetes increased sixfold for obese adult females and ninefold for obese adult males.¹²⁴ Childhood overweight and obesity increases the risk of adult obesity. Overweight at ages 12–13 years is a stronger predictor than overweight at younger ages, but overweight at 15–16 years has an even stronger relationship with adult obesity.²¹⁵ A US study in 2014 estimated that the lifetime medical cost of an obese child who remains obese throughout life, is about 50% higher than the lifetime medical costs of a healthy weight child who gains weight over their lifetime consistent with current patterns.²¹⁶ Both are greater than the lifetime health costs associated with a healthy weight child who remains at a healthy weight throughout life.

The rapid increase in overweight and obesity among Queenslanders during their twenties means that by age 65, over 85% of overweight and obese males and over 65% of females will have been an unhealthy weight for about 35–40 years.²⁰⁰ The risk of obesity related diseases for an adult male who gains 15kg over a lifetime were 2.5 times that of a male with stable weight over a lifetime.²¹⁷ Even relatively low gains over a lifetime (less than 5kg) resulted in increased risk—underscoring the pivotal importance of prevention of excess weight gain in both adolescence and adulthood.

Burden of disease

In 2010, high body mass was the second largest cause of disease burden in Australia accounting for about 8.5% of total, after dietary factors.⁴ Data for Queensland in 2010 is not available. High body mass is a global issue and was the sixth largest cause of disease burden in 2010 (3.8%), where high blood pressure was the leading cause (7%).⁵⁸ For Indigenous Queenslanders, high body mass was the largest cause of total disease burden in 2007.⁶¹

High body mass affects the total disease burden through its impact on cardiovascular disease, diabetes, musculoskeletal conditions and some cancers. It has risen in ranking from fourth largest cause of disease burden in Australia in 1990 to second in 2010.⁴ The majority of the total burden was associated with premature mortality (61%), although the disability burden associated with high body mass was the largest cause of disability of all risk factors. Internationally, the significance of high body mass as a cause of total disease burden is increasing. Among comparable OECD countries it is a highly ranked cause of disease burden, and between 1990 and 2010, it increased in ranking from about fifth largest cause to second or third—this was evident for the US, UK, Canada,

Iceland, Sweden, New Zealand, Germany and other countries.⁶² Almost all regions, including some of the poorest such as sub-Saharan Africa, have had an increase in the proportion of burden due to high body mass.

Life expectancy

Obesity reduces life expectancy. In a comprehensive review of cause-specific deaths undertaken over several continents, median survival for obese people (BMI 30–35) was reduced by two to four years and eight to 10 years for the severely obese (BMI 40–45).²¹⁸ More effective treatment of the mortality impacts of obesity, and improvement in other risks, may lead to longer, but less healthy lives (reduced health adjusted life expectancy). Gains in the management of blood pressure and cholesterol over recent decades in Australia are helping to mitigate the cardiovascular effects of the obesity epidemic.^{81,219,220}

Death

In Australia in 2010, it was estimated about 17,200 deaths were directly or indirectly due to high body mass, about 12% of all deaths.⁴² About 3200 of these deaths occurred in Queensland.

Disability and hospitalisation

High body mass was the leading cause of disability in Australia in 2010, with the disability burden doubling in the previous 20 years.⁸ Data for Queensland in 2010 is not available. Obesity reduces health and wellbeing, with obese adults more than twice as likely to report poorer health as healthy weight adults in 2011–12, (Figure 21b, page 51).¹³³ They were about 3 times as likely to be dissatisfied with their health and twice as likely to report poor quality of life.

Overweight and obesity is associated with increased risk of disease and this ultimately affects the health system through increased consultations and hospital admissions. In 2011, 6.7% of inpatient hospital admissions in Western Australia were attributed wholly or in part to excess body mass and 1% of all emergency department presentations.²²¹ A similar analysis was undertaken for South Australia²²² but not for Queensland. Assuming the hospital burden in Queensland is similar to Western Australia (noting the prevalence of measured overweight and obesity for children and adults in 2011–12 was similar), it is estimated that about 124,000 hospitalisations (6.7%) in Queensland were associated with overweight and obesity in 2011–12.

Expenditure

The financial cost of obesity is high and was estimated in 2008 as \$8.283 billion nationally (\$1.654 billion in Queensland).²⁰ Of this, 44% was due to productivity losses, 24% due to health system costs, 23% due to carer costs and the remaining due to transfers within government accounting systems and indirect costs. The financial cost of overweight and obesity was 3 times higher outside the health system than within (\$0.391 billion associated with health system costs and \$1.263 billion in lost productivity and other costs including carers).

More recent analysis in Western Australia put the cost of excess body mass to the acute hospital system at 5.4% of total hospital expenditure in 2011.²²¹ Assuming a similar hospital burden in Queensland, and based on the most recent national expenditure report¹⁷, it was estimated that overweight and obesity cost the hospital system about \$0.531 billion in 2011–12.

Obesity puts people at higher risk of a number of disabling chronic conditions, resulting in the loss of healthy life. This can be quantified, and in 2008 overweight and obesity was estimated to cost an additional \$9.961 billion in lost wellbeing in Queensland, resulting in a total cost due to obesity of \$11.614 billion.²⁰



About half the financial cost of obesity is due to lost productivity.

Challenges and opportunities

Increasingly, obesity is an acknowledged critical health issue in Queensland, in Australia and in much of the developed and developing world. The severity of the problem has been emerging for several decades. The world we live in has become increasingly conducive to obesity. The almost unlimited availability and marketing of high-energy food, combined with sedentary lifestyles, has contributed to a steady increase in body weight across the whole population with the average Queensland adult putting on about 3kg in a decade. If, instead, the average Queenslanders were to lose 3kg, the prevalence of obesity would drop by 20% and return to 2005 levels.

The problem begins early with relatively high levels of overweight and obesity in children and the socioeconomic gradient is already evident. The transition from the teenage growth phase to adult levels of overweight and obesity is very rapid. For example, substantial weight gain in males leads to peak weight achieved by about 25–34 years. Queensland adults across the full age range of 30 to 65 years are carrying highest levels of weight and by age 65 will have carried this excess weight for 35 to 40 years.

Obesity levels in the population are sensitive to relatively modest increases in daily food intake. If averaged across the whole population, the increase in prevalence of obesity over the past decade is equivalent to an extra slice of bread a day or half a can of soft drink a day. This suggests that very small but sustained changes in diet could prevent further weight gain.

In parallel, inclusion of incidental and regular exercise into daily life is integral to weight management.

There are population groups with a significantly higher burden of obesity, including those in disadvantaged areas (females particularly), those in remote areas (females with greater burden), Indigenous Queenslanders (obesity but not overweight) and a number of HHSs.

The health impact of obesity is great, beginning with higher risk for infants of obese mothers and continuing throughout life to lower life expectancy. Obesity related health impacts such as diabetes, cardiovascular disease and musculoskeletal conditions are disabling and costly to treat, as well as life threatening.

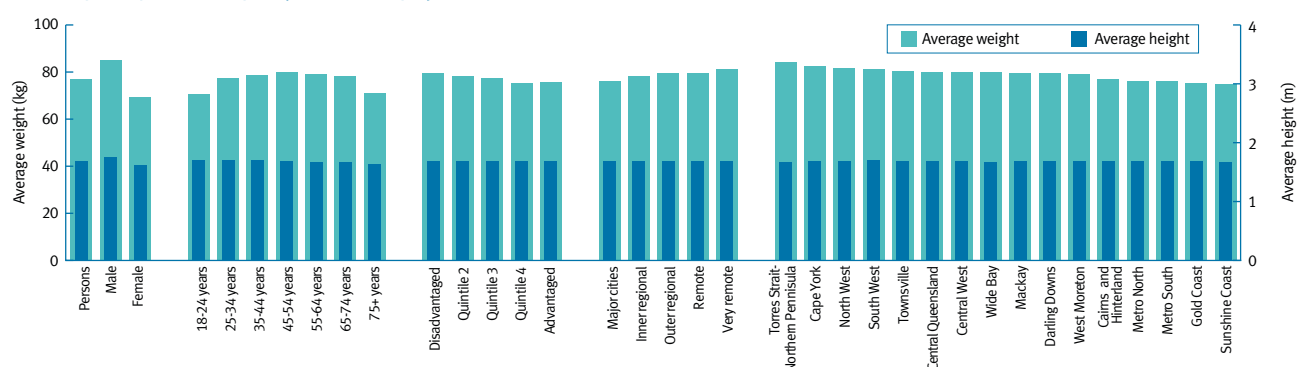
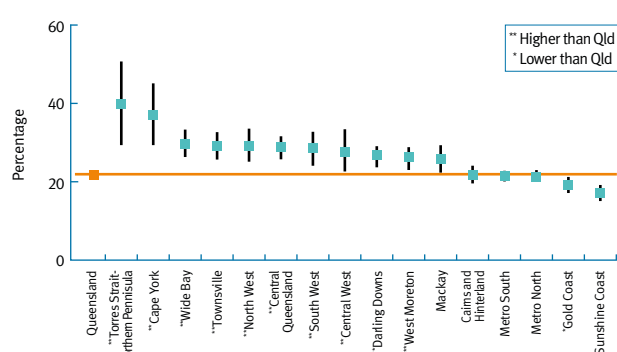
The challenge for Queensland as it is for the global community, is to address the 'unstoppable juggernaut of obesity'.²²³ While daily lifestyle choices lead to an individual gaining or losing weight, the problem is unlikely to be solved by focusing on individual behaviour change alone. Population-wide strategies to reduce the availability and promotion of energy-dense nutrient-poor food and to improve the availability and affordability of healthy food and drinks are required. Strategies to rebuild physical activity into daily life will also be necessary. It will require taking action on the substantial knowledge we have to combat obesity in children and adults, including partnerships with industry and across government and society.



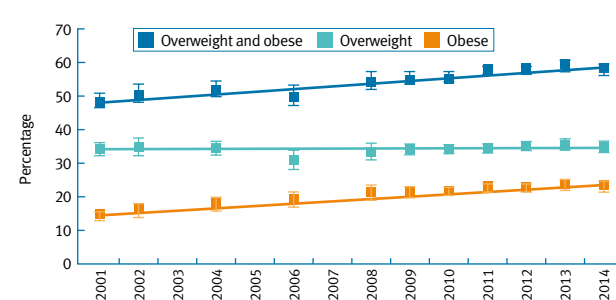
Table 19. Measured overweight and obesity in children and adults, percentage by jurisdiction, 2011–12⁷⁵

	Aus.	Qld	NSW	Vic.	SA	WA	Tas.	NT	ACT
Adults									
Under/healthy weight	37.2	35.1	38.9	39.0	33.4	34.8	35.3	37.9	37.8
Overweight	35.3	34.5	34.7	35.3	36.8	37.1	36.9	34.9	37.1
Obese	27.5	30.4	26.4	25.7	29.7	28.1	27.8	27.2	25.1
Overweight/obese	62.8	64.9	61.1	61.0	66.6	65.2	64.7	62.1	62.2
Children 5–17 years									
Under/healthy weight	74.3	72.5	74.4	76.3	75.9	72.7	73.2	72.4	74.5
Overweight	18.3	18.2	18.6	17.6	15.8	20.7	17.8	18.7	19.8
Obese	7.4	9.3	7.0	6.1	8.3	6.6	8.9	8.9	5.7
Overweight/obese	25.7	27.5	25.6	23.7	24.1	27.3	26.8	27.6	25.5

Figure 34: Self reported BMI, selected indicators, adults, Queensland

a. Average height and weight by sociodemographic factors, 2011–12¹³³b. Self reported obesity, by HHS, 2011–12⁹⁴

c. Trend in self reported overweight and obesity



d. Number of self reported obese adults by sex

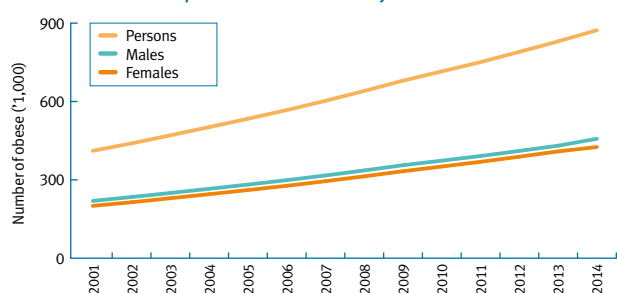
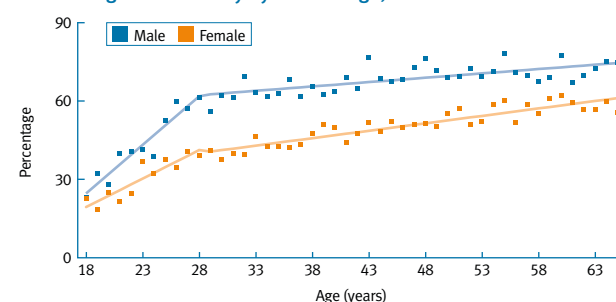
e. Overweight and obesity by sex and age, 2004–2013²⁰⁰

Table 20: Self reported BMI, adults, percentage (95% CI), Queensland, 2014¹⁹⁹

		Healthy weight		Overweight		Obese		Overweight/obese		Unhealthy weight	
18+ years	Persons	39.6	(37.7–41.5)	34.7	(33.0–36.3)	23.2	(21.8–24.6)	57.8	(56.0–59.7)	60.4	(58.5–62.3)
	Males	35.0	(32.2–38.0)	39.3	(36.7–42.0)	24.0	(21.9–26.1)	63.3	(60.3–66.1)	65.0	(62.0–67.8)
	Females	44.2	(41.8–46.6)	30.0	(27.9–32.1)	22.4	(20.7–24.2)	52.4	(50.0–54.7)	55.8	(53.4–58.2)
Persons	18–24 years	62.7	(54.4–70.3)	21.1	(14.9–28.9)	10.1	(6.4–15.4)	31.1	(23.9–39.3)	37.3	(29.7–45.6)
	25–34 years	47.9	(42.0–53.8)	29.6	(24.7–35.1)	19.1	(15.1–23.8)	48.7	(42.8–54.6)	52.1	(46.2–58.0)
	35–44 years	37.2	(33.7–40.8)	36.9	(33.4–40.5)	23.9	(20.9–27.2)	60.8	(57.2–64.3)	62.8	(59.2–66.3)
	45–54 years	30.7	(27.9–33.5)	41.0	(38.0–44.1)	27.4	(24.8–30.1)	68.4	(65.5–71.1)	69.3	(66.5–72.1)
	55–64 years	31.9	(29.2–34.7)	37.7	(34.9–40.5)	29.2	(26.6–31.8)	66.8	(64.0–69.5)	68.1	(65.3–70.8)
	65–74 years	29.4	(26.9–32.1)	37.9	(35.2–40.7)	30.8	(28.2–33.5)	68.7	(66.0–71.3)	70.6	(67.9–73.1)
	75+ years	39.7	(36.0–43.5)	37.1	(33.6–40.8)	19.7	(16.6–23.3)	56.8	(53.0–60.5)	60.3	(56.5–64.0)
Males	18–24 years	60.2	(48.0–71.3)	22.8	(14.1–34.7)	*10.1	(5.3–18.4)	32.9	(22.7–45.0)	39.8	(28.7–52.0)
	25–34 years	46.0	(36.5–55.9)	35.7	(27.3–45.0)	16.6	(10.8–24.5)	52.3	(42.6–61.8)	54.0	(44.1–63.5)
	35–44 years	30.6	(25.7–35.9)	41.2	(35.9–46.6)	27.1	(22.6–32.2)	68.3	(63.0–73.2)	69.4	(64.1–74.3)
	45–54 years	22.7	(19.0–26.9)	48.9	(44.3–53.5)	28.3	(24.4–32.5)	77.1	(73.0–80.8)	77.3	(73.1–81.0)
	55–64 years	25.6	(22.0–29.6)	42.1	(38.0–46.4)	31.7	(27.9–35.7)	73.8	(69.8–77.4)	74.4	(70.4–78.0)
	65–74 years	26.4	(23.0–30.2)	41.9	(37.9–46.0)	30.9	(27.2–34.8)	72.8	(69.0–76.2)	73.6	(69.8–77.0)
	75+ years	39.1	(33.8–44.7)	38.9	(33.8–44.3)	20.0	(15.1–26.0)	58.9	(53.3–64.3)	60.9	(55.3–66.2)
Females	18–24 years	65.5	(54.1–75.3)	19.1	(11.5–30.1)	*10.0	(5.3–18.1)	29.1	(19.9–40.5)	34.5	(24.7–45.9)
	25–34 years	49.6	(42.7–56.6)	23.8	(18.7–29.7)	21.5	(16.6–27.4)	45.3	(38.6–52.1)	50.4	(43.4–57.3)
	35–44 years	44.0	(39.3–48.9)	32.4	(27.9–37.3)	20.6	(17.0–24.7)	53.0	(48.1–57.8)	56.0	(51.1–60.7)
	45–54 years	38.6	(34.7–42.6)	33.2	(29.5–37.0)	26.4	(23.1–30.1)	59.6	(55.6–63.5)	61.4	(57.4–65.3)
	55–64 years	38.3	(34.5–42.3)	33.0	(29.4–36.9)	26.5	(23.3–30.1)	59.6	(55.6–63.5)	61.7	(57.7–65.5)
	65–74 years	32.3	(28.7–36.2)	33.9	(30.3–37.8)	30.7	(27.2–34.4)	64.6	(60.7–68.3)	67.7	(63.8–71.3)
	75+ years	40.2	(35.2–45.4)	35.6	(30.7–40.7)	19.5	(15.7–23.9)	55.1	(49.9–60.1)	59.8	(54.6–64.8)
Socioeconomic status	Disadvantaged	34.7	(31.3–38.2)	32.6	(29.7–35.6)	30.5	(27.5–33.7)	63.1	(59.6–66.5)	65.3	(61.8–68.7)
	Quintile 2	36.8	(33.3–40.4)	33.5	(30.3–36.8)	27.1	(24.4–30.0)	60.6	(57.0–64.1)	63.2	(59.6–66.7)
	Quintile 3	41.7	(37.2–46.3)	36.2	(32.2–40.3)	19.6	(16.8–22.7)	55.7	(51.1–60.2)	58.3	(53.7–62.8)
	Quintile 4	35.6	(31.5–39.9)	37.6	(33.6–41.9)	23.6	(20.4–27.1)	61.2	(56.9–65.4)	64.4	(60.1–68.5)
	Advantaged	47.6	(43.2–52.1)	33.3	(29.6–37.2)	16.8	(14.1–19.8)	50.1	(45.8–54.5)	52.4	(47.9–56.8)
Remoteness	Major cities	42.6	(39.8–45.4)	33.8	(31.4–36.2)	20.7	(18.8–22.7)	54.5	(51.7–57.2)	57.4	(54.6–60.2)
	Inner regional	36.8	(33.8–40.0)	33.9	(31.1–36.9)	26.9	(24.4–29.6)	60.8	(57.6–63.9)	63.2	(60.0–66.2)
	Outer regional	33.1	(29.9–36.4)	38.4	(34.7–42.3)	26.8	(23.9–29.9)	65.2	(61.9–68.5)	66.9	(63.6–70.1)
	Remote	33.0	(28.5–37.9)	40.2	(35.8–44.7)	25.4	(22.1–29.1)	65.6	(60.8–70.2)	67.0	(62.1–71.5)
	Very remote	33.3	(28.3–38.7)	34.5	(29.5–40.0)	30.6	(25.8–35.9)	65.2	(59.8–70.2)	66.7	(61.3–71.7)

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

		Underweight		Healthy weight		Overweight		Obese		Overweight/obese	
5–17 years	Persons	5.4	(4.4–6.6)	65.5	(63.2–67.8)	18.1	(16.3–20.1)	10.9	(9.5–12.6)	29.1	(26.9–31.4)
	Males	5.2	(3.8–7.1)	63.9	(60.5–67.1)	19.3	(16.8–22.2)	11.6	(9.6–14.0)	31.0	(27.9–34.2)
	Females	5.6	(4.3–7.4)	67.3	(63.9–70.6)	16.8	(14.2–19.8)	10.2	(8.3–12.6)	27.0	(24.0–30.4)
Persons	5–7 years	9.4	(6.9–12.7)	60.0	(54.9–64.8)	12.2	(9.4–15.7)	18.5	(14.7–22.9)	30.7	(26.2–35.5)
	8–11 years	4.7	(3.0–7.1)	59.0	(54.4–63.4)	22.9	(19.2–27.1)	13.4	(10.7–16.8)	36.3	(32.0–40.9)
	12–15 years	4.0	(2.7–5.8)	71.3	(67.1–75.1)	18.6	(15.3–22.5)	6.1	(4.4–8.5)	24.7	(21.1–28.8)
	16–17 years	n/a		73.1	(67.1–78.3)	16.6	(12.7–21.5)	*6.1	(3.7–10.0)	22.7	(18.1–28.2)
Males	5–7 years	8.0	(5.1–12.5)	61.6	(54.6–68.1)	10.6	(7.1–15.6)	19.8	(14.8–25.9)	30.4	(24.4–37.1)
	8–11 years	*4.0	(2.1–7.8)	60.2	(53.8–66.2)	23.1	(18.2–29.0)	12.6	(9.1–17.3)	35.7	(29.9–42.0)
	12–15 years	*4.8	(2.8–8.1)	66.3	(60.3–71.9)	21.5	(16.8–27.1)	7.4	(4.8–11.3)	28.9	(23.6–34.8)
	16–17 years	n/a		68.4	(59.6–76.1)	20.5	(14.6–27.9)	*7.0	(3.6–13.3)	27.5	(20.6–35.7)
Females	5–7 years	10.9	(7.1–16.3)	58.1	(50.7–65.2)	14.0	(9.8–19.4)	17.0	(11.8–23.9)	31.0	(24.5–38.3)
	8–11 years	*5.3	(3.1–9.1)	57.7	(51.1–64.1)	22.7	(17.3–29.1)	14.3	(10.4–19.4)	37.0	(30.7–43.7)
	12–15 years	*3.2	(1.9–5.4)	76.2	(70.4–81.2)	15.8	(11.4–21.4)	*4.8	(2.9–8.0)	20.6	(15.8–26.4)
	16–17 years	n/a		78.3	(70.2–84.6)	12.4	(7.9–18.9)	n/a		17.4	(11.9–24.8)
Socioeconomic status	Disadvantaged	5.6	(3.5–9.0)	59.7	(53.9–65.3)	19.3	(15.2–24.3)	15.3	(11.6–20.1)	34.6	(29.3–40.3)
	Quintile 2	*3.8	(2.1–6.6)	63.2	(57.6–68.6)	16.7	(12.8–21.4)	16.3	(12.5–21.0)	33.0	(27.8–38.6)
	Quintile 3	*5.1	(3.0–8.6)	66.8	(61.0–72.2)	19.1	(14.7–24.5)	8.9	(6.3–12.4)	28.0	(23.0–33.7)
	Quintile 4	6.4	(4.4–9.2)	63.0	(58.0–67.8)	21.2	(17.3–25.9)	9.3	(6.6–13.0)	30.6	(26.0–35.6)
	Advantaged	5.7	(3.6–8.9)	72.5	(67.6–76.9)	14.8	(11.5–18.9)	7.0	(4.9–10.0)	21.8	(17.9–26.3)
Remoteness	Major cities	5.2	(4.0–6.8)	67.1	(63.9–70.1)	18.4	(15.9–21.2)	9.3	(7.6–11.4)	27.7	(24.8–30.8)
	Inner/outer regional	5.9	(4.2–8.2)	63.5	(59.6–67.3)	17.7	(14.8–20.9)	12.9	(10.5–15.8)	30.6	(27.0–34.4)
	Remote/very remote	n/a		63.4	(52.6–73.1)	18.3	(11.2–28.5)	*15.0	(9.0–24.0)	33.3	(24.0–44.1)

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

n/a Not available for publication.

Food and nutrition

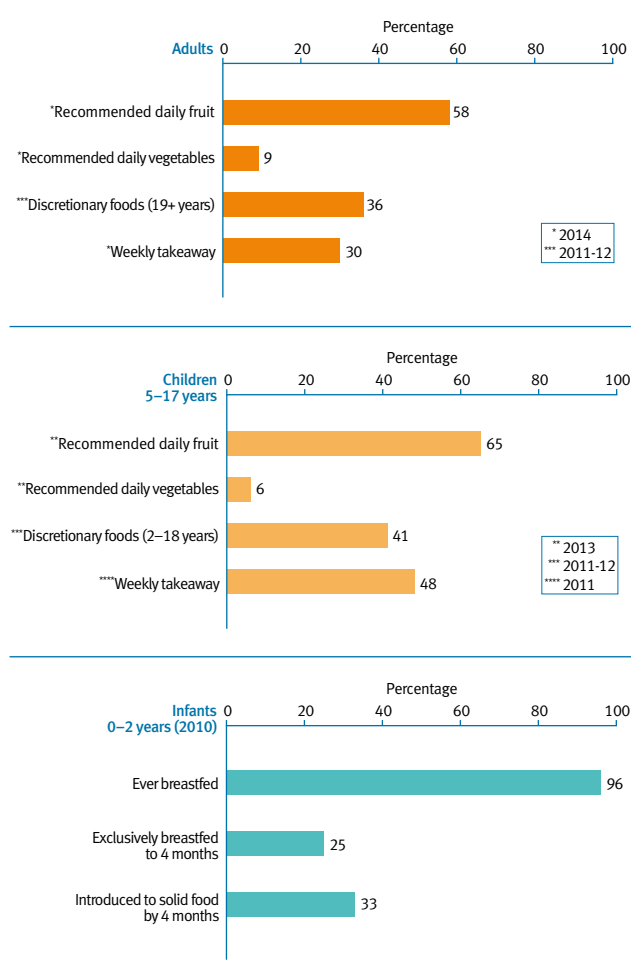
Good nutrition is necessary to maintain healthy weight, mental and physical health, resistance to infection, quality of life, and for protection against chronic disease, premature death and disability.²²⁴ In 2010, dietary factors were the leading cause of disease burden in Australia.⁴

This section reports on a range of nutrition indicators from a variety of sources including state and national surveys. In particular, the biomedical component of the *Australian health survey 2011–12* provides new nutrient and biomarker information for adults, as does the 24-hour national food recall survey.^{225,226} For consistency with national indicators, children are generally defined as 5–17 years and infants 0–2 years.

The 2013 *Australian dietary guidelines* are used for reporting.²²⁷ The recommended fruit and vegetable consumption for many population groups has changed with the introduction of the new guidelines. A brief comparison with the previous guidelines is included on page 177.

Included within the guidelines²²⁷ is the recommendation to limit the serves of discretionary foods, that is, those foods that can provide excess energy (kilojoules) and have little nutritional value, such as sweets, snacks, pastries, cakes, ice-cream, alcohol and sugary drinks. Those who are sedentary or short for age or sex, or trying to lose weight, should not eat any discretionary foods. Those who are a healthy weight, more active or taller than others, could include up to 2–3 serves of discretionary foods a day—contributing about 10% of total energy intake (Table 40, page 177).

Figure 35: Prevalence of selected nutrition indicators, Queensland



What is the prevalence?

For Queensland adults and children (Figure 35):

- The mean energy intake of Queenslanders aged 19 years and older was 8511kJ in 2011–12 (9604kJ for males, 7423kJ for females), noting this is likely to be an underestimate.²⁰⁹
- 37% of energy intake for Queenslanders aged 2 years and older was derived from discretionary foods, that is, foods high in energy with little nutritional value, 36% for adults 19 years and older and 41% for children aged 2–18 years.²⁰⁹
- 58% of adults consumed the recommended fruit serves daily in 2014 (mean, 1.9 serves) and 65% of children in 2013 (mean, 2.0 serves).^{198,199}
- 9% of adults consumed the recommended vegetable serves daily in 2014 (mean, 2.5 serves) and 6% of children in 2013 (mean, 2.2 serves).^{198,199}
- 36% of adults aged 19 years and older frequently or occasionally added salt to meals at the table and 46% while cooking (2011–12).²⁰⁹

- 45% of adults usually consumed full cream milk and 66% of children (2011).^{228,229}
- 12% of adults consumed soft drink daily (2014) and 8.1% of children (2013).^{199,198}
- 30% of adults consumed takeaway food at least weekly (2014) and 48% of children (2011).^{228,229}
- 5.5% of adults were at risk of anaemia (2011–12).²³⁰
- 12.4% of adults were at risk of moderate iodine deficiency (2011–12).^{230,231}

For infants in 2010²³²:

- 96% of infants were ever breastfed.
- 25% of infants were exclusively breastfed to four months of age and 1.8% to six months.
- 35% of infants were introduced to solid food at four months of age.
- 19% of infants received some breast milk at 12 months of age and 6.5% at 18 months.

2013 GUIDELINES ²²⁷		Fruit serves (150g)	Vegetable serves (75g)
	Children 2-3 years	1	2½
	Children 4-8 years	1½	4½
	Children 9-11 years	2	5
	Boys 12-18 years	2	5½
	Girls 12-18 years	2	5
	Adult males	2	6
	Adult females	2	5
	Pregnant women	2	5
	Lactating women	2	7½

Discretionary foods

The consumption of discretionary foods is derived from the 24-hour food recall component of the *Australian health survey 2011–12*.²³⁰ It is likely that this survey, as with all representative dietary surveys, is subject to under-reporting. However, recognising this caveat, data for Queensland shows²⁰⁹:

- Very high level of consumption of discretionary foods—sugary drinks, fast foods, biscuits, cakes, snack foods, chocolates and other confectionery, alcohol and related foods and drinks make up 37% of total daily energy of Queenslanders aged 2 years and older (*Figure 38*). Although peaking in teenagers, the proportion of energy from discretionary foods was about one-third across all age groups, from the very young to the elderly. For all Queenslanders, discretionary foods are contributing about 3 times the recommended 10% maximum contribution to daily energy intake for healthy weight, active persons.
- Cereal based foods such as biscuits, cakes, muffins, takeaway foods such as pies, pizzas, hamburgers and commercial pasta dishes make the greatest contribution to discretionary food intake across all age groups, from 17% in 2–3 year olds to 11% among those aged 71 years and older. One in 2 persons aged 2 years and older had consumed a high-energy cereal based product in the previous 24 hours and consumption was highest among 2–8 year olds (78%) and lowest among 31–60 year olds (45%) (*Figure 39*).
- Children and teenagers were the biggest consumers of snack foods such as potato crisps, corn chips and flavoured popcorn, with about 1 in 4 doing so in the previous 24 hours (32% of 9–13 year olds and 24% of 14–18 year olds)

- About half the children aged 4–13 years had consumed confectionery and fruit and nut bars in the previous 24 hours (55% of 4–8 year olds, and 48% of 9–13 year olds), about 40% of 2–3 year olds, and also 14–18 year olds (*Figure 39*). The proportion of energy from confectionery was highest in teenage girls (14–18 years), comprising about 6%.
- Sugary drink consumption (that is, non-alcoholic beverages) was highest among teenage boys, 70% had done so in the previous 24 hours and lowest in older Queenslanders at about 30% for those aged 71 years and older. For teenage boys, 8% of their daily energy was from sugary drinks.
- Peak consumption of alcoholic drinks was among males aged 51–70 years with 45% reporting having consumed alcohol in the previous 24 hours. However, the proportion of energy from alcoholic drinks was relatively high for all males aged 19 years and older, about 7% to 8%.
- The mean daily consumption of discretionary beverages increased with age, peaking at 968gm for males aged 19–30 years and 386gm for females aged 31–50 years. This is equivalent to three cans of sugary drinks or alcoholic beverages per day for all young males or one can for all females.
- Not everybody had consumed these beverages, and considering only those who had, the highest levels of consumption were in males 19–30 years, with daily consumption of 1919gm, that is about five cans a day, and for females aged 31–50 years, 1118gm, about three cans daily (*Figure 40*). For male consumers there is a rapid increase in the daily consumption of alcohol from the teenage years onwards, on top of rising sugary drink consumption. The increase over the ages 14 to 30 years coincides with the period of rapid weight increase for young males. For female consumers, sugary drink consumption increased slowly from childhood, with daily alcohol commencing in their early twenties and continuing across the adult years.

Energy-dense, nutrient-poor foods make up more than one-third of Queenslanders daily energy intake.

Is it the same for everyone?

Sex

Adult females generally have healthier food consumption patterns than males (*Table 23*). Compared to males, they were¹⁹⁹:

- 17% more likely to consume the recommended serves of fruit each day (2014)
- 4.5 times as likely to consume the recommended serves of vegetables each day (2014)
- 11% higher in mean daily serves of fruit (2014)
- 27% higher in mean daily serves of vegetables (2014)
- 37% less likely to usually consume full cream milk (2011)
- 48% less likely to drink soft drink at least daily (2014)¹⁹⁹
- 26% less likely to consume takeaway food weekly (2014)¹⁹⁹
- 2.2 times as likely to be at risk of anaemia (7.6% compared with 3.5% in 2011–12)²³⁰
- 70% more likely to be deficient in iodine (15.5% compared with 9.3% in 2011–12).
- less likely to consume discretionary foods, with 10% less energy derived from discretionary foods—34% of total energy for females aged 19 years and older compared to 38% for males (2011–12) (*Figure 38*).²⁰⁹

For children the consumption patterns of girls and boys were similar with two exceptions (*Table 22*). Compared to boys, girls were:

- 11% more likely to consume the recommended serves of fruit daily (2013)¹⁹⁸
- 12% less likely to usually drink full cream milk (2011).²²⁸

Discretionary food contributed 41% of daily energy intake in children aged 2–18 years, similar for males and females in 2011–12.²⁰⁹

6% of children and 9% of adults eat recommended vegetable serves.

Age

Older adults generally had healthier eating patterns than younger adults (*Table 23*):

- Adults aged 65 years and older were about 24% more likely to consume the recommended serves of fruit daily, with mean serves following a similar pattern in 2014 (*Figure 37*).¹⁹⁹ Vegetable consumption did not vary with age.
- Full cream milk consumption was 27% lower in those aged 55 years and older than in younger adults.²³³
- Daily soft drink consumption decreased with age from about 20% in 18–34 years to less than 10% in adults aged 45 years and older in 2014.¹⁹⁹

- Weekly takeaway food consumption decreased markedly with age, from 48% in those aged 18–24 years to less than 12% in those aged 65 years and older in 2014.¹⁹⁹
- The proportion of energy derived from discretionary foods decreased to about 32% in Australian adults aged 70 years and older from a peak of 45% in 14–18 year olds (*Figure 38*).²⁰⁹

The risk of anaemia increases markedly with age after 65 years. About 1 in 6 Australian adults aged 75 years and older (16%), were at risk of anaemia compared with 3.6% of those aged under 75 years.¹¹¹ Data for Queensland adults by age group is not currently available.

Childhood food consumption patterns vary markedly by age group (*Table 22*). Children are not keeping pace with the increasing number of recommended serves of fruit and vegetables for their age while unhealthy eating patterns begin to emerge in the teenage years^{198,228}:

- About 70–80% of children aged 5–11 years consumed the recommended serves of fruit daily while about 50–55% of those aged 12–17 years did so in 2013, with mean serves following a similar pattern (*Figure 37*).
- Vegetable consumption was low across all age groups, with less than 1 in 10 children consuming the recommended serves daily in 2013.
- The prevalence of usually consuming full cream milk decreased with age from 71% in 5–7 year olds to 57% in 16–17 years olds in 2011. Lowest prevalence was in 16–17 year old girls—33% lower than younger girls and up to 44% lower than boys in all age groups.
- The highest prevalence of daily soft drink consumption was among boys aged 16–17 years (19%), increasing almost 4 times between the ages of 8–11 years and 16–17 years, whereas for girls the prevalence was stable across childhood.
- Those aged 16–17 years were 35% more likely than younger children to consume takeaway food once a week or more.
- The proportion of energy derived from discretionary foods increased from 35% among children aged 2–3 years and peaked at 45% among young people aged 14–18 years (*Figure 38*).²⁰⁹

Infant nutrition

In 2010, 96% of Queensland infants had ever been breastfed.²³² A nationally agreed headline indicator of children's health is the percentage of infants exclusively breastfed at four months.²³⁴ In 2010, 25% of Queensland infants aged 0–2 years had been exclusively breastfed to four months compared with 27% nationally. The *Australian Infant Feeding Guidelines* recommend that exclusive breastfeeding to around six months of age is encouraged, supported and promoted.²³⁵

Exclusive breastfeeding of infants decreased markedly in the first six months of life, where 92% of Queensland women initiated breastfeeding and by six months of age,

less than 2% of infants were exclusively breastfed (Figure 36). The proportion of infants who were predominantly breastfed showed a similar pattern. However, considering the prevalence of current breastfeeding, about two-thirds of infants were receiving breast milk up to six months of age, with prevalence steadily decreasing between six months and 24 months. About 1 in 15 infants were being breastfed at 19–24 months.

Recommended breastfeeding and introduction to solid foods for infants ²³⁵		
GUIDELINES	12 months	
	6 months	12 months
	Birth	6 months
	Breastfeeding	Breastfeeding
	Breastfeeding	Introduction of solids
	Introduction of solids	Introduction of cow's milk

Infant formula or non-human milk was introduced early with 1 in 3 infants receiving such fluids in the first month (34%) increasing to two-thirds (68%) by six-months (Figure 36). Very few children under the age of three months were receiving solid foods. However, by four months of age 35% were receiving solids and more than 90% by six months. It is recommended that infants under 12 months of age should not be given cow's milk as the main drink. Data to inform this indicator is not currently available.

Women of childbearing Age

Women of childbearing age have specific nutrient needs. It is recommended that they maintain a healthy diet to ensure adequate intake of important nutrients such as folate, iodine and vitamin B12. A folic acid supplement is recommended for women prior to conception. Nutrients were measured in the blood and urine of Australians in the *Australian health survey 2011–12*¹¹. The survey showed that women in the childbearing years (16–44 years)^{225,230}:

- were receiving enough folate, which is important for preventing neural tube defects in babies, most notably spina bifida—less than 1% of Australian women had folate levels that put them at higher risk of neural tube defects
- had adequate levels of vitamin B12, with an average of 358pmol/L for Queensland women (360pmol/L for Australian women), which is well above the WHO cut-off for vitamin B12 deficiency (150pmol/L)
- had relatively low levels of iodine—1 in 5 or 6 women (16.7% Queensland, 18.3% Australia) had an iodine deficiency (defined as less than 50µg/L) and nearly two-thirds (62.2% Australia) had an iodine level less than 150µg/L, which is the recommended level for all women who are pregnant, breastfeeding or considering pregnancy
- had mean ferritin (a marker of body iron stores) levels 38% lower than all adult women (Australian women, 53.9µg/L compared to 86.9µg/L).

Socioeconomic status

Based on the selected indicators in this report, there was little difference in the nutritional behaviours of populations in advantaged and disadvantaged areas (Table 23, Table 22):

- Fruit consumption for adults was 21% higher in advantaged areas than disadvantaged areas in 2014 and for children, 27% higher in disadvantaged areas in 2013.^{198,199} Vegetable consumption did not differ for adults or children.
- Prevalence of usual consumption of full cream milk in 2011 among adults was 60% higher in disadvantaged areas than advantaged areas²²⁹, and for children, it was 34% higher.²²⁸
- There was no difference in sugared soft drink or takeaway food consumption for adults or children.^{198,199}

Remoteness

There was little difference in nutrition behaviours for adults and children in remote and regional populations compared with major cities except for two indicators—weekly takeaway food and full cream milk consumption:

- Adults in major cities were about 37% more likely than those in remote areas and twice as likely as those in very remote areas to consume takeaway food at least weekly in 2014¹⁹⁹
- Adults in remote and very remote areas were 60% more likely to usually consume full cream milk than those in major cities in 2011.²²⁹

12% of adults drink soft drink daily as do 8% of children.

Indigenous Queenslanders

Nutrition data for Indigenous Queenslanders is limited to fruit and vegetable consumption. In 2012–13²⁰¹:

- 41% of Indigenous Queensland adults consumed the recommended serves of fruit per day and 4.2% consumed the recommended serves of vegetables per day (Table 34, page 157). The prevalence of fruit consumption among Indigenous Queenslanders was about 12% lower than for non-Indigenous adults after adjusting for age differences but did not differ for vegetable consumption. Consumption patterns for Indigenous Queenslanders did not differ from Indigenous Australians.
- 68% of Indigenous children consumed the recommended serves of fruit per day and 8.9% consumed recommended serves of vegetables. The prevalence of recommended fruit and vegetable consumption of Indigenous Queensland children did not differ from consumption of non-Indigenous Queensland children or Australian Indigenous children.

Regional Queensland

Nutrition data for adults in HHSs in 2011–12 is based on recommendations from the 2003 guidelines⁹⁴:

- Recommended fruit consumption was lower than the state in West Moreton (9%) and Townsville (13%).
- Consumption of mean daily serves of fruit was 11% lower in West Moreton.
- Recommended vegetable consumption was higher in South West (52%).
- Consumption of mean daily serves of vegetables was higher in South West (8%) and Darling Downs (7%), and lower in West Moreton (5%) and Metro South (4%).

Data for children by HHS is due for release in 2015.

How do we compare?

- Inadequate fruit and vegetable consumption in Queensland adults in 2011–12 did not differ from national prevalence.¹⁰¹ Among the states, Queensland had the second highest prevalence after Northern Territory.
- Mean daily serves of fruit for Queensland adults was fourth highest of the jurisdictions in 2011–12 (1.6 serves) and also for vegetables (2.4 serves daily).¹⁰¹
- For children, Queensland prevalence did not differ from national for recommended daily serves of fruit or vegetables, or for full cream milk consumption.¹⁰¹ Other nutrition indicators were not collected nationally.
- Mean daily serves of fruit for Queensland children was sixth highest of the jurisdictions in 2011–12 (1.9 serves) and also for vegetables (2.0 serves daily).¹⁰¹
- The prevalence of fruit and vegetable consumption for Indigenous Queenslanders did not differ from national prevalence in 2012–13 (*Table 34, page 157*).¹¹⁹
- There is currently limited data from the 24-hour food recall survey to compare food and nutrient consumption in Queensland with Australia, although more information will be released in 2015. However, there was no difference in the mean daily energy intake of persons aged 2 years and older for males, females or persons in 2011–12, while the proportion of energy derived from discretionary foods was 5% higher among Queenslanders in this age group than nationally (37% compared with 35%).^{209,229}
- The prevalence of risk of anaemia in Queensland adults was similar to national in 2011–12 (5.5% and 4.5% respectively).^{111,230}
- The prevalence of moderate iodine deficiency in Queensland adults was similar to national in 2011–12 (12.4% compared with 12.8%).²³⁰

- Exclusive breastfeeding at four months of age in Queensland was lowest of all jurisdictions but did not differ from national prevalence.^{230,232,236}
- Among 22 European countries in recent years, exclusive breastfeeding at six months of age varied from less than 1% to 37%.²³⁷ Australian prevalence in 2010 was at the lower end of this range as was Queensland's (2.1% and 1.8% respectively).

What are the trends?

There has been very little change in fruit and vegetable consumption in Queensland adults over the past decade based on the *2003 Australian guidelines for healthy eating*.^{238,239} As yet, there is insufficient data to report trends using the 2013 guidelines. However, reporting in previous Chief Health Officer reports using the 2003 guidelines show that the proportion of adults consuming the recommended serves of fruit per day has generally increased, despite a decrease in periods such as 2010 and 2011 (*Table 1, page 4*). This is also evident in mean serves per day. The mean serves of vegetables per day has fluctuated a little, while the proportion consuming the recommended serves per day has essentially remained unchanged over a decade.

Between 2001 and 2014, there was a 38% decrease in the weekly consumption of takeaway food among Queensland adults. This refers to food from well known fast food chains as well as generic items such as fish and chips, pizzas and hamburgers. Decreasing consumption was evident for males and females, all age groups and across the socioeconomic gradient.²⁴⁰

There is insufficient data to report on trends in childhood nutrition, but the limited data for fruit and vegetable consumption shows no change for Queensland children between 2009 and 2013.

Total daily energy intake for Queenslanders aged two years and older was reported to decrease by 9% between 1995 and 2011–12, an 11% decrease for males while for females there was no change.^{209,226,241} The reliability of these estimates is compromised by under-reporting which is likely to include substantial bias. This is an acknowledged problem.²²⁶ The contribution of total energy intake from the major nutrient groups such as protein, fats and carbohydrates for Australians has changed very little over this period, recognising the caveat of under-reporting. However, eating patterns have altered with a wider range of energy-dense, nutrient-poor foods now heavily marketed and promoted. Further information on consumption trends will be reported in 2015.

What is the cause?

Food meets a range of different needs and each of these influences an individual's food choices. Fundamentally, food is needed for sustenance, to meet physiological needs. It also provides a sense of psychological satisfaction, although this can also be the cause of misuse of food, including excess consumption leading to weight gain. Food has a social and cultural value. It is a significant component of cultural diversity in Australia and is central to social life and celebrations.²⁴²

A number of factors influence food choices and food intake and these vary for individuals, families and groups. They include:

- biological factors such as hunger, taste and appetite
- economic factors including availability, cost and income
- physical factors including, access, time and skills such as cooking
- social determinants including peers, family, culture and meal patterns
- psychological determinants, such as stress, mood and guilt
- cultural factors including knowledge, attitudes and beliefs.²⁴³

Increasing the knowledge of recommended fruit and vegetable intake, using food labels to inform better food choices, ensuring access to healthy food and improving nutrition through promotion of the *2013 Australian dietary guidelines* each have the potential to improve the food choices Queenslanders make.³⁹

Higher rates of initiation and longer duration of breastfeeding, as well as lower and later rates of introduction of non-human milk, infant formula and solids, was associated nationally with:

- older mothers (35 years and older)
- mothers with tertiary qualifications and higher incomes
- less frequent use of a dummy (pacifier).²³⁴

What are its impacts?

Burden of disease.

In 2010, dietary factors were the largest attributable risk for disease burden in Australia, accounting for about 10.5% of the total.⁴ Data for Queensland in 2010 is not currently available. Dietary risks are a global issue, and were the largest cause of total disease burden in the developed world and second largest cause in the developing nations in 2010. GBD 2010 included dietary risks for the first time and while it is likely the global analysis will undergo further developments, it will form a new benchmark for the assessment of diet, superseding the 2010 estimation undertaken in Queensland.^{40,63}

The global study which assessed dietary risks for Australia, included diets low in fruit, nuts and seeds, vegetables, whole grains, fibre, seafood omega-3 fatty acids and poly-unsaturated fats as well as diets high in sodium and processed meat. Over-consumption of food in the form of excess energy is not included in diet related burden of disease analyses—rather it leads to an increase in body mass which is assessed separately. Excess consumption of energy-dense foods may displace a diversity of healthy foods in the diet and potentially lead to nutrient deficiencies and the development of dental decay. Dietary risks are associated with the development of cardiovascular disease, some cancers and endocrine diseases such as diabetes.⁵⁸

Life expectancy

The effect of poor diet on life expectancy is unassessed in Australia. However, international studies suggest that longer, healthier lives can be achieved through adherence to dietary guidelines.^{244,245}

Death

Of the total disease burden associated with dietary factors, the greater proportion (85%) was associated with premature mortality (YLL),—the largest cause of premature death burden in Australia in 2010.⁸ It was estimated there were about 33,000 deaths that were directly or indirectly due to dietary factors in Australia in 2010, 23% of all deaths.⁴² About 6200 of these deaths occurred in Queensland.

Disability and hospitalisation

Dietary risks were the fourth largest cause of disability burden in 2010 in Australia after high body mass, drug use and smoking.⁸ Data for Queensland in 2010 is not currently available. Dietary factors are associated with the development of conditions with relatively high hospital burden, such as cardiovascular disease, diabetes and some cancers. The total impact of dietary risks on hospitalisation rates is unquantified in Queensland.

Expenditure

In Australia in 2008, it was estimated that an increase of two extra serves of fruit or vegetables per person per day would reduce by \$71 million the estimated \$206 million in national health sector costs associated with inadequate fruit and vegetable consumption in 2008.²⁴⁶ For individuals and businesses there would be economic benefit through production gains in working, household activities and leisure, and for government there would be taxation gains as a result of people not becoming ill or retiring from the workforce prematurely. More recent data is not available.

Challenges and opportunities

Queensland has a rich diversity of healthy and safe food, much of it local produce, available to many areas of the state. Queenslanders therefore have the opportunity to eat well and choose a healthy diet that includes fruit and plenty of vegetables, grains and cereals (preferably wholegrain or high fibre), lean meats and poultry, and milk, yoghurt and cheese or their alternatives. However, some Queenslanders are disadvantaged with higher food costs, especially in very remote areas where the cost of a healthy food basket was 26% higher than in major cities in 2010.

We have national recommendations based on the very recent assessment of evidence. The *2013 Australian dietary guidelines* focus on whole foods and are consistent with positive health and wellbeing outcomes and reduced illness. The practical reason for this approach is that diets are made up of whole foods, not nutrients in isolation, that supply a range of the building blocks for good health including proteins, fat, carbohydrates, fibre, minerals and vitamins. The focus needs to be on adopting and maintaining healthy dietary patterns as the basis of good health and wellbeing, rather than a narrow focus on nutrients.

The greatest dietary challenge facing many Queenslanders is the over-consumption of foods and drinks that leads to excess energy intake and under-consumption of fruits, vegetables and wholegrain foods. More than one-third of

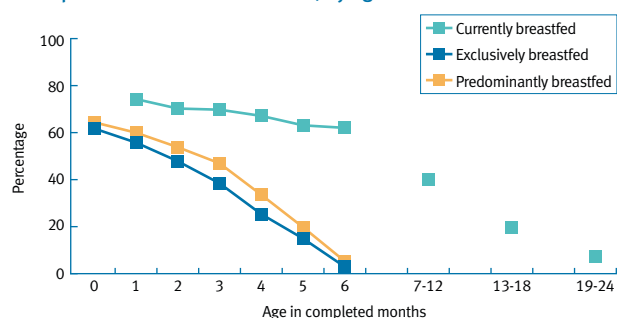
daily energy is derived from high energy foods that have little or no nutritional value. This is evident across the full age range from infants to the elderly. Peak intake is in the teenage years, with up to half the daily energy intake derived from sugary drinks, fast foods, alcohol, snacks, pastries, cakes, biscuits and confectionery. About 1 in 2 primary school age children are consuming confectionery daily, two-thirds of young males are consuming sugary drinks daily, and about half of middle aged males are consuming alcohol daily. Of those who are consuming alcoholic and sugary drinks, peak consumption of about five cans a day (1919gm) is in 19–30 year old males.

The global production of more processed, cheap and effectively marketed foods than ever before appears to be the main driver behind the simultaneous increase in obesity in almost all countries. This ready availability of energy-dense and nutrient-poor foods high in saturated fat, added sugars or salt is having a profound effect on the nutrition and weight status of adults and children in this state and worldwide. These foods are no longer 'treat' or 'occasional' foods as they have been in the past, but have found their way into the everyday diet, such as the lunchboxes and snacks of children and adults in Queensland. Improving the eating patterns of Queenslanders is essential to addressing the increasing prevalence of obesity and diet-related lifestyle diseases throughout the state.

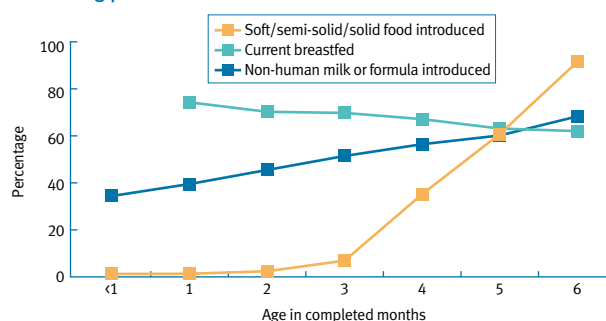
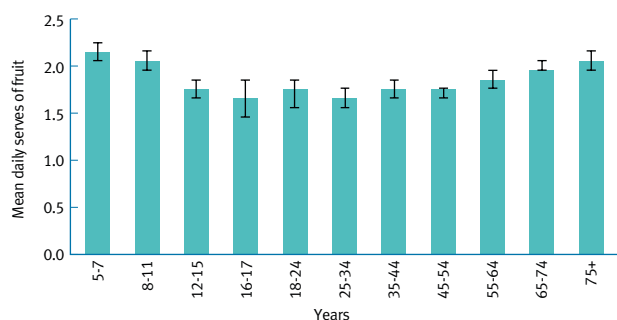
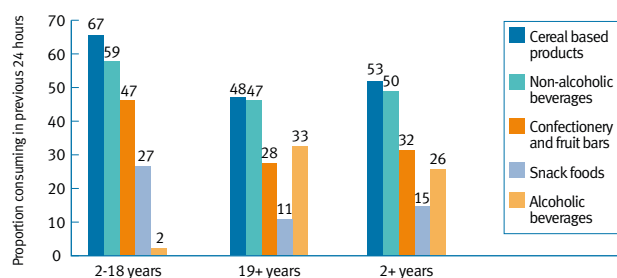
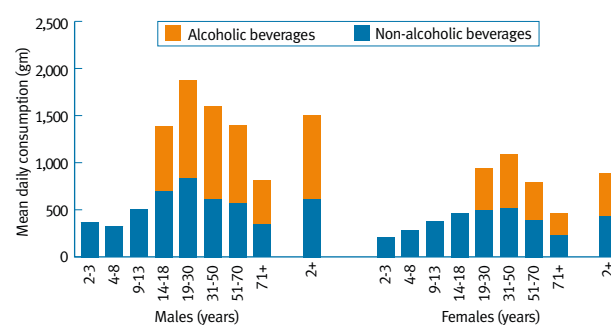


Figure 36: Infant feeding, Queensland, 2010²³²

a. Proportion of children breastfed, by age of child



b. Feeding patterns in infants 0 to 6 months

Figure 37: Fruit consumption (mean serves) by age, Queensland, 2013^{117,198}Figure 38: Proportion of energy derived from discretionary foods by age, Queensland, 2011–12²⁰⁹Figure 39: Proportion consuming discretionary foods by selected type, and age group, Queensland, 2011–12²⁰⁹Figure 40: Mean daily discretionary beverage consumption, of those who consume such beverages, by age and sex, Queensland, 2011–12²⁰⁹

		Adequate fruit intake %		Adequate vegetable intake %		Fruit – mean daily serves		Vegetables – mean daily serves	
5–17 years	Persons	65.0	(62.9–67.2)	6.3	(5.3–7.5)	2.0	(1.9–2.0)	2.2	(2.1–2.3)
	Males	61.8	(58.7–64.9)	5.2	(4.0–6.9)	1.9	(1.8–2.0)	2.2	(2.1–2.3)
	Females	68.4	(65.4–71.4)	7.5	(6.0–9.4)	2.0	(2.0–2.1)	2.2	(2.1–2.3)
Persons	5–7 years	81.9	(78.1–85.1)	7.4	(5.5–9.9)	2.2	(2.1–2.3)	2.0	(1.9–2.1)
	8–11 years	70.2	(66.3–73.9)	6.2	(4.5–8.6)	2.1	(2.0–2.2)	2.1	(2.0–2.2)
	12–15 years	55.7	(51.6–59.6)	4.4	(2.9–6.6)	1.8	(1.7–1.9)	2.2	(2.1–2.4)
	16–17 years	48.9	(43.1–54.7)	8.7	(5.8–12.8)	1.7	(1.5–1.9)	2.4	(2.3–2.6)
Males	5–7 years	78.9	(73.3–83.6)	6.0	(3.7–9.4)	2.1	(1.9–2.2)	1.9	(1.8–2.1)
	8–11 years	66.9	(61.2–72.1)	6.4	(4.1–9.8)	2.0	(1.9–2.2)	2.1	(1.9–2.2)
	12–15 years	53.1	(47.5–58.7)	*2.5	(1.3–4.7)	1.8	(1.6–1.9)	2.3	(2.1–2.4)
	16–17 years	43.8	(35.7–52.3)	*7.3	(3.6–14.5)	1.6	(1.3–1.8)	2.4	(2.2–2.7)
Females	5–7 years	85.0	(79.8–89.1)	9.0	(6.1–13.0)	2.2	(2.1–2.3)	2.0	(1.9–2.1)
	8–11 years	73.8	(68.2–78.6)	6.0	(3.7–9.8)	2.1	(2.0–2.2)	2.1	(2.0–2.2)
	12–15 years	58.3	(52.5–63.9)	*6.4	(3.9–10.5)	1.8	(1.7–1.9)	2.2	(2.1–2.4)
	16–17 years	54.2	(46.2–62.0)	10.2	(6.4–15.7)	1.7	(1.5–1.9)	2.4	(2.3–2.6)
Socioeconomic status	Disadvantaged	55.1	(49.9–60.3)	5.9	(3.8–8.8)	1.7	(1.6–1.8)	2.0	(1.9–2.2)
	Quintile 2	65.7	(60.4–70.6)	7.1	(4.7–10.6)	2.0	(1.8–2.1)	2.2	(2.0–2.3)
	Quintile 3	65.7	(60.4–70.5)	8.7	(6.1–12.1)	2.0	(1.9–2.1)	2.3	(2.1–2.4)
	Quintile 4	66.6	(62.1–70.9)	5.8	(4.0–8.3)	2.0	(1.9–2.1)	2.2	(2.1–2.3)
	Advantaged	69.9	(65.4–74.0)	4.8	(3.0–7.6)	2.1	(2.0–2.2)	2.2	(2.1–2.4)
Remoteness	Major cities	64.8	(61.9–67.6)	5.7	(4.6–7.2)	2.0	(1.9–2.0)	2.2	(2.1–2.2)
	Inner regional	65.8	(61.2–70.1)	6.3	(4.3–9.3)	2.0	(1.9–2.2)	2.2	(2.0–2.3)
	Outer regional	63.4	(57.6–68.8)	7.7	(4.9–11.8)	1.9	(1.7–2.0)	2.2	(2.1–2.4)
	Remote	69.9	(56.7–80.4)	n/a		2.1	(1.7–2.4)	2.4	(2.0–2.8)
	Very remote	69.7	(54.9–81.3)	n/a		2.0	(1.7–2.2)	2.6	(2.2–3.0)

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

n/a Not available for publication.

Table 23: Fruit and vegetable consumption, adults, percentage/mean (95% CI), Queensland, 2014¹⁹⁹

		Adequate fruit intake %		Adequate vegetable intake %		Adequate fruit and vegetable intake %		Mean daily fruit intake		Mean daily vegetable intake	
18+ years	Persons	58.3	(56.5–60.1)	9.2	(8.3–10.1)	7.3	(6.4–8.2)	1.9	(1.8–1.9)	2.5	(2.4–2.5)
	Male	53.8	(51.0–56.6)	3.3	(2.6–4.3)	2.8	(2.1–3.7)	1.8	(1.7–1.9)	2.2	(2.1–2.2)
	Female	62.7	(60.5–65.0)	14.7	(13.2–16.3)	11.5	(10.1–13.0)	2.0	(1.9–2.0)	2.8	(2.7–2.8)
Persons	18–24 years	56.0	(47.7–64.1)	*6.4	(3.3–12.1)	*5.8	(2.8–11.5)	1.8	(1.7–2.0)	2.3	(2.1–2.5)
	25–34 years	54.7	(48.8–60.4)	8.5	(6.1–11.8)	6.7	(4.5–9.8)	1.8	(1.6–1.9)	2.5	(2.3–2.6)
	35–44 years	53.7	(50.1–57.3)	7.5	(5.8–9.6)	5.2	(3.8–7.1)	1.7	(1.6–1.8)	2.4	(2.3–2.5)
	45–54 years	57.4	(54.4–60.3)	8.4	(7.0–10.1)	5.8	(4.6–7.3)	1.9	(1.8–1.9)	2.5	(2.4–2.6)
	55–64 years	60.4	(57.5–63.2)	11.8	(10.1–13.9)	9.4	(7.8–11.3)	2.0	(1.9–2.0)	2.6	(2.5–2.7)
	65–74 years	68.0	(65.3–70.5)	13.1	(11.2–15.1)	11.8	(10.0–13.9)	2.2	(2.1–2.2)	2.6	(2.6–2.7)
	75+ years	68.2	(64.5–71.6)	10.1	(7.9–12.7)	9.0	(6.9–11.6)	2.2	(2.1–2.3)	2.5	(2.3–2.6)
Males	18–24 years	55.3	(43.3–66.7)	n/a		n/a		1.8	(1.5–2.1)	2.3	(2.0–2.6)
	25–34 years	50.7	(41.2–60.1)	n/a		n/a		1.7	(1.5–2.0)	2.2	(2.0–2.4)
	35–44 years	50.6	(45.2–56.0)	*1.5	(0.7–3.6)	*0.8	(0.4–1.8)	1.6	(1.5–1.8)	2.1	(1.9–2.2)
	45–54 years	54.8	(50.3–59.3)	*2.5	(1.4–4.4)	*1.9	(1.0–3.8)	1.8	(1.7–1.9)	2.1	(2.0–2.2)
	55–64 years	54.1	(49.9–58.3)	4.0	(2.6–6.1)	3.7	(2.3–5.8)	1.9	(1.8–2.0)	2.2	(2.1–2.3)
	65–74 years	58.5	(54.5–62.5)	6.0	(4.3–8.4)	5.3	(3.6–7.6)	2.0	(1.9–2.1)	2.3	(2.2–2.4)
	75+ years	58.3	(52.5–63.8)	9.2	(5.9–13.9)	8.7	(5.5–13.5)	2.1	(1.9–2.2)	2.2	(2.0–2.4)
Females	18–24 years	56.8	(45.3–67.7)	*8.5	(4.1–16.9)	*8.2	(3.8–16.8)	1.9	(1.6–2.1)	2.3	(2.0–2.6)
	25–34 years	58.6	(51.8–65.2)	15.3	(10.9–21.1)	11.8	(7.8–17.3)	1.8	(1.7–2.0)	2.7	(2.6–2.9)
	35–44 years	56.7	(52.0–61.3)	13.3	(10.3–17.0)	9.6	(7.0–13.1)	1.8	(1.7–1.9)	2.7	(2.6–2.9)
	45–54 years	59.8	(56.0–63.5)	14.1	(11.7–17.0)	9.6	(7.6–12.0)	1.9	(1.8–2.0)	2.8	(2.7–2.9)
	55–64 years	66.6	(62.8–70.2)	19.7	(16.6–23.2)	15.1	(12.4–18.3)	2.0	(1.9–2.1)	3.0	(2.8–3.1)
	65–74 years	77.0	(73.7–80.0)	19.8	(16.8–23.2)	18.1	(15.2–21.5)	2.4	(2.3–2.5)	3.0	(2.8–3.1)
	75+ years	76.1	(71.7–80.0)	10.8	(8.1–14.2)	9.2	(6.7–12.4)	2.4	(2.2–2.5)	2.6	(2.5–2.8)
Socioeconomic status	Disadvantaged	54.3	(51.0–57.6)	8.3	(6.9–9.9)	5.7	(4.7–6.9)	1.8	(1.7–1.9)	2.4	(2.3–2.5)
	Quintile 2	55.5	(51.9–59.0)	9.2	(7.4–11.3)	7.3	(5.7–9.4)	1.8	(1.8–1.9)	2.5	(2.4–2.6)
	Quintile 3	55.5	(51.1–59.9)	9.7	(7.6–12.4)	7.6	(5.6–10.1)	1.9	(1.8–2.0)	2.5	(2.4–2.7)
	Quintile 4	58.8	(54.5–62.9)	8.6	(6.8–10.8)	6.3	(4.8–8.1)	1.8	(1.7–1.9)	2.4	(2.3–2.5)
	Advantaged	65.7	(61.6–69.6)	9.9	(7.8–12.4)	9.0	(7.0–11.6)	2.0	(1.9–2.1)	2.6	(2.4–2.7)
Remoteness	Major cities	59.5	(56.8–62.1)	9.1	(7.8–10.5)	7.3	(6.1–8.6)	1.9	(1.8–2.0)	2.5	(2.4–2.5)
	Inner regional	57.6	(54.4–60.6)	9.9	(8.2–11.9)	7.7	(6.2–9.6)	1.9	(1.8–2.0)	2.5	(2.4–2.6)
	Outer regional	56.2	(52.6–59.8)	8.4	(7.0–10.2)	6.6	(5.3–8.2)	1.8	(1.8–1.9)	2.4	(2.3–2.5)
	Remote	52.5	(47.9–57.1)	8.7	(7.1–10.7)	6.4	(5.0–8.1)	1.7	(1.6–1.8)	2.4	(2.3–2.5)
	Very remote	53.8	(48.5–59.0)	8.6	(6.2–11.8)	7.1	(4.9–10.2)	1.8	(1.7–2.0)	2.4	(2.2–2.5)

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

n/a Not available for publication.

Physical activity

Physical activity helps adults to live longer, and protects against cardiovascular diseases, type 2 diabetes, some cancers and osteoarthritis.²⁴⁷

Children and adolescents who are physically active have better cardio-metabolic, musculoskeletal and mental health, and are less likely to gain unhealthy weight.²⁴⁸ Additionally, evidence is accumulating of the adverse health effects of sedentary behaviours (sitting or lying down, except when sleeping).²⁴⁹

Increased sedentary behaviour is associated with overweight and obesity, and poorer cardiovascular, muscular, mental and behavioural health.²⁵⁰

This section focuses on the proportions of children and adults engaging in sufficient physical activity for health benefit, and indicators of sedentary behaviour. Sufficient physical activity for health benefit for adults is defined by *Australia's physical activity and sedentary behaviour guideline*.⁷ Updated guidelines were released in 2014 and will be used for subsequent reporting. Sedentary behaviour is defined as usually sitting for seven or more hours in a day. Children are aged 5–17 years unless otherwise noted.

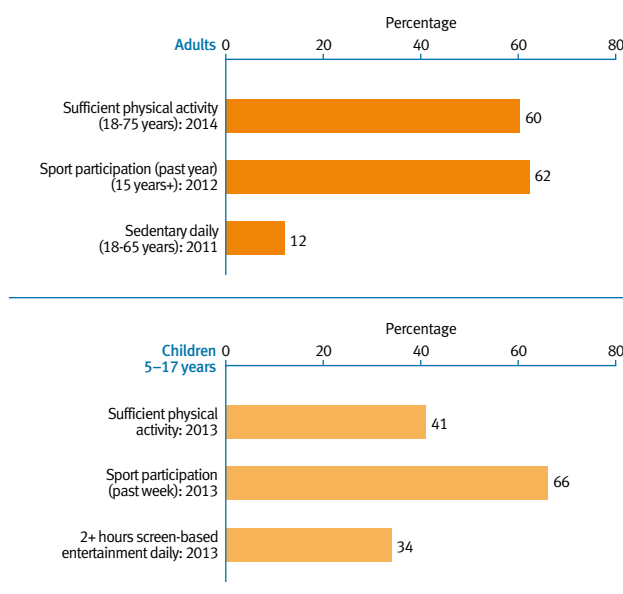
What is the prevalence?

For Queensland (Figure 41):

- 60% of adults were sufficiently active for health benefit in 2014¹⁹⁹
- 39% adults were sedentary on weekdays, (18% on weekends and 12% every day) in 2011²⁵¹
- 62% of Queenslanders 15 years and older participated in sport at least once in 2012²⁵²
- 41% of children were active for at least one hour every day in the previous week in 2013¹⁹⁸
- 34% of children averaged two or more hours of recreational screen time per day in 2013, exceeding the recommended guideline¹⁹⁸
- 66% of children participated in organised sport in the previous week in 2013.¹⁹⁸

Australian physical activity guidelines ⁷				
Age group	Duration	Intensity	Frequency	Additional notes
5-17 years	60 mins+	Moderate to vigorous	Every day	Not more than 2 hours of recreational use of electronic media
Adults	30 mins+	Moderate (at least)	Most days (preferably all)	Not applicable
Older people 65+ years	30 mins+	Moderate (at least)	Most days (preferably all)	Incorporating strength, fitness, balance and flexibility

Figure 41: Prevalence of sufficient physical activity and sedentary behaviour, adults and children, Queensland



Is it the same for everyone?

Sex

About 6 in 10 adults were sufficiently active for health benefit in 2014 with no difference by sex (Table 24).¹⁹⁹ Males, however, were 8% more likely to have participated in sport in the previous year (64% compared with 60%, for those 15 years and older).²⁵² There was no difference between males and females in sedentary rates on weekdays, the weekend and every day.²⁵¹

Boys were more likely than girls to be active for at least one hour each day in the previous week in 2013 (Table 25)¹⁹⁸, although there was no difference in the prevalence of playing organised sport in the past week. Boys were 27% more likely to exceed the recommendation of no more than two hours screen time per day for entertainment in 2013.

Age

Younger adults are more active than older adults. The prevalence of achieving sufficient physical activity decreased markedly with age, from 73% in those aged 18–24 years to 50% in those aged 65–75 years (Table 24). The pattern was similar for males and females. Similarly, the rate of participation in sport in the previous year decreased from 79% in those aged 15–17 years to 48% in those 65 years and older.²⁵² Older adults (55–65 years) were 28% less likely than those aged 18–54 years to be sedentary on weekdays (29% compared with 41%).

The proportion of children active for at least one hour daily decreased with age (*Table 25*). The pattern was similar for boys and girls, but more pronounced for girls—about 60% each of boys and girls aged 5–7 years engaged in sufficient physical activity, but by 16–17 years boys were twice as likely as girls to do so (31% of boys compared with 16% of girls). Participation in organised sport in the previous week also decreased with age, from 70% in children 5–7 years old to 41% in those aged 16–17 years.

Older children were more than twice as likely (2.4 times) to exceed the recommended screen time for entertainment (*Table 25*). About 1 in 2 older children (16–17 year olds) exceeded two hours per day, averaging 823 minutes per week in 2013.¹⁹⁸ About 1 in 6 young children (5–7 years) exceeded the recommendation, averaging 468 minutes per week.

Socioeconomic status

The prevalence of Queensland adults engaging in sufficient physical activity did not vary with the socioeconomic status of the area, nor did sedentary behaviour (*Table 24*). Those with higher income or level of education were, however, more likely to have participated in sport in the previous year.²⁵²

Children living in the most advantaged areas of Queensland were about 20% more likely than those in the most disadvantaged areas to have participated in organised sport in the previous week in 2013.¹⁹⁸ Children's participation in organised sport in the previous year was higher among families where at least one parent was employed: 70% higher in single parent families and about 90% higher in couple families than those where the parents/s were unemployed.²⁵³ Screen time for entertainment did not vary by socioeconomic status (*Table 25*).

Remoteness

Adults in inner regional areas of Queensland had the lowest prevalence of sufficient physical activity—in 2014 they were 12% less likely than those in major cities and 15% less likely than those in remote areas to achieve sufficient physical activity.¹⁹⁹ In contrast, there was no difference by remoteness in the likelihood of being sedentary daily in 2011 (*Table 24*).

The prevalence of children being active for at least one hour daily increased with remoteness, with those in very remote areas 57% more likely than those in major cities to do so (*Table 25*). There was no difference in the prevalence of sport in the previous week nor screen time for entertainment by remoteness.

Indigenous Queenslanders

In 2012–13, in a national survey, activity was assessed in terms of levels of exercise which is not directly comparable with reporting of activity for health benefit.²⁰¹ About 60% of Indigenous Queenslanders in non-remote areas were sedentary or had low levels of exercise and this was similar to non-Indigenous Queenslanders (59%)

and Indigenous Australians (61%) and even after adjusting for age differences the prevalence did not differ. Data for Indigenous children and for Indigenous adults in remote areas were not available.

Regional Queensland

In 2011–12, the adult prevalence of achieving sufficient physical activity in most HHSs was similar to Queensland (*Table 38, page 169*). The exceptions were Gold Coast, where adults were 7% more likely to achieve sufficient physical activity, and Central Queensland where adults were 12% less likely to do so. Data for children by HHS will be released in 2015.

How do we compare?

In 2011–12, the prevalence of sufficient physical activity in Queensland adults was similar to the national prevalence and third highest of the jurisdictions (after NSW and the ACT), using the national survey methodology.²⁵⁴ Adult participation in organised sport in the previous year was lower for Queensland (62%) than for Australia overall (65%).

For children in 2011–12, Queensland shared the highest prevalence of those aged 2–17 years meeting physical activity recommendations, and was 18% higher than Australia using the national survey methodology.²⁵⁴ Children in Queensland were, however, 6% less likely than those across Australia to have participated in organised sport in the previous year.²⁵³

International comparisons of physical activity and sedentary behaviour prevalence are not available due to variations in data collection methodologies and reporting.

1 in 3 children exceed recommended screen time for entertainment.

What are the trends?

From 2004 to 2008, the prevalence of sufficient physical activity in adults increased an average of 7.3% each year. Since 2009 however, the rate of increase has slowed, to an average of 1.5% per year. Considering the full period from 2004 to 2013 the prevalence of physical activity increased by 39%. There was no difference between the rates of increase for males and females, and between age groups. The difference in physical activity prevalence between the most disadvantaged and advantaged areas diminished between 2004 and 2013 (*Figure 1e, page 3*). While levels of physical activity have increased in both population groups over the period, the rate of increase in the most disadvantaged areas was 2.6 times the increase in the most advantaged areas. This slowing in advantaged areas was principally for males. The gap between advantaged and disadvantaged populations is therefore diminishing, and in 2013 and 2014 there was

no difference in prevalence between the two populations. Ongoing data is needed to establish this trend and confirm closure of the gap.

There is insufficient data available to assess trends for children, and sedentary behaviour in adults. There was, however, no difference between the 2009 and 2011 adult prevalence of usually sitting at least seven hours on weekdays, the weekend and every day.^{251,255}

What is the cause?

WHO attributes current levels of physical inactivity to increasing sedentariness of domestic and occupational activities, insufficient leisure-time physical activity, increasing use of passive modes of transport, and increased urbanisation (potentially leading to higher-density traffic, poorer air quality, and lack of sports and recreation facilities, footpaths and parks).²⁵⁶

Local data are consistent with this. Many Australian adults spend long hours in the workplace, and much of this is spent sitting.²⁵⁷ Australia has become increasingly urbanised, and is now one of the most urbanised countries in the world.^{258,259} Between 2006 and 2013, passenger vehicles per capita increased in all Australian states and territories, with Queensland increasing from 53 to 55 vehicles per 100 people.²⁶⁰

For children, unsupervised access to TV and other screen devices contributes to a growing prevalence of sedentary behaviour. Less than one-third of Australian children meet the recommendation of no more than two hours of screen time for entertainment each week.²⁶¹ In 2014, a typical home in Australia has three TV's, three laptops and two video consoles. About one-third of children have a TV in their bedroom and those who do so, watch three more hours of TV a week on average, and get 45 minutes less physical activity than those without a TV in the bedroom. Children from lower income families were more likely to have a TV in their bedroom, 53% of those in the poorest quintile compared with 22% in the richest quintile. Monitoring of media use, setting rules and offering non-screen based alternatives, modelling moderate screen behaviours and encouraging children to be outdoors have all been shown to be beneficial to improving physical activity in children and young people.²⁶¹

What are its impacts?

Burden of disease

In 2010, physical inactivity and low physical activity caused 4.6% of the burden of disease in Australia and was the fifth largest cause.⁸ This burden occurred through coronary heart disease and stroke (2.8%), colorectal and breast cancer (1.1%), and diabetes, urogenital, blood and endocrine diseases (0.7%). Premature mortality (YLL) accounted for 81% of the total burden.

Life expectancy

There is strong evidence that physical activity helps people to live longer. A 2008 review found that those who met physical activity recommendations were 30% less likely than the least active groups to die over an average 12 years, independent of age, sex, socioeconomic status, medical history and behavioural risk factors for chronic disease.^{247,262} These results applied to men, women and different population groups including ethnic groups. These findings are confirmed in more recent reviews.²⁴⁷ Long-term studies have shown that leisure time physical activity has a protective effect, leading to 5–8 years greater life expectancy for active 75 year olds, compared with those who were inactive.⁸⁰

Deaths

In Australia in 2010, there were about 13,000 deaths directly or indirectly associated with physical inactivity.⁴² About 2400 of these deaths occurred in Queensland—approximately 9% of all deaths.

Disability and hospitalisation

Disability due to physical inactivity or low levels of physical activity was responsible for about 2% of the burden due to disability.⁸ While data regarding hospitalisations were not available, physical inactivity and low levels of physical activity are associated with increased risk of disease, which affects the health system through increased consultations and hospital admissions.

Expenditure

The direct annual healthcare cost of physical inactivity in Australia was estimated to be \$1.5 billion in 2006–07 (about \$1.8 billion in 2014 dollars).^{263,264} Recent estimates of indirect costs in Australia are unavailable. However, in Canada, a country with a similar healthcare system and expenditure²⁶⁵, the healthcare costs due to physical inactivity in 2009 was estimated to be more than \$2 billion in direct costs and more than \$4 billion in indirect costs.²⁶⁶ The total of \$7 billion represented 4% of total Canadian healthcare costs.^{266–268} Assuming a similar proportion of indirect costs in Australia, it is estimated that the costs to the healthcare system of physical inactivity in 2014 was about \$5.4 billion, or about \$1.1 billion in Queensland.

It was estimated that a 10% reduction in physical inactivity in Australia in 2008 would result in 6000 fewer cases of disease and 25,000 fewer deaths as well as providing productivity gains in the workplace with impacts on home based activity, conferring a \$96 million annual reduction in health sector costs.²⁶⁹ Lifetime potential opportunity cost savings in productivity and home and leisure based production was estimated at \$162 million.

1 in 8 adults are sedentary every day—2 in 5 on weekdays and 1 in 5 on weekends.

Challenges and opportunities

There have been improvements—Queensland adults are more active now than in the past 10 years, and socioeconomic differences in the adult prevalence of physical activity are diminishing. However, 40% of adults still do not achieve sufficient physical activity for health benefit, and a similar proportion are sedentary on weekdays. The behaviours of Queensland children are concerning—3 in 5 Queensland children do not engage in sufficient physical activity, and 1 in 3 exceed the maximum recommended daily screen time for entertainment.

Physical inactivity and sedentariness are costly to the individual and the health system. Reducing the prevalence in Australian adults by 10% was estimated to produce a \$96 million annual saving in Australian health sector costs associated with treating new cases of physical activity related diseases.²⁶⁹ The prevalence of physical activity increased by 39% in Queensland between 2004 and 2013, evidence that individuals are taking action to improve their health. Physical and social environments, such as workplaces, schools, cities, neighbourhoods and homes, also influence behaviour.²⁷⁰ The Australian Government has shown that reducing workers' sitting time can be cost-effective.²⁷¹

Improving children's behaviour will reap rewards in the future, with active children more likely to become active adults.²⁷² The Queensland Government's *Daily physical activity—a guide for schools* encourages and supports teachers to make active living a way of life for children.²⁷³ Parents also have an important role. They usually make the decision about their child's mode of transport to school—in 2011, half of Queensland children travelled to school solely by car—and are usually best placed to monitor and manage their child's leisure screen time.^{228,274}

This year, the Australian Government released new physical activity and sedentary guidelines for the whole population. For the first time, the guidelines for adults provide the weekly physical activity required for prevention of unhealthy weight gain—about five hours of moderate activity, or 2.5 hours of vigorous activity (or an equivalent combination).²⁷⁵ Australia's new physical activity and sedentary behaviour guidelines provide clear and comprehensive advice for the general population and health professionals alike, but must be promoted and supported widely to realise their full potential.



Table 24: Sufficient physical activity¹⁹⁹ and daily sedentary behaviour²⁵¹, adults, percentage (95% CI), Queensland

Sufficient physical activity 2014				Sedentary daily 2011			
	Males	Females	Persons		Males	Females	Persons
18–75 years	61.3 (58.4–64.1)	57.8 (55.4–60.2)	59.5 (57.6–61.4)	18–65 years	13.6 (10.5–17.4)	10.7 (8.3–13.6)	12.1 (10.1–14.5)
18–24 years	77.2 (66.9–85.0)	69.0 (57.6–78.5)	73.2 (65.6–79.6)	18–34 years	*16.4 (9.7–26.3)	*10.3 (6.1–16.7)	13.2 (9.1–18.7)
25–34 years	59.9 (50.0–69.0)	60.8 (53.9–67.4)	60.4 (54.3–66.1)	35–54 years	13.5 (9.8–18.2)	11.8 (8.4–16.2)	12.6 (10.1–15.7)
35–44 years	64.5 (59.1–69.5)	55.3 (50.5–60.0)	59.8 (56.2–63.3)	55–65 years	9.3 (6.0–14.1)	8.6 (5.4–13.5)	9.0 (6.6–12.2)
45–54 years	60.1 (55.5–64.5)	57.3 (53.4–61.2)	58.7 (55.7–61.6)	Socioeconomic status		Remoteness	
55–64 years	53.6 (49.3–57.9)	56.5 (52.6–60.4)	55.0 (52.1–57.9)	Disadvantaged	12.1 (7.6–18.7)	Major cities	13.1 (10.3–16.6)
65–75 years	51.7 (47.7–55.6)	47.8 (43.9–51.7)	49.7 (46.9–52.5)	Quintile 2	13.2 (9.3–18.4)	Inner/outer regional	9.2 (6.9–12.1)
Socioeconomic status		Remoteness		Quintile 3	12.8 (8.4–19.1)	Remote/very remote	*20.3 (10.5–35.5)
Disadvantaged	56.5 (53.0–59.9)	Major cities	61.6 (58.9–64.2)	Quintile 4	14.9 (10.4–20.7)		
Quintile 2	57.6 (53.8–61.4)	Inner regional	54.0 (50.6–57.4)	Advantaged	8.0 (4.9–12.6)		
Quintile 3	62.3 (57.8–66.6)	Outer regional	58.7 (55.1–62.3)	* Estimate has a relative standard error of 25% to 50% and should be used with caution.			
Quintile 4	56.9 (52.5–61.2)	Remote	63.4 (58.9–67.6)				
Advantaged	63.6 (59.1–67.7)	Very remote	58.3 (52.6–63.8)				

Table 25: Selected physical activity indicators, children, Queensland, 2013¹⁹⁸

		Active every day of the past week	Played organised sport in the past 7 days	Two or more hours per day of screen-based entertainment	Minutes per week of screen-based entertainment
5–17 years	Persons	40.6 (38.4–42.8)	66.0 (63.8–68.1)	33.9 (31.7–36.1)	641 (619–663)
	Males	46.0 (42.8–49.2)	67.0 (63.9–70.0)	37.8 (34.7–40.9)	682 (650–714)
	Females	34.9 (31.9–38.0)	64.9 (61.8–67.8)	29.8 (26.9–32.8)	597 (567–627)
Persons	5–7 years	59.7 (55.1–64.0)	69.6 (65.4–73.6)	19.4 (16.1–23.1)	468 (438–498)
	8–11 years	44.4 (40.3–48.7)	74.0 (70.1–77.5)	30.0 (26.2–34.1)	571 (536–606)
	12–15 years	31.1 (27.6–35.0)	68.5 (64.6–72.1)	42.3 (38.3–46.4)	750 (708–792)
	16–17 years	23.4 (18.9–28.6)	40.7 (35.1–46.4)	46.9 (41.0–52.8)	823 (752–894)
Males	5–7 years	60.4 (54.1–66.5)	67.0 (60.8–72.7)	22.9 (18.0–28.6)	493 (446–540)
	8–11 years	49.8 (43.9–55.7)	76.5 (71.0–81.3)	34.2 (28.7–40.2)	614 (565–662)
	12–15 years	38.9 (33.6–44.6)	67.9 (62.5–73.0)	45.4 (39.8–51.1)	780 (721–839)
	16–17 years	30.8 (23.7–38.9)	47.4 (39.2–55.7)	52.1 (43.7–60.4)	912 (808–1016)
Females	5–7 years	58.8 (52.3–65.0)	72.4 (66.4–77.8)	15.6 (11.6–20.6)	442 (406–479)
	8–11 years	38.8 (33.1–44.9)	71.3 (65.7–76.3)	25.6 (20.7–31.2)	527 (478–577)
	12–15 years	23.0 (18.6–28.0)	69.1 (63.4–74.2)	39.0 (33.4–44.9)	719 (659–778)
	16–17 years	15.8 (11.0–22.2)	33.6 (26.4–41.7)	41.2 (33.4–49.4)	727 (633–821)
Socioeconomic status	Disadvantaged	44.6 (39.5–49.9)	59.1 (53.9–64.2)	39.2 (34.2–44.5)	679 (626–733)
	Quintile 2	46.2 (40.9–51.6)	63.7 (58.5–68.7)	30.3 (25.5–35.6)	583 (535–631)
	Quintile 3	41.2 (36.0–46.6)	69.1 (64.1–73.8)	35.3 (30.3–40.6)	644 (591–696)
	Quintile 4	36.0 (31.7–40.6)	65.6 (61.1–69.9)	31.5 (27.3–36.1)	653 (606–700)
	Advantaged	37.1 (32.7–41.9)	70.5 (66.0–74.7)	33.8 (29.3–38.6)	643 (597–689)
Remoteness	Major cities	37.3 (34.5–40.3)	67.6 (64.8–70.4)	32.7 (29.9–35.6)	640 (610–670)
	Inner regional	43.2 (38.6–47.9)	65.3 (60.7–69.7)	34.4 (30.0–39.1)	636 (594–678)
	Outer regional	45.1 (39.4–51.0)	61.1 (55.3–66.6)	38.3 (32.7–44.2)	672 (611–732)
	Remote	47.2 (34.8–60.0)	67.4 (54.1–78.4)	30.8 (20.2–43.9)	581 (453–709)
	Very remote	57.8 (45.0–69.6)	64.4 (50.8–76.0)	29.2 (18.6–42.7)	544 (394–695)

Smoking

Tobacco smoking is a leading cause of preventable death and disease, and health inequality in Queensland. Two-thirds of deaths in current smokers can be directly attributed to smoking.²⁷⁶ One third of smokers die in middle age losing at least 20 years of life (42% of lung cancer deaths occur in the 45–64 year old age group, and 18% of COPD deaths).

The health risk from tobacco increases the earlier a smoker takes up the habit and the longer they smoke. Even light smoking such as a few times a week is damaging to health, potentially cutting at least 10 years off the lifespan.²⁷⁶ Quitting leads to a large and rapid fall in the risk of heart disease, stroke and vascular disease.²⁷⁷ It also leads to a reduction in depression, anxiety and stress with improved positive mood and quality of life.²⁷⁸ Quitting by the age of 30 years leads to a gain of almost 10 years in lost life expectancy.²⁷⁹

What is the prevalence?

Among adults in 2014 (Figure 42, Table 26)¹⁹⁹:

- 14% smoked daily
- 3% were non-daily smokers
- 17% were current smokers, that is, daily and non-daily smoking
- 28% were ex-smokers
- 55% had never smoked
- 15.8 years was the age of first full cigarette for persons aged 14 years and older in 2010
- 15% of women smoked at some time during their pregnancy in 2012
- 2.6% quit before the second half of pregnancy, and 13% smoked throughout.

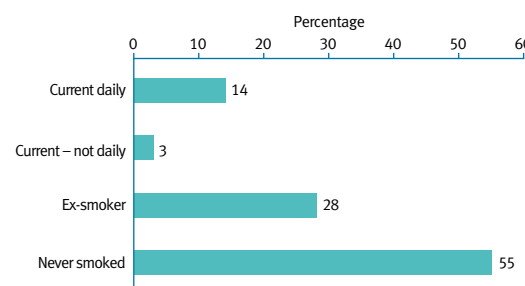
Is it the same for everyone?

Sex

Daily smoking prevalence was 37% higher in males than females, 16% compared with 12% respectively in 2014 (Table 26).¹⁹⁹ Males, were 26% more likely to have ever smoked than females, they were 22% more likely to be ex-smokers, with older males more than 3 times as likely as older females to be ex-smokers (aged 75 years and older) (Table 26, Figure 43a).

Males have a longer duration of daily smoking. They were more likely to have started smoking at a younger age than females (15.3 years compared with 16.4 years for females in 2010), to become daily smokers at a younger age (17.6 years compared to 18.3 years for females) and be older when they quit smoking daily (35.0 years compared with 32.9 years).

Figure 42: Smoking prevalence, adults, Queensland 2014¹⁹⁹



14% of adults smoke daily, and another 3% smoke occasionally.

Age

The highest rate of smoking was among young to middle-aged adults (25–44 years), with about 1 in 5 smoking daily in 2014 (Table 26, Figure 43a). The highest proportion of non-daily smokers was among 18–34 year olds (about 4% compared with about 2% in middle-aged adults). Considering daily and non-daily smoking together, about 1 in 5 persons aged 25 to 44 years was a current smoker. It is therefore imperative to encourage young people to avoid becoming daily smokers, and to stop them from taking up the habit in the first place. In 2010, there were about 27,500 teenagers (14–19 years) who smoked daily. Middle-aged and older males were more likely to be ex-smokers than any other group. While the prevalence of smoking is based on cigarette smoking, overseas studies show the uptake of non-conventional tobacco products is increasing among young people.²⁸⁰ These products include electronic cigarettes, hookahs and, in some groups, cigars.

Young women were 2.5 times more likely to smoke at some time during their pregnancy than older women (Figure 43b)—35% of teenagers in 2012 compared with 14% of older women. Although quit rates were higher in teenagers (6.5% compared with 2.4%), the relative difference in smoking rates during the second half or pregnancy remained (28% of teenagers and 12% of older women). The lowest rate of smoking was among older non-Indigenous women during the last 20 weeks of their pregnancy, 10%.

13% of women smoked throughout pregnancy—rate in disadvantaged areas was 6 times that of advantaged areas.

Socioeconomic status and occupation

Smoking rates were higher in disadvantaged areas than advantaged areas—87% higher for daily smoking in 2014 (*Table 26, Figure 43a*).

In 2010 in Australia, rates of smoking of blue collar workers were about double those of white collar workers.²⁸¹ For workers in lower blue collar employment (semi-skilled, unskilled and farm workers) 30% were regular smokers, 25% of upper blue collar workers (skilled workers), 13% of upper white collar workers (professionals, business owners, executives, farm owners, semi-professionals) and 20% of other white collar workers.

In 2012, about 9500 women smoked at some time during their pregnancy with a greater proportion from disadvantaged areas.²⁸² Women from disadvantaged areas were 6 times more likely to smoke during pregnancy than those in advantaged areas—26% compared with 4% (*Figure 43c*). Quit rates in advantaged areas were double those in disadvantaged areas; about 1 in 8 women in disadvantaged areas quit before 20 weeks, while in advantaged areas about 1 in 4 quit.

Remoteness

Adults in very remote areas were 26% more likely to have ever smoked than those in major cities in 2014.¹⁹⁹ Daily smoking rates were about 60% higher in very remote areas of Queensland than in major cities, although non-daily smoking rates were similar (*Table 26, Figure 43a*).

Women from remote and very remote areas were 2 to 3 times more likely to smoke during pregnancy than those in cities. In 2011, 13% of women in major cities were smoking before 20 weeks gestation, while 25% of those in remote areas and 42% of those in very remote areas did so (*Figure 43d*).²⁸² Women in remote and very remote areas were less likely to quit before 20 weeks than women in major cities: 1 in 8 did so, while for women in cities, 1 in 6 quit.

Indigenous Queenslanders

The prevalence of daily smoking in 2012–13 among adult Indigenous Queenslanders (45% non-age standardised) was 2.5 times that of non-Indigenous Queenslanders after adjusting for age differences (*Figure 43e, Figure 65d, page 157*).²⁰¹ The prevalence of daily smoking among Indigenous Queenslanders did not differ from national prevalence (*Table 34, page 157*). Indigenous Australians living in remote areas were about 25% more likely to smoke daily than those in non-remote areas. Although daily smoking is decreasing among Indigenous Australians, the gap between Indigenous and non-Indigenous Australians has remained essentially unchanged since 2002.²⁸³

In 2012, Indigenous Queensland women were 3.7 times more likely to smoke at some time during pregnancy than non-Indigenous women (48% compared with 13%). Although Indigenous Queensland women were more likely to quit before 20 weeks gestation (5.3% compared with 2.4%), the smoking rates after 20 weeks was about 4 times the non-Indigenous rate (43% compared with 11%).²⁸²

The rate of smoking during pregnancy among teenage Indigenous Queenslanders was similar to that for other Indigenous Queensland women (47% compared with 49%), although for non-Indigenous women, rates among teenagers were 2.6 times the rates of women aged 20 years and older (31% compared with 12%) (*Figure 43b*).

Smoking was 2.5 times higher for Indigenous Queenslanders.

Regions in Queensland

Smoking rates varied across HHSs.⁹⁴ Compared to the state:

- Daily smoking rates in 2011–12 were higher in four HHSs (from 26% in Darling Downs to 66% higher in Cape York) and lower in one HHS (17% lower in Metro North) (*Figure 43f*).
- Smoking during pregnancy varied by HHS from over 50% to about 10% in 2009–2011.
- Quitting prior to 20 weeks gestation varied by HHS from 26% to 7% (*Figure 43g*).
- Smoking after 20 weeks gestation varied by HHS from 44% to 9% (*Figure 43h*).

How do we compare?

In 2010, national survey results showed daily smoking in Queensland was similar to the national rate.²⁸⁴ Prior to 2010, the rate of daily smoking in Queensland was higher than the national rate. The history of higher smoking is seen in the rate of ever smoking (smoking a full cigarette)—the Queensland rate was 4% higher than the national rate. In contrast, the rate of recent smoking (having smoked in the past 12 months) was similar.²⁸⁴

Among the jurisdictions, Queensland had the second highest rate of daily smoking in 2010 after Northern Territory—for males the second highest and for females third highest (*Figure 43i*).²⁸⁴ Data for jurisdictional comparison of smoking prevalence for 2013 will be available in late 2014.²⁸⁵

Australia was ranked 92nd highest for age adjusted daily smoking prevalence among 187 countries in 2012.²⁸⁶ Australian males aged 15 years and older were ranked 132 of 187 and Australian females 42 of 187. Internationally, daily smoking rates varied for males from greater than 50% to less than 10% and for females, from more than 30% to less than 1%. Smoking prevalence declined globally by 28% between 1980 and 2012, and in the same period, Australian prevalence declined by 55%. The number of cigarettes per smoker per day, varied widely across countries and did not correlate with prevalence. Considering only those 17 countries in the OECD with comparable data in 2010, Australia was ranked equal third lowest along with the United States for daily smoking in persons 15 years and older, where Sweden was lowest, followed by Iceland.²⁸⁷



What are the trends?

Smoking rates in Queensland continue to decline. Between 2004 and 2014 daily smoking decreased by 26% (2.9% per year) (*Figure 43j*).²⁰⁰ The rate decline of 0.6% points per year was similar for males and females. Over this period, the relative difference in the rate of daily smoking in disadvantaged populations and advantaged populations remained steady, at about double (*Figure 62e, page 152*). Gains continue to be made across the socioeconomic divide but the relative gap has not changed.

Since 2009 the rate of decline in daily smoking has been slowing. Ongoing data is needed to track this trend.

Rate decline has resulted in fewer smokers each year despite population growth (*Figure 1c, page 2*). In 2014, about 500,000 adults smoke daily. If the rate had not declined over the past decade there would have been nearly 700,000 adult smokers—resulting in about 190,000 fewer smokers than there would have been. If the current downward trend in daily smoking prevails, by 2020 the prevalence of smoking in Queensland will be about 11%.

Greater gains in smoking reduction have been achieved in younger male age groups in recent years than older males. Between 2002 and 2013 the prevalence of daily smoking in 18–44 year old males decreased by 3.8% per year with no change in prevalence in older age groups (45 years and older).²⁰⁰ For younger adult females there was no change. Among teenagers there has been decline, halving between 2001 and 2010 for those aged 14–19 years, while for those aged 30–39 years there was a 25% reduction and for 50–59 year olds there was no change. As over 90% of smokers initiate this habit in the teenage years, the reduction in smoking prevalence in teenagers is a good approximation for uptake rates.²⁸⁸ These trends suggest that substantial progress has been made in reducing the uptake of smoking.

Nationally there have been significant changes in smoking patterns.²⁸⁵ Between 2010 and 2013, the prevalence of daily smoking in Australian adults decreased from 16% to 13%, the average number of cigarettes smoked daily decreased from 112 to 96, the prevalence of smoking inside the home decreased from 6.1% to 3.7% and outside the home from 29% to 26%. Furthermore, young people are delaying the uptake of smoking—the average age of first cigarette of 14–24 year olds increased from 15.4 years in 2010 to 15.9 years in 2013. About a decade ago (in 2001), it was 14.3 years.

Daily smoking has reduced by 26% in a decade with greatest gains among teenagers and younger adult males.

What are its impacts?

Burden of disease

Globally, tobacco smoking including second-hand smoke was the second largest cause of disease burden in 2010 (largest cause for males and fourth largest cause for females).⁵⁸ In 2010, tobacco smoking was the third largest cause in Australia, accounting for 8.3% of total burden.⁸ Data for Queensland for 2010 is not available. Considering the 2007 Queensland study, smoking caused about 50% more burden for Indigenous Queenslanders than for all Queenslanders.^{40,63} Smoking increases the risk of lung cancer, cardiovascular disease, chronic lung disease, and other conditions. About 80% of lung cancer was caused by smoking.

Life expectancy

Variation in smoking rates explains a substantial proportion of the difference in life expectancy among populations.^{289,290} The impact of smoking on the life expectancy of Indigenous and non-Indigenous Australians in the Northern Territory was recently assessed.⁴⁴ Socioeconomic factors accounted for 42–54% of the life expectancy gap, smoking accounted for 14–24%, obesity 9–17%, alcohol 1–7% and assault and pollution each accounted for less than 1% of the gap. Jointly these risks accounted for 60–70% of the life expectancy gap in the Northern Territory based on data from 1986 to 2005. Eliminating smoking altogether would enhance life expectancy.²⁹¹ The two-year gain in Australia over the past decade (2.3 years for males and 1.6 years for females) would have been almost three years if nobody smoked (3.1 years for males and 2.3 years for females). If the prevalence of smoking were reduced to 10%, the life expectancy gains would have been 2.6 years for females and 2.0 years for males. Focussing on smoking reduction in those aged under 60 years would have the greatest effect on extending life.

Death

Smoking causes death, with two-thirds of long-term smokers eventually killed by their addiction.^{276,292} Cigarette smoking killed more than six million people worldwide in 2010.^{58,281} In 2007, 1 in 4 cancer deaths in Queensland were caused by smoking.⁴⁰

In Australia in 2010, smoking was estimated to cause 20,000 deaths (about 14% of all deaths) where about one-third occurred in people aged 15–69 years.⁴² It is estimated that about 3700 of these deaths occurred in Queensland. Almost half (45%) of these deaths were due to lung cancer, 25% to COPD, 15% to cardiovascular diseases and the remainder were due to other cancers and respiratory conditions.⁴⁰ Second-hand smoke is strongly linked to heart disease, lung cancer and respiratory conditions.²⁹³ The WHO has estimated that about 10% of deaths due to smoking are a result of second hand smoke.^{294,295}

Disability and hospitalisation

About one-quarter of the total disease burden of tobacco smoking was due to disability or loss of good health (23% in 2007), and three-quarters was associated with premature death.⁴⁰ The disability burden from smoking was primarily associated with the development of chronic respiratory conditions such as COPD, and with cardiovascular diseases such as coronary heart disease and stroke. Although tobacco smoking is the dominant cause of lung cancer death, it carries a low disability burden for this disease, in part due to the low five-year survival rate, 14% in 2010 (*Table 8, page 34*). There were about 36,000 hospitalisations per year due to smoking between 2006–07 and 2008–09, where the majority were associated with cardiovascular and respiratory conditions. Smoking related hospitalisations were 2.3% of all hospitalisations.

Expenditure

In 2004–05, tobacco smoking was estimated to cost the Australian society \$31.49 billion annually. Of the total costs:

- 38% related to tangible costs (\$12.03 billion). These include health system, labour, crime and other quantifiable impacts.²⁹⁶ The tangible costs of tobacco smoking were 38 times higher outside the health system than within:
 - Net labour costs including reduced employment and loss of productivity and the net effect on households due to premature death and illness were estimated to be \$11.71 billion.
 - Net healthcare costs were \$0.32 billion and include hospital, medical, related nursing home, ambulance and pharmaceutical costs.
- 62% related to intangible costs (\$19.46 billion), all due to the impact of loss of life.

Expenditure data for Queensland is not available. However, based on Queensland's share of the Australian population alone, in 2004–05, the cost of tobacco smoking to Queensland society was estimated at \$6.1 billion, with \$0.06 billion spent on healthcare and \$1.15 billion on lost production in the workplace. Of the tangible costs of smoking, 97% were associated with lost production and impact on household finances, with the remainder associated with health system impacts.

Challenges and opportunities

Hundreds of thousands of Queenslanders stand to benefit from further gains in smoking reduction. In 2014 there were about 500,000 adult daily smokers in Queensland (14% of adults). If we reduced the rate of smoking to 10%, there would be about 150,000 fewer smokers. As about 9% of adults living in advantaged areas were daily smokers in 2014, this is an achievable target.

While great gains have been achieved in smoking reduction in the past decade, without ongoing investment and commitment by government and community, these gains could be lost. The gains have been achieved particularly in uptake rates, as seen in declining levels of smoking in 14–19 year olds, so the focus on young people must continue in order to stop the uptake of smoking and delay the progression to daily smoking. However, supporting middle aged people particularly males to quit, will improve their health and reduce the premature death burden.

Smoking is strongly associated with inequality—socioeconomic, Indigenous status and remoteness—and is seen in life expectancy gaps and higher levels of health risk in some regions of the state. Targeted support for these high risk groups will lead to better outcomes for many Queenslanders.

Smoking during pregnancy places unborn babies at risk—the babies of Indigenous women, socioeconomically disadvantaged women and teenagers are at much higher risk than others.

Electronic cigarettes and personal vapourising devices are emerging as an increasingly popular alternative for smokers to consume nicotine, an addictive substance. While these products may be part of a tobacco harm reduction strategy, they may also present a risk of reversing gains made in reducing smoking rates. As electronic cigarettes look like and mimic the act of smoking, their use in public environments could undermine efforts to discourage smoking such as mass media campaigns, smoking bans and other measures. Of particular concern for public health is uptake of these products by young people and non-smokers creating a new market of nicotine consumers. The evidence regarding the safety and health impacts of the use of electronic cigarette and personal vapourising devices remains unclear and further quality research is required.

Quitting is a challenge. There has been little change in daily smoking in middle-aged adults over the past decade, suggesting the focus on quitting should be maintained. Strategies to support quitting in workplaces, as well as maintaining smoke-free environments, are important in achieving sustained smoking reduction in Queensland.

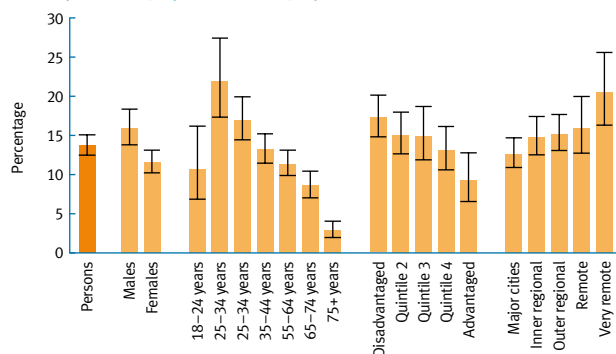
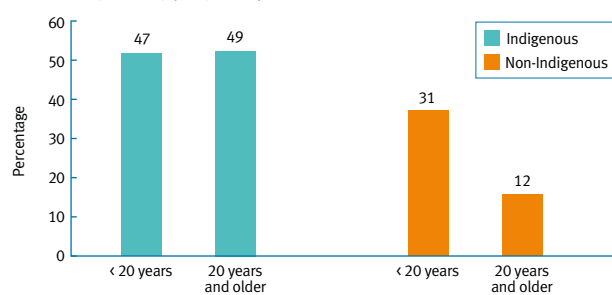
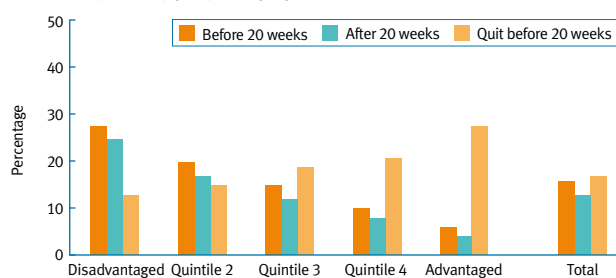
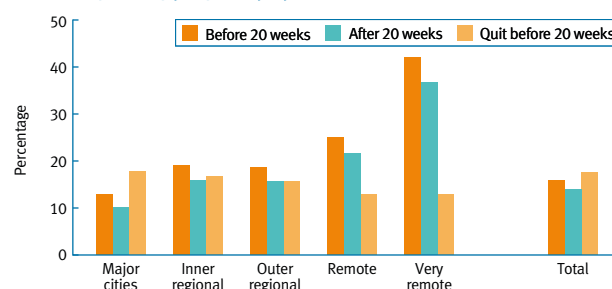
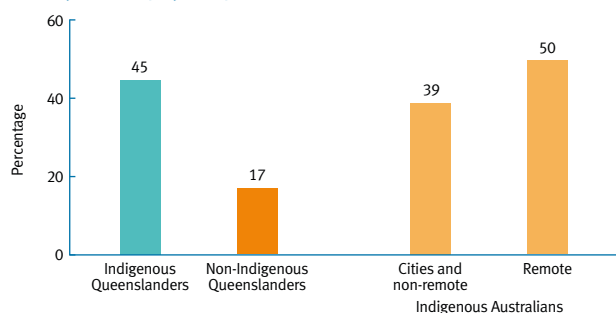
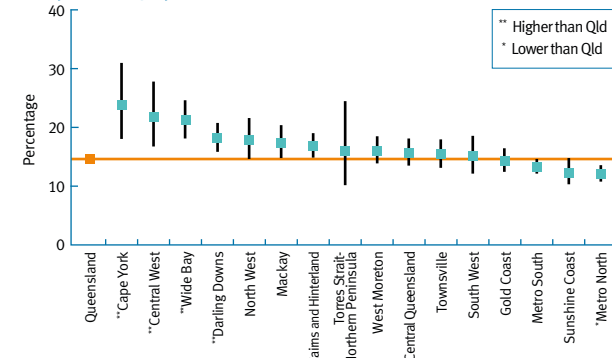
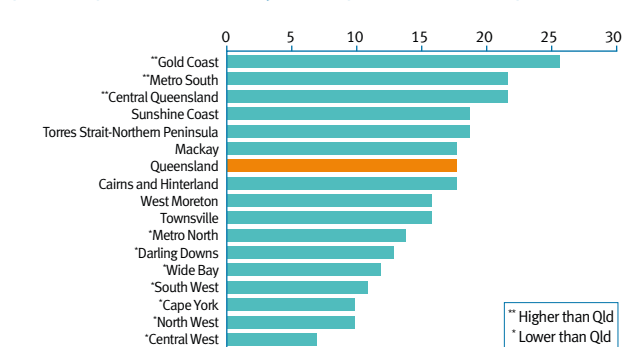
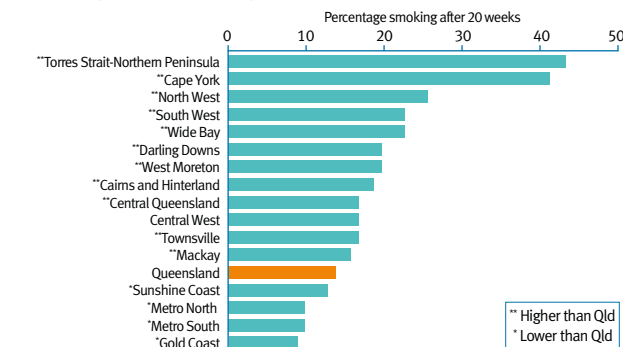


		Current daily	Current – not daily	Ex-smoker	Never smoked
18+ years	Persons	14.0 (12.7–15.3)	2.5 (2.0–3.2)	28.3 (26.8–29.7)	55.2 (53.5–57.0)
	Males	16.2 (14.1–18.6)	2.7 (2.0–3.6)	31.1 (28.9–33.5)	50.0 (47.2–52.7)
	Females	11.8 (10.4–13.3)	2.4 (1.6–3.4)	25.4 (23.7–27.3)	60.4 (58.2–62.6)
Persons	18–24 years	10.9 (7.0–16.4)	*3.7 (1.7–7.9)	*7.6 (4.5–12.3)	77.9 (71.0–83.5)
	25–34 years	22.3 (17.6–27.9)	*3.6 (2.1–6.2)	19.6 (15.6–24.3)	54.5 (48.7–60.3)
	35–44 years	17.3 (14.7–20.3)	3.4 (2.3–5.0)	27.0 (24.0–30.3)	52.2 (48.6–55.8)
	45–54 years	13.5 (11.6–15.5)	2.0 (1.3–3.0)	35.5 (32.6–38.5)	49.1 (46.1–52.1)
	55–64 years	11.5 (10.0–13.3)	1.6 (1.1–2.5)	36.5 (33.8–39.4)	50.3 (47.4–53.2)
	65–74 years	8.8 (7.2–10.6)	1.3 (0.8–2.0)	41.1 (38.4–43.9)	48.8 (46.0–51.6)
	75+ years	2.9 (2.0–4.1)	*0.5 (0.2–1.2)	34.8 (31.3–38.5)	61.8 (58.1–65.4)
Males	18–24 years	*12.4 (6.7–22.0)	*1.7 (0.8–3.4)	*4.5 (1.8–11.1)	81.3 (71.4–88.4)
	25–34 years	28.0 (20.0–37.7)	*4.3 (2.0–8.6)	18.1 (12.1–26.2)	49.7 (40.3–59.1)
	35–44 years	19.0 (15.1–23.5)	*4.2 (2.6–6.9)	25.2 (20.9–30.1)	51.6 (46.2–56.9)
	45–54 years	15.7 (12.8–19.1)	*2.1 (1.1–4.1)	39.8 (35.4–44.4)	42.3 (37.9–46.9)
	55–64 years	12.5 (10.2–15.3)	*2.1 (1.2–3.6)	42.8 (38.7–47.0)	42.6 (38.4–46.9)
	65–74 years	10.5 (8.1–13.6)	*1.4 (0.8–2.7)	49.9 (45.8–53.9)	38.2 (34.3–42.2)
	75+ years	*1.8 (1.0–3.1)	n/a	57.1 (51.7–62.4)	40.4 (35.3–45.9)
Females	18–24 years	*9.2 (5.2–15.9)	n/a	*10.8 (5.9–19.0)	74.2 (64.0–82.3)
	25–34 years	16.7 (12.4–22.3)	*3.0 (1.3–6.7)	21.0 (16.3–26.8)	59.3 (52.5–65.7)
	35–44 years	15.7 (12.3–19.8)	*2.6 (1.4–4.6)	28.8 (24.7–33.3)	52.9 (48.1–57.6)
	45–54 years	11.3 (9.2–13.9)	1.9 (1.1–3.0)	31.3 (27.7–35.1)	55.6 (51.7–59.4)
	55–64 years	10.5 (8.6–12.8)	*1.2 (0.7–2.2)	30.2 (26.7–34.0)	58.1 (54.2–61.8)
	65–74 years	7.1 (5.3–9.5)	*1.1 (0.6–2.1)	32.7 (29.1–36.5)	59.1 (55.2–62.9)
	75+ years	3.7 (2.3–5.9)	n/a	16.8 (13.7–20.4)	79.1 (75.1–82.6)
Socioeconomic status	Disadvantaged	17.6 (15.1–20.5)	2.3 (1.7–3.3)	29.9 (27.3–32.7)	50.1 (46.8–53.4)
	Quintile 2	15.3 (12.8–18.3)	2.0 (1.4–2.9)	29.0 (26.2–32.0)	53.6 (50.2–57.1)
	Quintile 3	15.2 (12.1–19.0)	*2.2 (1.3–3.7)	30.9 (27.4–34.7)	51.7 (47.3–56.0)
	Quintile 4	13.3 (10.8–16.4)	*2.3 (1.3–4.0)	26.5 (23.3–30.0)	57.8 (53.8–61.8)
	Advantaged	9.4 (6.7–13.0)	*3.6 (2.2–6.0)	25.8 (22.6–29.2)	61.2 (57.0–65.3)
Remoteness	Major cities	12.9 (11.1–15.0)	2.5 (1.8–3.4)	26.9 (24.9–29.1)	57.7 (55.1–60.2)
	Inner regional	15.0 (12.7–17.7)	*2.6 (1.5–4.5)	31.8 (29.2–34.6)	50.5 (47.4–53.6)
	Outer regional	15.5 (13.3–18.0)	2.5 (1.8–3.6)	27.9 (25.2–30.9)	54.0 (50.5–57.4)
	Remote	16.2 (12.9–20.2)	*3.1 (1.8–5.1)	28.6 (25.1–32.4)	52.1 (47.6–56.7)
	Very remote	20.9 (16.6–26.0)	*2.3 (1.2–4.4)	30.2 (25.6–35.4)	46.5 (41.3–51.8)

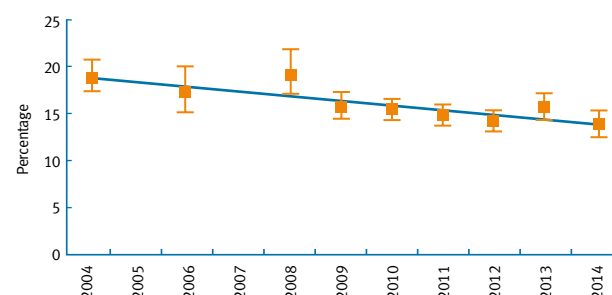
* Estimate has a relative standard error of 25% to 50% and should be used with caution.

n/a Not available for publication.

Figure 43: Smoking, selected indicators, adults, Queensland

a. Daily smoking by sociodemographic factors, 2014¹⁹⁹b. Smoking during pregnancy, 2012²⁸²c. Smoking during pregnancy by socioeconomic status, 2011²⁸²d. Smoking during pregnancy by remoteness, 2011²⁸²e. Daily smoking by Indigenous status, 2012–13^{119,201}f. Daily smoking by HHS, 2011–12⁹⁴g. Quitting before 20 weeks (percentage of those smoking), 2011²⁸²h. Smoking after 20 weeks gestation, 2011²⁸²i. Daily smoking by jurisdiction, 2010²⁹⁷

j. Trend in daily smoking



Alcohol consumption

Alcohol is widely used in Australian society. In Queensland, about half of adults are drinking at levels that pose risk to their health. Alcohol consumption can have an impact not only on the incidence of diseases, injuries and other health conditions, but also on the course of disorders and their outcomes in individuals. In Australia, about 40% of all alcohol related deaths and 47% of alcohol related hospitalisations were due to injury.¹⁵¹ The Australian Government, through the NHMRC, has set national guidelines to reduce health risks from drinking alcohol.⁵

What is the prevalence?

Consumption

- 95% of Queensland adults had ever consumed a full serve of alcohol in 2010.²⁹⁷
- 9% of Queensland adults consumed alcohol daily, 43% weekly and 34% less often than weekly in 2010.
- 17% of adults had abstained from alcohol in the previous 12 months in 2013.
- The average age of first full serve of alcohol was 16.9 years (persons 14 years and older) in 2010.

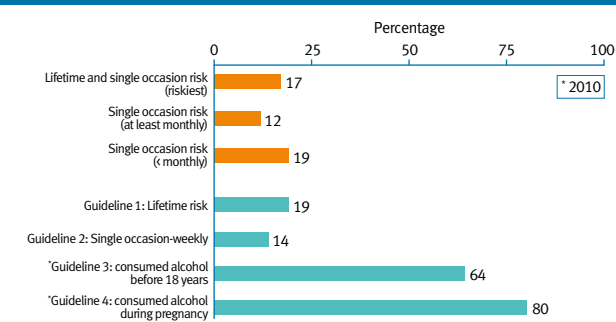
Risky alcohol Consumption

Reporting against the NHMRC guidelines has limitations. Many of those who consume alcohol, do so at levels that exceed both Guideline 1 and Guideline 2, generating overlapping categories of consumers. For more effective characterisation of drinking patterns and trends, a new analysis has been undertaken. This new assessment of risk is based on the NHMRC recommendations, that is, not to exceed two drinks per day every day or four drinks on a single occasion. The results, in discrete consumption groups as described on *page 179*, are largely used in this section including for trend reporting. In 2014 (*Figure 44*, *Table 27*):

- Lifetime and single occasion risk (at least monthly) (combined): 17% of adults were drinking at this riskiest level.¹⁹⁹
- Single occasion risk (only), that is, more than four standard drinks on any one occasion: 12% of adults were drinking at this level at least monthly and 19% less often than monthly.
- Lifetime risk (only), that is, two or more standard drinks per day (greater than 14 per week): less than 1% of adults were drinking at this level alone. Almost all who were exceeding this guideline were also drinking at single occasion risk.

17% of Queensland adults are drinking at the riskiest level.

Figure 44: Alcohol consumption, adults, Queensland, 2014¹⁹⁹



Australian guidelines to reduce health risks from drinking alcohol: NHMRC 2009⁵

GUIDELINE 1	Reducing the risk of alcohol-related harm over a lifetime
	The lifetime risk of harm from drinking alcohol increases with the amount consumed Healthy men and women 2 or less standard drinks on any one day
GUIDELINE 2	Reducing the risk of injury on a single occasion of drinking
	On a single occasion of drinking, the risk of alcohol-related injury increases with the amount consumed Healthy men and women 4 or less standard drinks on any one occasion
GUIDELINE 3	Children and young people under 18 years of age
	Children under 15 years of age are at greatest risk of harm from drinking Young people 15-17 years should delay initiation of drinking as long as possible Not drinking is the safest option
GUIDELINE 4	Pregnancy and breastfeeding
	Maternal alcohol consumption can harm the developing fetus or breastfeeding baby For women who are pregnant, are planning a pregnancy, or are breastfeeding Not drinking is the safest option

NHMRC guidelines

There are reporting limitations associated with the historical analysis for reporting Guideline 1 and Guideline 2 as discussed above and on *page 179*. The analytical methodology has been retained for historical data (HHS 2011–12) and comparative reporting (national, jurisdictional and Indigenous status) (*Figure 44*):

- Guideline 1 (two or less standard drinks on any one day): 19% of adults were drinking at lifetime risk in 2014.¹⁹⁹
- Guideline 2 (four or less standard drinks on any one occasion): 14% of adults were drinking at single occasion risk at least weekly.
- Guideline 3 (no drinking before 18 years of age): Among Queensland teenagers aged 13–17 years in 2010, 64% reported having had a full serve of alcohol.²⁹⁸

- Guideline 4 (no drinking while pregnant or breastfeeding): A 2010 study showed that about 20% of Australian women fully abstained from alcohol during their pregnancy²⁹⁹, 60% consumed up to seven drinks in a week and 20% were consuming more than that. This would suggest that 1 in 5 met the guideline for abstinence during pregnancy.

Is it the same for everyone?

Sex

Alcohol consumption is higher in males than females (Figure 45). Males were 9% more likely to have recently consumed alcohol and 2% more likely to have ever consumed a full serve of alcohol than females in 2010.²⁸⁴ They had their first full serve of alcohol 1.3 years earlier than females (16.3 years compared to 17.6 years) and were almost twice as likely to drink every day.^{39,298}

At all ages males had higher rates of risky drinking than females. In 2014, they were 3.3 times as likely to be drinking at the riskiest levels (27% compared with 8%) and about 48% more likely to be drinking at single occasion risk at least monthly than females (14% compared with 10%) (Figure 45, Table 27).¹⁹⁹ Males were also more likely to be involved in social harms and more likely to get into an abusive situation with another person with both perpetrator and victim affected by alcohol as described below.

Age

The highest rates of risky drinking were among younger people, principally young males (Figure 45, Table 27).

- Lifetime and single occasion risk combined was high across the age range 18 to 64 years with about 1 in 5 adults drinking at this riskiest level in 2014. Male prevalence was 2–3 times female prevalence across this age range.
- Single occasion risky drinking at least monthly was about 80% higher in 18–24 year olds than those aged 35–44 years and higher again in older age groups. The same pattern and prevalence across the age range was evident for males and females.

Socioeconomic status

Unlike many other risk factors, patterns of riskiest alcohol consumption generally did not differ across areas of socioeconomic advantage and disadvantage in 2014 (Figure 45, Table 27).¹⁹⁹ Adults in advantaged areas were about 40% less likely to be abstainers than those in disadvantaged areas, while low risk consumption did not differ.

Remoteness

The riskiest drinking behaviour, that is, lifetime and single occasion risky drinking combined, was 54% higher in remote areas and 90% higher in very remote areas than major cities in 2014, with little difference for other consumption categories (Figure 45, Table 27).

Indigenous Queenslanders

Alcohol consumption of Indigenous Queenslanders did not differ from non-Indigenous consumption in 2012–13 based on those exceeding Guideline 1 or Guideline 2, after adjusting for age differences (Figure 65d, page 157).¹¹⁹ There was no difference in risky consumption between Indigenous Queenslanders and Indigenous Australians (Table 34, page 157).

Regions in Queensland

Levels of risky drinking vary across HHSs.⁹⁴ Based on those exceeding Guideline 1 and Guideline 2, in 2011–12 compared to the state prevalence (Figure 46):

- Guideline 1—three HHSs had higher rates (Cairns and Hinterland was 23% higher, Mackay 31% higher and Cape York 34% higher) and two had lower rates (Metro South was 16% lower and West Moreton 24% lower).
- Guideline 2 (weekly)—Cairns and Hinterland, and Mackay were 35% higher and Metro South was 19% lower rate.

How do we compare?

Rates of risky drinking were higher in Queensland than most other states. In 2010, the proportion of adults exceeding Guideline 1 in Queensland was 16% higher than national consumption and second highest among the states and territories after Northern Territory.²⁸⁴ For males, Queensland was 14% higher than national, and females were 20% higher.

The proportion of adults exceeding Guideline 2 (at least weekly) in Queensland in 2010 was 14% higher than national consumption and second highest among the states and territories after Northern Territory.²⁸⁴ For males, Queensland consumption was 14% higher than national in 2010 but Queensland females did not differ. Data for jurisdictional comparison of risky alcohol consumption for 2013 will be available in late 2014.²⁸⁵

Internationally, alcohol consumption is measured as per capita consumption. In 2005, the highest consumption patterns were found in the developed world with Australia one of a number of high consumption countries (along with New Zealand, Argentina and much of northern Europe).³⁰⁰ Of the 188 countries reported by WHO, Australia was ranked 40th highest consumption at 10.02 litres of pure alcohol per person aged 15 years and older. Among 40 OECD countries, Australia was ranked 18th highest for per capita consumption in adults in 2011.²⁰²

What are the trends?

There are a number of ways of monitoring change in alcohol consumption and each contributes to a broader understanding of this issue. These include self reported consumption patterns as well as volume of alcohol apparently available for consumption from sales, import and excise tariff data.

Self reported trends in alcohol consumption are based on consumption patterns from the NHMRC alcohol guidelines using the recent Queensland categorisation and analysis (Figure 47). Although there is limited data to assess trends since the 2009 guidelines were introduced, over the four years there are signs that gains are beginning to be made particularly among young males²⁰⁰:

- Combined lifetime and single occasion risky drinking decreased by 4.1% per year. This decline was almost entirely associated with declining consumption in males aged 18–29 years (12% per year), with no change among those aged 30 years and older. A similar decline was also apparent for young females although the prevalence was low and therefore had less impact on the overall change for adults (Figure 1f, page 3). There was no change in single occasion risky drinking whether monthly or less frequently between 2010 and 2013.
- There has been a substantial shift in the pattern of risky drinking in young males. While the prevalence of combined lifetime and single occasion drinking decreased, other drinking behaviour has increased—single occasion risky drinking less often than monthly (without lifetime risk) increased by 15% per year. There was no change in monthly single occasion risky drinking. This may be an early indication that young males are reducing their weekly average consumption and reducing the frequency of their single occasion risky consumption.
- Young females are also showing signs of change. As with young males, over a four-year period the proportion drinking at combined lifetime and single occasion risk has decreased by 12% per year. Since 2010, the proportion abstaining increased by 14% per year. While these changes were not statistically significant due to the relatively lower prevalence of female consumption, it is encouraging that change reflecting a reduction in consumption is occurring.
- For older adults, there was no change in combined lifetime and single occasion risk over the four years. However, single occasion risky drinking less than monthly decreased by 3.7% per year while low risk drinking increased by 3.2% per year.

Riskiest drinking in young people has decreased by 40% since 2010, with no change in older age groups.

Nationally there have been significant changes in drinking patterns.²⁸⁵ Between 2010 and 2013, the prevalence of lifetime risky drinking (Guideline 1) in Australian adults decreased by 11%, while single occasion risky drinking (Guideline 2) decreased by 9%. The proportion of adults abstaining increased by 10% over the three years. Furthermore, young people are delaying the uptake of drinking—the average age of first serve of alcohol of 14–24 year olds increased from 15.2 years in 2010 to 15.7 years in 2013. About a decade ago (in 2001), it was 14.7 years.

There were 185.5 million litres of pure alcohol apparently available for consumption in Australia in 2011–12.³⁰¹ This was 1% less than the peak volume recorded in 2010–11 and similar to the volume in 2008–09. The decrease in the past two years was associated with spirits and ready-to-drink or pre-mixed beverages (both down about 1%), with wine and cider increasing and spirits steady. Per capita alcohol consumption has fluctuated over the past 50 years (Figure 48). From the early 1960s it increased steadily, peaking at 13.1 litres of pure alcohol per person aged 15 years and older in 1974–75 and remained relatively steady for the next five to 10 years. Since then, although there has been a general decline in per capita consumption, it was not consistent throughout. Over the past four years, however, it decreased, and in 2011–12 was 10.1 litres per person. This was the lowest it had been since the mid to late 1990s and before that, 1966. Data specific for Queensland are not available.



Impacts

Burden of disease

Alcohol caused net 3.4% of the disease burden due to all causes in Australia in 2010 and was the eighth largest cause of total burden of disease.⁴² The greatest harmful impact of alcohol was on the mental and behavioural disorder burden (alcohol use disorders) (1.1%) followed by injury (0.9%) and cancer (0.7%). The beneficial effect of alcohol is associated with cardiovascular disease and confined to middle-aged to older persons with light to moderate alcohol consumption.^{59,302,303} Data for Queensland in 2010 is not available.

For Indigenous Queenslanders in 2007, alcohol was the fifth largest cause of disease burden after high body mass, tobacco, physical inactivity and high blood cholesterol, and accounted for 4% of total.³⁹ The greatest impact of alcohol for Indigenous Queenslanders was on the injury burden where it was the dominant factor.

Death

In Australia in 2010, alcohol was estimated to cause 3000 deaths (about 2% of all deaths) with the largest number associated with cancers, followed by cirrhosis of liver and injuries including self harm, interpersonal and unintentional injuries and transport related deaths.⁴² It is estimated that about 600 of these deaths occurred in Queensland.

Disability and hospitalisation

Alcohol caused 2.7% of the total disability burden in Australia in 2010, with its major impact evident in mental and behavioural disorders (1.7%) and unintentional and transport injuries (0.4%). Data for Queensland in 2010 is not available.

Alcohol is a known contributor to a range of harms including injuries.³⁰⁴ Over a three-month period in 2010, 2.4% of presentations to Queensland public hospital emergency departments were associated with alcohol.³⁰⁵ Mental and behavioural disorders, largely associated with acute alcohol intoxication and including dependence syndrome, withdrawal state and psychotic disorders, were the leading reason for the presentation and accounted for 37% of all alcohol related presentations. Injuries were the cause of a further 27% of presentations. Presentations peaked at weekends, particularly Friday and Saturday nights and 63% of all alcohol related presentations for males. About 50% of presentations were for people between the ages of 15 and 29 years. The majority of persons presenting were discharged (60%), 23% were admitted to hospital or transferred to another hospital while 17% did not wait or left after treatment commenced. The proportion who did not wait was more than double that of all other emergency department presentations.

There was an average of about 34,000 alcohol related hospitalisations per year in Queensland in the two years, 2010–11 to 2011–12.³⁰⁶ Not all these hospitalisations were entirely due to alcohol related causes, but in each case, alcohol was associated with the admission.

Alcohol exposure in utero can cause a range of abnormalities in the unborn child, which are described as foetal alcohol spectrum disorders and discussed in the maternal and infant section on *page 135*.

Alcohol is a contributor to excess energy intake providing no nutritional benefits. The over-consumption of energy-dense foods is a growing problem in this state, in the nation and among many developed countries and is a driver of the global obesity epidemic. In 2011–12, discretionary foods, that is those foods which are energy-dense and nutrient-poor, comprised 37% of energy intake of all Queenslanders aged 2 years and older.²⁰⁹ Among adults 19 years and older, 6% of their total energy intake was from alcohol, 8% in males aged 51–70 years. Of those persons who had consumed alcohol in the previous 24 hours, the average consumption among males aged 19–50 years was equivalent of three cans a day. Between 30% and 50% of males in this age group were drinking at this level. The impact of alcohol on energy consumption is further discussed on *page 87*.

Social impacts

The social consequences of excessive alcohol consumption including intoxication are acknowledged problems in the community. Reducing harm from alcohol is a key objective of the National Drug Strategy 2010–2015. Many people have experienced abusive behaviour from a person under the influence of alcohol, while others undertake activities while under the influence of alcohol that put their lives or the lives of others at risk. In 2010, for Queenslanders aged 14 years and older²⁹⁸:

- More than 1 in 4 persons (27%) reported being the victim of abuse from an alcohol-affected person—similar to Australia (28%). Younger people were more likely to report being abused than older people (40% in 14–29 years, 30% in 30–39 years, 20% in 40 years and older), while males and females were equally as likely. A similar pattern was evident nationally.
- Of those Queenslanders who reported being abused, 25% reported verbal abuse, 14% experienced fear, and 9% reported physical abuse from an alcohol-affected person. Bruising and abrasions were the most common physical injuries (58%).

1 in 4 persons reported being the victim of abuse from an alcohol-affected person.

- Most commonly, the perpetrator of the abuse was a stranger to the victim (59%), or a spouse or partner (18%), with female victims 2.6 times more likely to report spouse or partner abuse than males. The next most common perpetrator was a friend (15%) or other person known to the victim (18%). Queensland females were 26% more likely to report abuse from a spouse or partner than Australian females. Queensland males were 9% less likely to report abuse from a stranger than Australian males.
- In 46% of incidents, the victim had also been drinking when the abuse occurred with males 40% more likely to report drinking than females. Very few incidents occurred when the abuse victim was using drugs or drugs and alcohol together. However, in 50% of incidents where abuse occurred, the victim had not been drinking or using drugs, and females were more likely to be in this category than males. Queenslanders were about 17% more likely than Australians, as the victim of the abuse, to have been drinking when the incident took place and this was similar for males and females.
- One in 10 persons reported driving a motor vehicle while under the influence of alcohol (11%), 8% went swimming, 6% verbally abused others, 5% went to work and, less frequently, reported creating a public nuisance, physically abusing someone, causing damage to public property or operating a boat or hazardous machinery. Males were more likely to report undertaking many of these activities while affected by alcohol than females.

Expenditure

Alcohol was estimated to cost the Australian society \$15.32 billion in 2004–05²⁹⁶:

- 70% was associated with tangible costs (\$10.83 billion) — these relate to the health system, labour, crime and other quantifiable impacts. The tangible costs of alcohol in 2004–05 were more than 4 times higher outside the health system than within:
 - Net labour cost (reduced employment and loss of productivity and the net effect on households due to premature death and illness) was estimated at \$8.85 billion. In terms of expenditure, productivity losses accounted for 33% of tangible or financial costs, the productivity impact almost double that of health system impacts.
 - Net healthcare cost was estimated at \$1.98 billion.
- 30% was associated with intangible costs (\$4.49 billion)—these relate to loss of life, and pain and suffering associated with road traffic injuries. Loss of life accounted for 92% of the \$4.49 billion.

Expenditure data for Queensland are not available. However, based on Queensland's proportion of the Australian population (19.5% in 2004–2005), it is estimated that alcohol cost the Queensland society about \$3 billion in 2004–05, with \$0.38 billion spent on healthcare (including hospital, medical, related aged care, pharmaceutical and ambulances).²⁹⁶ This estimate assumes national rates of treatment and costs of service delivery.

Challenges and opportunities

Alcohol is the most commonly used drug in Australia—81% of adults aged 14 years and older had consumed a full serve in the previous 12 months—more than 4 times as many as had smoked or used any illicit drug. Acceptance and approval of the use of alcohol is relatively high—45% approved of it compared with 15% for tobacco and 2% for illicit drug use. About one-third of those who use alcohol, consume it at levels that have little impact on their health and cause few social harms.

Risky drinking, however, remains a problem with about 1 in 2 adult Queenslanders drinking at some level of risk and about 1 in 6 drinking at the riskiest levels. Males had higher rates of the riskiest drinking than females and were more likely to be involved in social harm where they themselves were affected by alcohol. Young males have the highest levels of risky consumption. Rates of risky drinking are generally higher outside major cities. Up to 80% of women drink alcohol during pregnancy. Risky drinking is higher in Queensland than nationally and among the highest in the nation. Providing support for those populations most at risk due to their consumption patterns, will lead to better health and wellbeing for many Queenslanders. In particular, opportunistic brief interventions before health and other social related damage is done remain both a challenge and an opportunity.

Since 2010, there has been a decrease in the proportion of young people drinking at the riskiest levels but no change among older age groups. For young males the decrease has been matched by increase in less risky drinking patterns while for young females there are signs that abstaining from alcohol has increased. Per capita consumption of pure alcohol has declined in recent years.

The impact of alcohol is evident in social harms outside the health system, with costs due to crime, lost productivity and associated loss accounting for 57% of total costs while 13% was associated with health system costs. Alcohol is, however, a preventable cause of presentation to emergency departments in Queensland hospitals. Reducing this burden will improve capacity for dealing with other medical emergencies. As well as the direct impact of these conditions on the individual and the health system, the employability of the individual and the cost to society of lost productivity are also affected.

A multi-strategy approach is required to reduce alcohol consumption in Queensland. It needs to recognise that consumption is strongly influenced by price and availability, and that greater knowledge of risk and greater awareness of the recommendations of the NHMRC will help to reduce harm from alcohol and change a culture of risky drinking in Australia. This culture will also become less influential as more places such as homes, licensed venues and workplaces support low risk drinking.



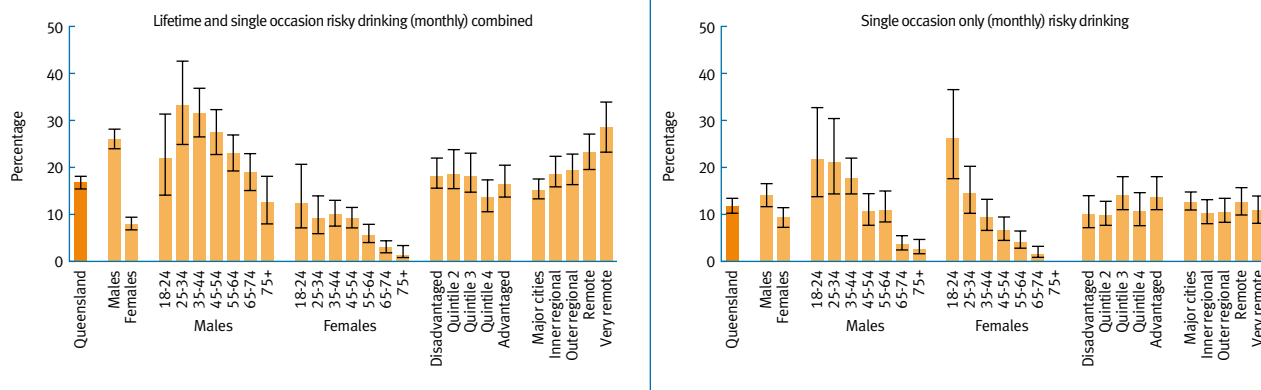
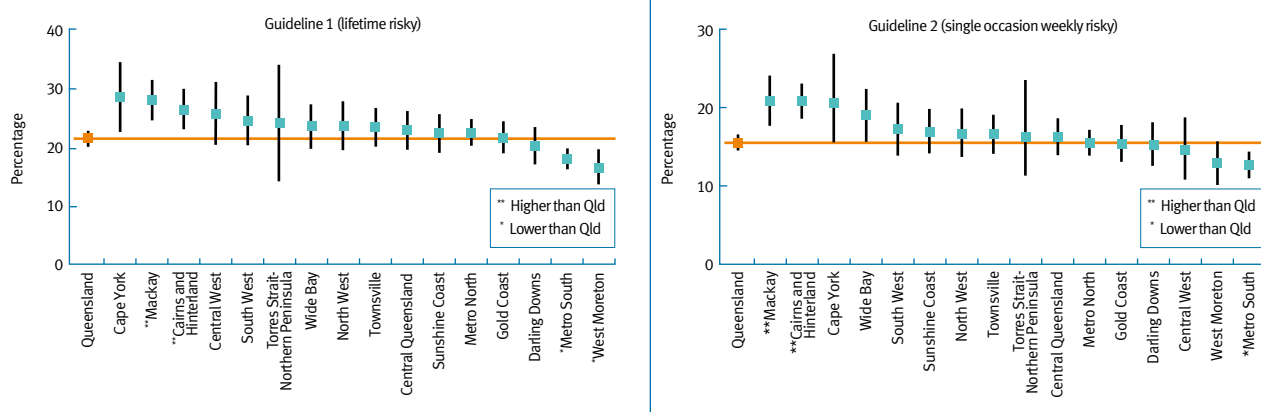
Figure 45: Risky alcohol consumption by sociodemographic factors, adults, Queensland, 2014¹⁹⁹Figure 46: Risky alcohol consumption, adults by HHS, Queensland, 2011–12⁹⁴

Figure 47: Trends in alcohol consumption, adult males, Queensland

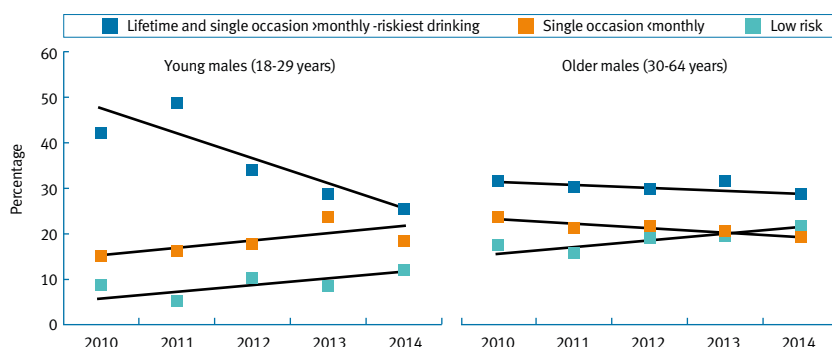
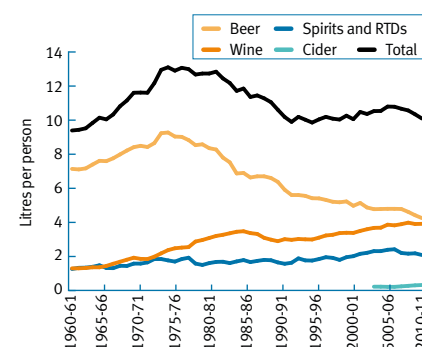
Figure 48: Trends in apparent consumption of pure alcohol by beverage type, Australia³⁰¹

Table 27: Alcohol consumption, adults, percentage (95% CI), Queensland, 2014¹⁹⁹

		Abstainers		Low risk		Single occasion less than monthly		Single occasion monthly		Lifetime and single occasion (riskiest drinking)	
18+ years	Persons	18.2	(16.9–19.6)	32.3	(30.8–33.9)	18.5	(17.2–20.0)	12.0	(10.7–13.5)	17.1	(15.8–18.5)
	Males	14.8	(12.8–17.1)	24.0	(21.8–26.3)	17.9	(15.9–20.0)	14.4	(12.3–16.9)	26.5	(24.2–29.0)
	Females	21.5	(19.8–23.3)	40.4	(38.3–42.6)	19.2	(17.3–21.2)	9.7	(8.1–11.5)	8.0	(6.8–9.4)
Persons	18–24 years	20.3	(13.9–28.7)	17.7	(11.9–25.6)	20.0	(14.4–27.0)	24.3	(17.9–32.2)	17.5	(12.7–23.6)
	25–34 years	13.1	(9.7–17.3)	22.1	(17.7–27.2)	25.0	(20.5–30.1)	18.2	(13.8–23.6)	21.4	(16.8–26.9)
	35–44 years	13.9	(11.7–16.5)	27.0	(24.0–30.3)	23.5	(20.6–26.7)	13.7	(11.4–16.5)	21.0	(18.1–24.1)
	45–54 years	13.9	(12.0–16.0)	35.7	(32.9–38.6)	20.7	(18.4–23.3)	8.8	(7.2–10.8)	18.4	(16.2–20.8)
	55–64 years	18.7	(16.6–20.9)	42.8	(40.0–45.7)	13.4	(11.5–15.5)	7.8	(6.3–9.5)	14.5	(12.6–16.6)
	65–74 years	26.1	(23.7–28.6)	46.0	(43.3–48.8)	9.9	(8.3–11.7)	2.6	(1.9–3.6)	10.9	(9.3–12.9)
	75+ years	37.1	(33.6–40.7)	46.9	(43.2–50.6)	4.2	(3.1–5.7)	*1.6	(1.0–2.7)	6.4	(4.4–9.3)
Males	18–24 years	*22.3	(12.8–35.9)	*14.9	(7.6–27.2)	18.4	(11.2–28.7)	22.2	(13.8–33.7)	22.2	(14.8–31.9)
	25–34 years	*10.8	(6.4–17.6)	*13.7	(8.0–22.5)	19.8	(13.7–27.8)	21.6	(14.3–31.3)	33.8	(25.5–43.2)
	35–44 years	12.6	(9.5–16.7)	16.3	(12.7–20.7)	20.7	(16.8–25.4)	18.0	(14.1–22.7)	32.0	(27.1–37.2)
	45–54 years	11.5	(9.0–14.7)	25.7	(21.8–30.0)	21.0	(17.5–25.0)	10.9	(8.3–14.2)	27.9	(24.1–32.1)
	55–64 years	13.9	(11.2–17.0)	31.2	(27.3–35.4)	15.9	(13.1–19.2)	11.2	(8.7–14.3)	23.4	(20.2–27.0)
	65–74 years	19.3	(16.3–22.8)	38.3	(34.4–42.2)	13.5	(10.9–16.6)	3.7	(2.5–5.3)	19.3	(16.3–22.8)
	75+ years	22.1	(18.2–26.5)	49.0	(43.4–54.5)	6.1	(4.2–8.7)	*2.7	(1.5–4.9)	12.7	(8.5–18.5)
Females	18–24 years	18.3	(11.0–28.7)	20.6	(12.6–31.9)	21.6	(14.0–31.9)	26.7	(17.8–37.9)	*12.6	(7.3–20.9)
	25–34 years	15.3	(10.8–21.2)	30.4	(24.6–36.8)	30.1	(24.2–36.7)	14.9	(10.7–20.4)	9.3	(6.0–14.2)
	35–44 years	15.2	(12.2–18.7)	37.5	(33.0–42.2)	26.3	(22.2–30.7)	9.6	(7.1–12.9)	10.2	(7.7–13.3)
	45–54 years	16.2	(13.6–19.2)	45.4	(41.5–49.3)	20.5	(17.6–23.7)	6.8	(4.9–9.2)	9.2	(7.3–11.6)
	55–64 years	23.5	(20.5–26.9)	54.5	(50.6–58.3)	10.8	(8.6–13.5)	4.3	(3.0–6.1)	5.5	(3.9–7.6)
	65–74 years	32.6	(29.1–36.3)	53.5	(49.7–57.4)	6.4	(4.8–8.5)	*1.6	(0.9–2.8)	2.9	(1.8–4.5)
	75+ years	49.2	(44.2–54.2)	45.2	(40.2–50.2)	*2.7	(1.5–4.8)	n/a		*1.3	(0.6–3.1)
Socioeconomic status	Disadvantaged	22.5	(20.0–25.2)	30.0	(27.5–32.7)	16.6	(14.1–19.4)	10.3	(7.8–13.5)	18.4	(15.9–21.1)
	Quintile 2	18.6	(16.2–21.2)	31.9	(29.0–35.0)	18.4	(15.8–21.3)	10.1	(8.1–12.6)	18.8	(15.8–22.3)
	Quintile 3	17.5	(14.4–21.2)	30.2	(26.7–34.1)	17.5	(14.2–21.4)	14.3	(11.2–18.0)	18.4	(15.3–22.0)
	Quintile 4	20.0	(16.7–23.9)	33.8	(30.1–37.7)	20.2	(17.1–23.7)	11.0	(8.1–14.7)	13.9	(11.3–17.0)
	Advantaged	13.3	(10.7–16.4)	34.8	(30.9–38.8)	19.5	(16.5–22.9)	14.0	(10.8–18.1)	16.6	(13.6–20.1)
Remoteness	Major cities	17.7	(15.8–19.8)	33.4	(31.1–35.8)	19.2	(17.2–21.4)	12.8	(10.8–15.1)	15.3	(13.5–17.4)
	Inner regional	17.9	(15.8–20.2)	33.9	(31.2–36.7)	16.8	(14.6–19.2)	10.6	(8.5–13.2)	18.8	(16.1–21.8)
	Outer regional	20.1	(16.8–23.7)	27.7	(25.1–30.5)	19.4	(16.6–22.7)	10.8	(8.8–13.3)	19.7	(17.1–22.5)
	Remote	18.7	(15.4–22.5)	25.8	(21.9–30.1)	16.5	(13.4–20.2)	12.8	(9.8–16.4)	23.6	(20.0–27.6)
	Very remote	23.3	(19.5–27.7)	22.2	(17.8–27.4)	12.9	(10.0–16.4)	11.1	(8.3–14.5)	29.0	(24.2–34.4)

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

n/a Not available for publication.

Note: 2.3% of respondents are omitted from this table (0.7% lifetime only and 1.6% lifetime with single occasion less than monthly).

Illicit drug use

Illicit drug use includes use of illegal drugs (such as cannabis and ecstasy), use of pharmaceutical drugs for non-medical purposes (such as painkillers and tranquillisers) as well as inappropriate use of other substances (such as paint, glue or petrol used as inhalants). The most recent publicly available population-based data on drug use in Australia is 2010²⁹⁷ while results for Queensland from the 2013 national survey are expected to be released late in 2014.

Prevalence

Illicit drug use is relatively common. In 2010, 15% or about 540,000 Queenslanders aged 14 years and older reported use of an illicit drug in the previous 12 months—defined as recent use.²⁹⁷ Queensland had the third highest prevalence of recent drug use of all states and territories, and was similar to national prevalence (15%).

Cannabis was the most commonly used illicit drug, with 1 in 10 Queenslanders (11%) aged 14 and older having used it in the previous 12 months. Other drugs used were painkillers (3.0% Australian prevalence), ecstasy (2.7%), cocaine (2.3%), meth/amphetamines (1.9%), hallucinogens (1.4% Australian prevalence), and less than 1% used other illicit drugs.

The 2013 national survey report on drug use showed decline between 2010 and 2013 nationally in the use of some illegal drugs including ecstasy (3.0% to 2.5%) and heroin (0.2% to 0.1%).²⁸⁵ However, the misuse of pharmaceuticals increased from 4.2% in 2010 to 4.7% in 2013.

Trends and patterns of use

The highest prevalence of recent use of illicit drugs was in 1998, in Queensland, nationally and in each of the jurisdictions.²⁹⁷ The pattern of recent use decreased by 24% between 1998 and 2001 and has remained relatively unchanged since then, except in 2010 when there was a 10% increase nationally, also evident in each of the larger jurisdictions. Between 2007 and 2010, the recent use of cannabis increased nationally, as did cocaine, hallucinogens and pharmaceuticals, although the prevalence of each remains low. Ecstasy use declined in the three years. Meth/amphetamine use declined in 2010 from peak levels in 1998.

Queensland males reported greater recent use of illicit drugs than females, 17% compared with 13% in 2010.²⁹⁷ Young people have the highest rates of recent illicit drug use—25% for 18–19 years and 31% for 20–29 years, compared with less than 10% in those aged 50 years and older. The age and sex user patterns in Queensland were similar to national. Nationally, recent use of illicit drugs

was higher among those who were unemployed (25%), had never been married (24%) and among Indigenous Australians (25%).

Young users aged 20–29 years, particularly young males, more commonly used ecstasy, cocaine, meth/amphetamines, hallucinogens and cannabis.²⁹⁷ About 11% of males aged 20–29 years had used ecstasy in the previous 12 months and about 8% of young females. About 8% of young people had used cocaine and 6% had used meth/amphetamines.

Older users (aged 30 years and older) more commonly used cannabis and pharmaceutical drugs in 2010.²⁹⁷ These drugs, along with heroin, were most commonly used on a frequent basis (at least weekly) rather than less often, especially in users aged 30 years and older. This pattern of use indicates a lifetime habit rather than the experimental risk-taking of younger drug users.

Cocaine use has increased since 2004, and the user profile is relatively unique—metropolitan, educated, employed people (especially males) aged 20–39 with a disposable income who were most commonly using the drug recreationally every few months or so.²⁹⁷ Female recent use increased between 2007 and 2010 driven mainly by increased use among young women aged 20–29 years.

Socioeconomic status had no impact on meth/amphetamine use, but higher rates of recent use occurred in those who were young, single without children and unemployed.²⁹⁷ Use was somewhat sporadic, generally every few months or more, and more frequent than ecstasy or cocaine.

Recent use of ecstasy was higher with increasing socioeconomic advantage and among 20–29 year olds.²⁹⁷ Around half of those who used ecstasy did so once or twice a year, however over two-thirds of users aged 18–19 used the drug every few months or more frequently (71%) and almost half (45%) used at least once a month.

Anabolic and androgenic steroid use is reported to be increasing in young males although robust evidence of prevalence is limited. The Australian Crime Commission reported a record number of seizures and arrests in 2012–13 for performance or image enhancing drugs (PIEDs) nationally.³⁰⁷ Seizures and arrests for steroids, a subset of PIEDs, were also at record numbers. Based on national prevalence²⁹⁷, it is estimated there are about 5000 anabolic steroid users among young Queensland males. Recent injecting drug initiates (less than three years since first injection) were surveyed nationally in 2012. PIEDs, as last drug injected, was reported by 55% overall, 68% in males, and 78% in Queensland males.³⁰⁸

Impact

Illicit drug use carries a heavy social cost to individuals, families and communities. The impact varies and effects are far-reaching, with no social or demographic groups immune. Mental illness is more common in persons reporting recent illicit drug use, more than double for meth/amphetamine, less so but significant for cannabis, ecstasy and cocaine.²⁹⁷ Drug use extenuates the effect of such illnesses, perpetuating the cycle of social and economic disadvantage and social stigma surrounding both mental illness and illicit drug use.

In 2004–05, illicit drug use was estimated to cost the Australian society \$8.19 billion annually.²⁹⁶ Expenditure data for Queensland is not available. However, based on Queensland's share of the Australian population alone, in 2004–05, the cost of illicit drug use to Queensland society was estimated at \$1.6 billion, with \$40 million spent on healthcare.

Challenges and opportunities

Monitoring the use of illicit drugs is a challenge. This section reports on self reported use based on a three-yearly national survey. This information does not capture the broader context of supply and availability. Such information, including health and social impacts is derived from agencies such as the Australian Crime Commission, research studies and other sources. Rapidly changing drug markets and newly emerging drugs contribute to the complexity and accuracy of data to monitor illicit drug use.

Adolescence is a time of experimentation and heightened peer pressure. Young people, particularly young males, are more likely to be risk takers and this is an underlying factor in the initiation of illicit drug use. In 2010, curiosity (79%), peer pressure (49%) and 'to do something exciting' (20%) were the main reasons given for first use of illicit drugs of those reporting recent use nationally.²⁹⁷ While tobacco and alcohol are initiated earlier, at age 16 and 17 years on average, illicit drugs follow soon after for some: cannabis (18.5 years), inhalants (19.5 years) and hallucinogens (19.8 years). Mean age of initiation for other drug groups was in the early twenties, with the exception of tranquillisers/sleeping pills (27 years).



Blood pressure and cholesterol

High blood pressure and high blood cholesterol are risk factors for cardiovascular disease (page 39).³⁰⁹ In Queensland in 2007, 67% of the cardiovascular disease (CVD) burden was due to modifiable risks where high blood pressure and cholesterol were the dominant factors, independently contributing 37% and 33% to the burden respectively.

High blood pressure, often referred to as hypertension, is prolonged elevation of the blood pressure. Population reporting of high blood pressure is optimally undertaken by physical measurement, which has only been undertaken twice in recent decades in Australia: a national cohort survey (*AusDiab*) which commenced in 1999¹⁰⁶ and the *Australian health survey*, conducted in 2011–12.¹⁰¹

High blood cholesterol is clinically defined as dyslipidaemia, which relies on biomedical measurement for diagnosis. The prevalence of self reported high blood pressure and high blood cholesterol is obtained from telephone surveys in Queensland but these data do not provide the accuracy of prevalence assessment of the more costly national physical and biomedical measurement surveys.³⁸

This section reports hypertension by physical measurement and dyslipidaemia by biomedical measurement from the *Australian health survey*.^{101,111} The criteria for diagnosis of these conditions are defined in the glossary (page 174). Where such data is unavailable, self report data is used and this source noted. A more detailed epidemiological summary of CVD risk in Queensland, including blood pressure and cholesterol, has been released.¹⁰⁵

3 in 10 adults have hypertension, one effectively treated, one untreated and one ineffectively treated.

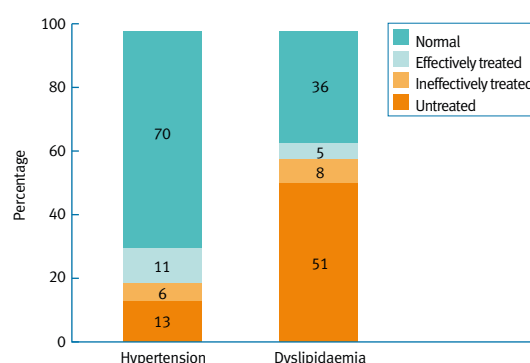
Hypertension

Prevalence

In 2011–12 based on physical measurement (Figure 49, Table 28)^{105,118}:

- 1 in 3 (30%) adults was hypertensive—male prevalence was 21% higher than female.
- Prevalence increased rapidly with age from 8% in young people (18–24 years) to 80% in older people (75 years and older) (Figure 50).

Figure 49: Hypertension and dyslipidaemia by treatment status, Queensland, 2011–12



- Of the 30% of adult Queenslanders who were hypertensive, over half (17%) were treated for the condition, that is, on antihypertensive medications, while the remainder (13%) had untreated high blood pressure. Of the 17% who were on medication, only 11% had effectively controlled blood pressure (Figure 49).
- Thus, of the 3 in 10 adult Queenslanders with hypertension, one had untreated high blood pressure, one had ineffectively treated high blood pressure and one was effectively treated.
- In 2000, 13% of adults aged 25 years and older were taking medication to control blood pressure, while in 2011–12, 17% of adults aged 18 years and older were doing so.^{106,121}
- Self reported high blood pressure was 44% higher in disadvantaged areas than advantaged, and was at least 12% higher in areas outside major cities.¹⁰⁷ Among the Queensland HHSs, higher self reported prevalence was evident in North West (25% higher) and Townsville (23% higher) with the remainder of HHSs similar to Queensland.⁹⁴
- Hypertension prevalence in Queensland was similar to national prevalence (30% and 32%).
- It is estimated that, on average, there were about 93,000 new cases of hypertension each year in Queensland over the past 12 years based on national age and sex specific incidence rates applied to the Queensland population.¹⁰⁵
- The prevalence of measured high blood pressure in Indigenous Australians was 18% higher than non-Indigenous in 2012–13.¹¹⁹ The prevalence of self reported hypertensive disease did not differ. Data for Queensland is not available.
- The prevalence of hypertension increased by 33% in 12 years.¹⁰⁵

Dyslipidaemia

Prevalence

In 2011–12 based on biomedical measurement (Table 28)^{105,118}:

- Two in 3 (64%) Queensland adults were dyslipidaemic with similar prevalence in males and females.
- Prevalence increased with age from 45% in young people (18–34 years) to 82% in older people (65–74 years) (Figure 50).
- Of the 64% of adult Queenslanders who were dyslipidaemic in 2011–12, the majority were not taking lipid-lowering medications (51% of all adults) while 14% were on lipid lowering medication. However, only half of those on lipid-lowering medication (5%) had effectively controlled cholesterol, and the remaining 8% still had high blood lipids (Figure 49).
- Thus, of the 6 out of 10 adult Queenslanders with dyslipidaemia, five had untreated high cholesterol, one had inadequately treated high cholesterol and on average, less than one was adequately treated.
- Self reported high blood cholesterol was 23% higher in disadvantaged areas than advantaged areas, but did not vary by remoteness or HHS.⁹⁴
- The prevalence of dyslipidaemia in Queensland was similar to national prevalence (63%).¹⁰⁵
- The level of blood lipids has improved over the past 12 years while the proportion of adults taking lipid lowering medication has more than doubled.¹⁰⁵
- The mean blood levels of total cholesterol and other lipids decreased by about 20–30% in Queensland adults aged 25 years and older between 1999 and 2011–12.¹⁰⁵
- The prevalence of dyslipidaemia in Indigenous Australians was 13% higher than non-Indigenous in 2012–13 after adjusting for age differences.³¹⁰ Prevalence was higher for Indigenous Australians in remote areas (79%) than non-remote areas (63%), where data was not adjusted for age. The prevalence in Indigenous Queenslanders did not differ from national.

6 in 10 adults have dyslipidaemia, five are untreated, one ineffectively treated and less than one effectively treated.

Impacts

Burden of disease

In 2010, high blood pressure was the leading cause of disease burden globally, accounting for 7% of total burden, while high cholesterol accounted for 2%.⁵⁸

In Australia, high blood pressure was the fourth largest cause and high cholesterol the seventh largest cause of total burden of disease, accounting for 7% and 3% respectively in 2010.⁸ Data for Queensland is not available. The impact of these factors is associated entirely with CVD, in particular coronary heart disease and stroke.

These risk factors have a greater impact on the death burden than disability, 87% of blood pressure burden was due to premature death and 13% to disability, while 85% of the high cholesterol burden was due to premature death and 15% to disability.

Substantial improvements in high blood pressure and high cholesterol have been achieved in Australia over the past 20 years⁸, with a halving in the proportion of burden associated with these risk factors. In 1990, they accounted for 12% and 6% of total burden respectively, compared with 7% and 3% in 2010. These gains are noteworthy in a global assessment of trend, delivering life expectancy gains to Australians not achieved in many OECD countries.⁵⁸

Death

High blood pressure and high cholesterol are significant contributors to the death burden in Queensland through their role in development of CVD. In 2010, it was estimated that 18% of all deaths in Australia were due to high blood pressure and 6% to high cholesterol.⁸ Assuming the same rate in Queensland, about 4900 deaths were due to high blood pressure and 1700 to high cholesterol. These two estimations should not be added as the joint effect of blood cholesterol and blood pressure was not assessed.

Expenditure

The economic impact of high blood pressure and cholesterol is evident in the cost of pharmaceuticals, which is borne by governments and individuals. In 2009, over \$50 million was spent in Australia on prescribed antihypertensive medications, and over \$1 billion on prescribed lipid-modifying medicines.³¹¹ High blood pressure and cholesterol were the two most influential risk factors for CVD, which in turn is the most expensive disease group in terms of direct health expenditure in Australia.⁵² In 2011–12, it was estimated that \$2.05 billion was spent on health system costs of treating CVD in Queensland (page 42). This could be reduced with better control of population risk, particularly high blood pressure and cholesterol.

Causes and preventability

The causes of high blood pressure are both physiological and lifestyle related, with age an underlying factor. Major causes include overweight, excess alcohol consumption, physical inactivity, dietary salt intake and nutrition patterns which involve a low intake of fruit and vegetables and a high intake of saturated fat.³¹² In 2011–12, hypertensive Australian adults were twice as likely to be obese as non-hypertensives, 20% more likely to add salt to their meals, 30% more likely to report no exercise and about 6 times more likely to also report diabetes.¹²¹ Obese Queensland adults were more likely to report high blood pressure and cholesterol with a greater effect in young ages than older (*Figure 51*).¹²⁶ Stress raises blood pressure transiently but in the long term may have indirect effects by influencing eating, drinking, smoking and physical activity patterns.³¹² Tobacco smoking increases the risk of coronary heart disease and stroke threefold in hypertensive individuals.³¹³

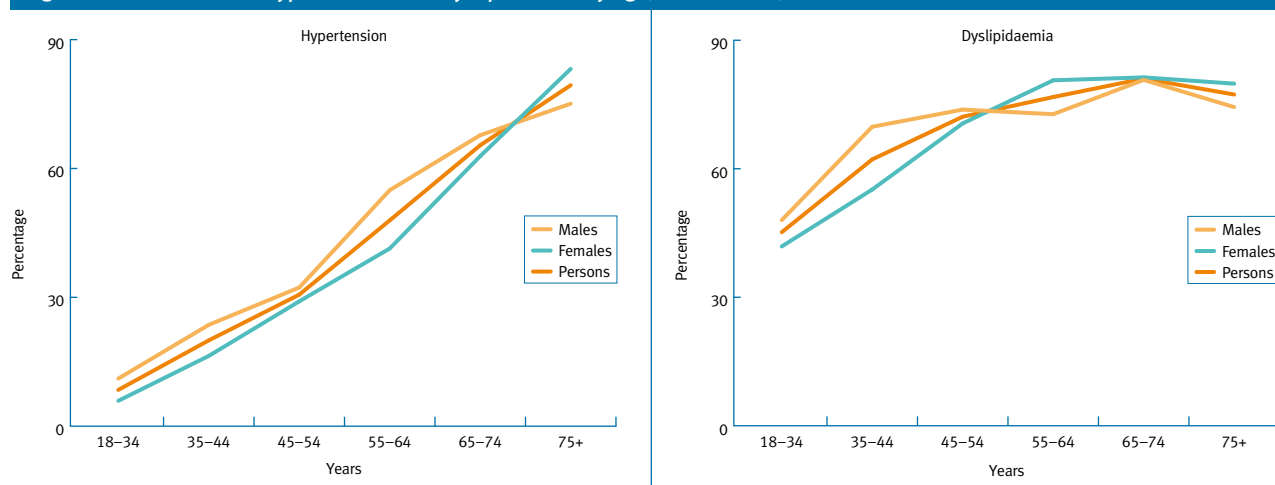
For most people, saturated fat in the diet is regarded as the main factor that raises blood cholesterol levels.³¹⁴ Cholesterol in foods can also raise blood cholesterol levels, but less than saturated fat. Genetic factors can affect blood cholesterol—some people have high cholesterol levels regardless of their saturated fat and cholesterol dietary intake and are at increased risk from coronary heart disease.

Many Queenslanders self report either high blood pressure (29% in 2011–12) or high cholesterol (29%), or both (15%), with the prevalence of both increasing with age (*Figure 50*).⁹⁴ The prevalence of untreated high cholesterol increases with age from about 40% in 18–34 year olds, peaking at 60% in those aged 45–64 years and diminishing in older age groups.¹⁰⁵ Monitoring these key risk factors is essential to managing CVD risk in the population. Awareness and knowledge about blood

pressure and cholesterol levels are essential to prompt people to seek medical advice and to motivate lifestyle change. Opportunistic health checks in pharmacies and other community settings have the potential to increase individual awareness of blood pressure and cholesterol levels, and detect CVD and diabetes risk.³¹⁵ These checks have been shown to be cost effective, with thousands of potential stroke and coronary heart disease events averted annually in Australia.^{316,317} The Australian guidelines for the management of absolute CVD risk in primary healthcare determine the probability of a cardiovascular event by considering the combination and intensity of risk factors rather than the presence of any single risk factor.³⁰⁹ The clustering of hypertension and dyslipidaemia, with obesity and diabetes in Queensland adults is described in the multiple risks section on *page 74*.

Pharmaceutical drugs are often prescribed to treat high blood pressure and high cholesterol, reduce CVD risk and prevent disease. In 2011–12, 18% of Queensland adults were taking anti-hypertensive medication and 14% were on lipid-lowering medication. However, a substantial proportion of adults were untreated with 13% untreated high blood pressure and 51% untreated high cholesterol. In addition, of those on medication, about half were inadequately treated, that is, they recorded high blood pressure (6% of all adults) or high cholesterol (8% of all adults) on testing. Lifestyle changes such as weight loss have the potential to reduce the incidence of hypertension. For example, if Australian women with a BMI of 24 or greater were to lose 5.5kg, the incidence of hypertension would be reduced by 12%.¹²⁷ Compliance with the adage of ‘an apple a day’ was shown to be as effective in preventing deaths from vascular disease without incurring side effects, as taking a statin a day in a modelling study conducted in the UK in 2013.³¹⁸

Figure 50: Prevalence of hypertension and dyslipidaemia by age, Queensland, 2011–12^{111,118,121}



Challenges and opportunities

The management of high blood pressure and cholesterol is key to achieving death rate reduction and life expectancy gains through reducing the incidence of cardiovascular disease. Reduction in population risk associated with these factors has delivered substantial benefits to Queenslanders in the past and there are opportunities for greater gains in the future.

However, to achieve future benefits there needs to be greater awareness of individual risk and appropriate treatment. Programs in primary healthcare and other settings are critical to achieving such knowledge and have been shown to be cost effective. Queensland adults need to

be aware of their blood pressure and cholesterol levels to ensure appropriate action is taken early to reduce risk. This is as important for young to middle aged adults as it is for older people.

While drug therapy is commonly used to treat high blood pressure and cholesterol and is essential to the treatment in some individuals, there is clearly benefit in also improving the modifiable risk factors of obesity, physical inactivity, and dietary choices such as high fat and high salt foods. This will lead to healthier lives and better quality of life and may reduce the reliance on pharmaceuticals, one of the high cost components in treating cardiovascular disease.

Figure 51: Self reported high blood pressure and high cholesterol by age and obesity, Queensland, 2012¹²⁶

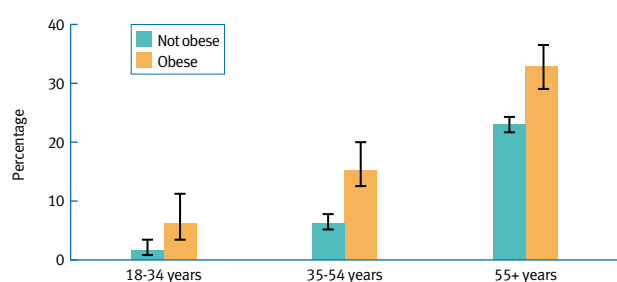


Table 28: Prevalence of hypertension and dyslipidaemia by sex, adults, percentage (95% CI), Queensland and Australia, 2011–12^{118,121,230}

		Males	Females	Persons		Queensland	Australia
Hypertension**	Aus.	34.1	29.1	31.6	Dyslipidaemia*	64.2	63.2
	Qld	32.8	27.1	29.9	Not on lipid lowering medication	85.1	84.5
					Measured normal cholesterol	34.4	35.1
High BP	Aus.	23.6	19.5	21.5	Measured high cholesterol	50.7	49.4
	Qld	20.8	17.1	18.9	On lipid lowering medication	13.6	13.8
					Measured normal cholesterol	5.2	6.6
Untreated high BP	Aus.	16.2	11.9	14.0	Measured high cholesterol	8.4	7.2
Ineffectively treated	Aus.	7.4	7.6	7.5	Test results not reported		1.7
Effectively treated	Aus.	10.5	9.6	10.1	High total cholesterol	30.8	32.8
Untreated high BP	Qld	15.1	10.7	12.8	High LDL	34.0	33.2
Ineffectively treated	Qld	5.7	6.4	6.1	Low HDL	26.5	23.1
Effectively treated	Qld	12.0	10.0	11.0	High triglycerides	15.8	13.9
Dyslipidaemia*	Aus.	63.7	62.8	63.2		Queensland	Australia
	Qld	65.7	62.8	64.2	Hypertension**	29.9	31.6
					Untreated	12.8	14.0
High total cholesterol	Aus.	32.4	33.2	32.8	Treated	17.1	17.6
	Qld			30.8	Treated: on antihypertensive medication		
Untreated high cholesterol	Aus.	49.1	49.7	49.4	Measured normal BP	11.0	10.1
Ineffectively treated	Aus.	7.7	6.7	7.2	Measured abnormal BP	6.1	7.5
Effectively treated	Aus.	6.9	6.3	6.6	Normal BP and not on medication	70.1	68.4
Untreated high cholesterol	Qld			50.7			
Ineffectively treated	Qld			8.4			
Effectively treated	Qld			5.2			

* Abnormal lipids or on lipid lowering medication. ** On antihypertensive medication or measured high blood pressure.

Cancer screening

Screening for three cancers meet the national criteria for a population based screening program: BreastScreen Australia, the National Cervical Screening Program, and the National Bowel Cancer Screening Program.³¹⁹ A disease that does not meet this criteria is prostate cancer, because of evidence that the benefit for asymptomatic testing carries unacceptably high levels of risk associated with treatment.³²⁰

Two recently released systematic reviews concluded that there is insufficient evidence to suggest that prostate specific antigen (PSA) testing for asymptomatic men is associated with a reduction in prostate cancer-specific or overall mortality.^{321,322} There is some suggestion that when prostate cancer was diagnosed following PSA testing there was reduced risk of prostate cancer metastases, however, over-diagnosis and over-treatment are common following PSA testing.

Recommended breast, cervical and bowel screening¹

BreastScreen	Pap smear*	Bowel screen (FOBT**)
50–74 years 2 yearly	20–69 years 2 yearly	50 years and older 2 yearly

* Screening recommendations are under review

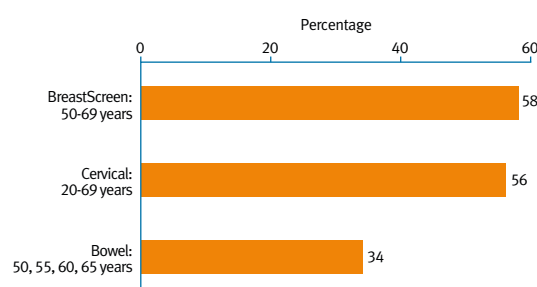
** FOBT screening is currently offered to those aged 50, 55, 60 and 65 years

Breast cancer screening

The target age group for the BreastScreen Queensland Program has recently been expanded from 50–69 years to include women aged 70–74 years, with the recommendation that women aged 50–74 years be screened every two years.¹ Women aged 40–49 years and those aged 75 years and older may also attend. Screening also occurs in the private sector and is not included in this report. The screening program has had a marked impact on improving breast cancer survival through the early detection of cancer, which is when treatment is most effective. In 2012, the small diameter invasive cancer detection rate in Queensland exceeded the national benchmark of 25 per 10,000.³²³

The participation rate for the BreastScreen Queensland Program was 58% in the two-year period 2011–2012.³²³ Rates were higher for women living in regional and remote areas of Queensland than those in major cities or very remote areas (Table 29). Women living in areas of greater socioeconomic disadvantage were more likely to participate in the program than those living in areas of less disadvantage. Over the past 10 years, despite significant growth in the target population, participation rates have remained stable.⁸³ In the two-year period, 2011–2012, participation in the program was 5% higher (58%) than the national rate (55%) and the two larger states (NSW 51%, Victoria 55%).⁸³ Breast cancer is reported in Chapter 3, page 35.

Figure 52: Participation in screening programs, Queensland, 2011–12



Cervical screening

The Queensland Cervical Screening Program recommends cervical screening every two years for women aged 20–69 years. Cervical cancer is reported in Chapter 3, page 36.

The participation rate in the program was 56% over the two-year period 2011–2012 for the target age group.³²⁴ Women living in major cities had a higher participation rate than those in regional or remote areas, as did women living in areas of least socioeconomic disadvantage compared with those in the most disadvantaged areas (Table 29).³²⁴ Over the period 2000 to 2012, participation rates in the program have remained steady with Queensland about 3% lower than the national average (58%) and lower than NSW (57%) but comparable with Western Australia (56%).⁸³

Table 29: Participation (%) in BreastScreen Queensland program and cervical screening, women, Queensland, 2011–2012^{323,324}

	BreastScreen	Cervical screening
Target age group	50–69 years	20–69 years
Total	58	56
Socioeconomic status*		
Least disadvantaged	54	60
Quintile 4	57	57
Quintile 3	57	56
Quintile 2	59	55
Most disadvantaged	58	51
Remoteness		
Major city	56	56
Inner regional	58	54
Outer regional	61	56
Remote	58	52
Very remote	57	54

* Index of Relative Socioeconomic Disadvantage.

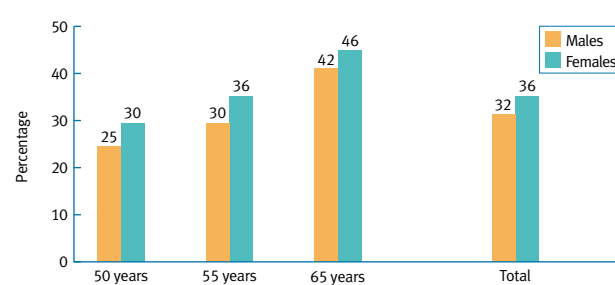
Bowel cancer screening

Bowel cancer screening is effective in the early detection and prevention of cancer through removal of precancerous polyps and adenomas. The National Bowel Cancer Screening Program was introduced in Queensland in August 2006. The program uses the Faecal Occult Blood Test (FOBT) for screening. The program targets adults aged 50, 55, 60 and 65 years and will expand to those aged 70 and 74 years in 2015 and to other age groups in subsequent years. In 2017–18, a phased implementation of two-yearly screening will commence for all Australians aged between 50 and 74 years.

The participation rate in Queensland was 34% for those invited between 1 July 2011 and 30 June 2012 (*Figure 53*).³²⁵ Participation was higher among females (36%) than males (32%), and among those aged 65 years (44%) compared to those aged 55 years (33%) or 50 years (27%) (*Figure 53*). The Queensland participation rate in 2011–12 (34%) was higher than NSW (33%), but lower than Victoria (36%). The smaller jurisdictions tend to have relatively higher participation rates (from 38% to 40%), except for Northern Territory (24%). Colorectal cancer is reported in Chapter 3, *page 35*.

Between July 2011 and June 2012, 4310 Queenslanders returned a positive FOBT result (7% of participants).³²⁵ Based on colonoscopy and histopathology forms returned to the National Bowel Cancer Screening Register, 3101 of these participants underwent an assessment colonoscopy following a positive FOBT result. Polypectomies were performed in 1859 participants (60%) to remove polyps and of these, bowel cancer was detected in 25 participants (0.8%) and adenomas in 649 participants (21%). Histopathology data was outstanding in 1121 cases (36%).

Figure 53: Participation in the National Bowel Cancer Screening Program by age and sex, Queensland, July 2011–June 2012³²⁵



Challenges and opportunities

In Queensland, population based cancer screening is undertaken to detect the early signs of breast, cervical and bowel cancer before any symptoms develop. Screening is conducted based on evidence that early diagnosis and treatment increases the chance of successfully treating or managing the disease. Screening programs have delivered substantial benefits to Queenslanders through the prevention and early detection of these cancers. Participation in screening programs, particularly in hard to reach groups such as Indigenous Queenslanders, remain the greatest challenge in Queensland. Furthermore, in the near future each of these programs will undergo substantial change in target age groups, and for cervical screening altered frequency of recommended screening.

Increasing participation in the BreastScreen Queensland Program among women who have never participated and encouraging women to return for re-screening every two years are significant challenges for the program. In addition, keeping pace with population growth in the expanded target age group of women (50 to 74 years) will require additional services. Opportunities to use on-line services to allow women to book and manage their own appointments and access their personal records, as well as trialling innovations such as pre-booked appointments and electronic messaging of result notifications will help the program to

continue to increase the number of women who can participate and benefit from screening.

The Queensland Cervical Screening Program is likely to undergo significant changes over the next few years to implement recommendations of the renewal of the national cervical cancer screening program. The changes will include a new laboratory screening test, a five year screening interval and different age eligibility. It is anticipated that the renewed program will be implemented from 2016. Communicating the changes to the wider community, pathology laboratories and health service providers will be important to ensure access to appropriate and timely information, training and clinical support. Enhancing equity in the program remains a priority, particularly for Indigenous Queensland women and those in rural and remote areas.

The National Bowel Cancer Screening Program continues to expand its target age group and from 2015, will begin to invite Australians aged 70 and 74 years to participate. The program will expand progressively over the next six years to fully implement biennial screening between the ages 50 and 74 by 2020. This is likely to have a significant impact on demand for colonoscopy services. However, as more eligible Queenslanders participate in screening the proportion of colorectal cancers detected at an earlier stage will increase and require less invasive treatment.



Sun safety

Exposure to ultraviolet radiation (UVR), whether from the sun or a UV-emitting tanning device, is carcinogenic.³²⁶ Melanoma and non-melanoma skin cancer is caused by UVR exposure. Queensland has the highest rate of melanoma in Australia³²⁷, and Australia and New Zealand have the highest rates in the world.^{91,92}

Sun exposure is, however, an excellent source of vitamin D, a substance essential to human health. In 2011–12, 11% of Queenslanders were deficient (mild, moderate or severe) based on current guidelines, 6% in summer and 15% in winter (Figure 55).^{225,328} The prevalence of vitamin D deficiency in Queensland is lower than national and other states and territories in both summer and winter. National prevalence was about double the Queensland prevalence and other states were up to 3 times higher than Queensland. It is important to minimise the risk of skin cancer while maintaining adequate vitamin D levels.³²⁹ A few minutes of exposure outside of peak UVR periods and on most days are generally sufficient to produce adequate vitamin D in Queensland.³³⁰

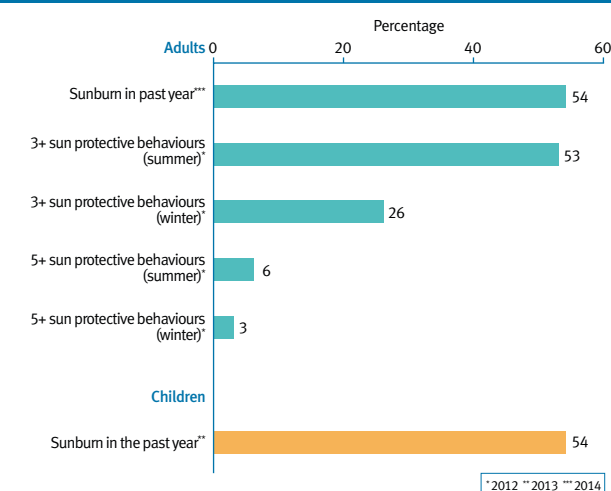
Given the long period of time between damaging sun exposure and diagnosis of skin cancer, it is important to monitor the population's sunburn incidence and sun protection behaviour.³³¹ In 2011–12, 58% of Australians (adults and children) had regularly checked their skin for changes to freckles and moles.¹²¹ For monitoring sunburn incidence, sunburn in the previous year is used.^{332,333} For sun protection behaviour, use of the recommended five best practice sun protection behaviours is monitored. These are to: seek shade; wear sun protective clothing that covers as much of the body as possible; put on a broad-brimmed hat that shades face, neck and ears; wear wrap-around sunglasses; and apply SPF30+ or above broad spectrum water resistant sunscreen every two hours.

What is the prevalence?

For Queensland (Figure 54):

- 54% of Queensland adults were sunburnt in the previous year in 2014
- 53% of Queensland adults practised three or more sun protection behaviours in summer in 2012, and 26% in winter¹⁰⁷
- 6% of Queensland adults practised all five sun protection behaviours in summer in 2012, and 2.5% in winter
- 54% of Queensland children (5–17 years) were sunburnt in the previous year in 2013—5% were sunburnt with blistering.¹⁹⁸

Figure 54: Prevalence of sunburn and sun protection, children and adults, Queensland^{107,198,199}



Is it the same for everyone?

Sex

In Queensland in 2014, adult males were 12% more likely than females to have been sunburnt in the previous year (Table 30). There was no difference in sunburn rates between boys and girls. For sun protection behaviours, there was no difference in the prevalence of adult males and females practising three sun protection behaviours in summer in 2012.¹⁰⁷

Age

The likelihood of Queenslanders being sunburnt in the previous year increased with age, from 39% in children 5–7 years to 72% in those 18–24 years and then decreased to 14% in those 75 years and older (Table 30). Older children (16–17 years) were more than twice as likely to report sunburn with blistering than younger children (8–11 years), 8.5% compared with 3.8%.¹⁹⁸

Adults in the 25 to 64 year age groups, particularly males, were more likely than those aged 16–24 years or 65 years and older to practise three or more sun safety behaviours in summer in 2012.¹⁰⁷

National Skin Cancer Awareness Campaign³



PROTECT YOURSELF IN FIVE WAYS FROM SKIN CANCER

Socioeconomic status

There was no difference by socioeconomic status in the likelihood of adults or children being sunburnt in the previous year (*Table 30*). Similarly, there was no difference between these populations in summer sun protective behaviours in 2012.¹⁰⁷ In winter, adults in the most advantaged areas were about 20% less likely to practise three or more sun protective behaviours than those in the disadvantaged areas.

Remoteness

There was no difference by remoteness in likelihood of being sunburnt in the previous year for both adults and children (*Table 30*). Adults living in outer regional, remote and very remote areas were more likely than those living in major cities to practise three or more sun safety behaviours in summer.

Indigenous status

Prevalence data on sunburn and sun protection behaviours for Indigenous Queenslanders was unavailable at the time of publication. Indigenous Australians appear less likely to develop melanoma than non-Indigenous Australians, potentially due to their greater skin pigmentation.⁹³

Regional Queensland

The adult prevalence of sunburn in the previous year in most HHSs was similar to the Queensland prevalence.⁹⁴ Central Queensland and Mackay were, however, higher (12% and 10% higher than Queensland respectively). Use of at least three sun safe behaviours in summer was generally higher in the western and northern HHSs than for Queensland—the adult prevalence in South West, Central West, North West, Cape York, Townsville and Central Queensland were 14% to 27% higher than for Queensland.

1 in 2 children and adults have been sunburnt in the previous year.

How do we compare?

Data to compare sunburn and practice of sun protective behaviours in Queensland with other Australian jurisdictions or countries is not available.

What are the trends?

There is insufficient data available to assess trends for sunburn and sun protective behaviours. The adult prevalence of the use of three or more sun protective behaviours was however, lower in 2012 than in 2010 for summer (53% compared with 57%) and winter (26% compared with 34%).^{107,233,334}

What are its impacts?

In 2011, 3291 new cases of melanoma were diagnosed.³³⁵ Melanoma was the most common cancer diagnosed in those aged 15–44 years and responsible for more than a quarter (28%) of new cancers in this age group. In Queensland in 2010, there were 362 deaths due to melanoma. Melanoma is discussed on *page 35*.

Melanoma rates in younger adults in Queensland have decreased. The melanoma incidence rate in Queenslanders aged 15–29 years decreased by 3.3% per year between 2002 and 2011.²⁴ In contrast, melanoma incidence in all Queensland males (1997–2008) and females (1986–2008) has remained unchanged.²³ These changes are consistent with national trends.⁹² Further evidence of the decrease in melanoma in young people is a reduction in the excision rate for skin cancers in Australians aged under 45 years between 2000 and 2011, although the rate of testing, that is, biopsies requested, increased.³³⁶ In contrast, the excision rate for older adults increased, and was highest at 8.6% per year in males aged 75–84 years. The closure of all licensed solarium operators in Queensland by 31 December 2014 will see future gains in reducing melanoma rates in Queenslanders.

Expenditure

Treatment of non-melanoma skin cancer was estimated to cost \$0.511 billion in Australia in 2010.³³⁷ For melanoma, the lifetime cost was estimated to be \$32,000 per person in NSW in 2005, with 60% of this amount due to productivity losses and 15% associated with health system costs.³³⁸ Governments incurred about 40% of the total financial cost, with 50% borne by individuals. Per person spending on melanoma in Queensland is expected to be similar.

Challenges and opportunities

Queensland's often extreme UVR levels and its outdoor lifestyles present an ongoing challenge for sun safety. Young adults are the least sun safe and have the highest rates of sunburn compared to other age groups. They are a particular focus of interventions by Queensland Health such as 'Sun Mum' and 'Project SPF– Stay Pretty Forever'.

While physical activity is important for health, unsafe sun exposure needs to be considered when exercising outdoors. Queensland evidence shows that achieving sufficient physical activity for health benefit has a very modest effect on cumulative sunburn risk and only becomes

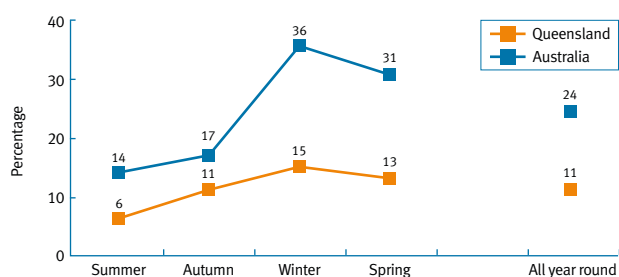
meaningful well above the current physical activity recommendations.³³⁹ It is important to consider sun protection when undertaking any physical activity and the need for integration of sun safety into the promotion of physical activity.

The reduction in melanoma rates in young adults in Queensland clearly shows that behaviour change is possible. More broadly, patterns of UVR exposure maybe improving in Australia. In recent years, fewer adults and adolescents reported they preferred or attempted to tan.³⁴⁰ While promising, continued intersectoral effort is required to sustain and build on these gains in individuals' behaviours.



Table 30: Sunburn in the previous 12 months, adults and children, percentage (95% CI), Queensland ^{198,199}								
Children 5–17 years (2013)				Adults (2014)				
	Males	Females	Persons		Males	Females	Persons	
5–17 years	53.4 (50.2–56.5)	55.5 (52.3–58.6)	54.4 (52.1–56.6)	18+ years	57.4 (54.6–60.1)	51.4 (49.1–53.6)	54.3 (52.6–56.1)	
5–7 years	40.9 (34.8–47.2)	36.2 (30.2–42.7)	38.6 (34.3–43.1)	18–24 years	65.0 (52.3–75.9)	80.3 (69.9–87.7)	72.4 (64.1–79.4)	
8–11 years	50.0 (44.1–55.9)	50.2 (44.2–56.1)	50.1 (45.9–54.3)	25–34 years	71.3 (61.1–79.7)	66.8 (60.0–73.0)	69.0 (63.1–74.4)	
12–15 years	61.6 (56.1–66.9)	69.3 (63.8–74.2)	65.4 (61.5–69.0)	35–44 years	70.0 (64.7–74.7)	65.1 (60.4–69.5)	67.5 (64.0–70.8)	
16–17 years	62.1 (53.5–70.0)	66.6 (58.9–73.5)	64.3 (58.5–69.7)	45–54 years	63.4 (58.9–67.7)	52.8 (48.9–56.6)	58.0 (55.0–60.9)	
				55–64 years	46.7 (42.5–51.0)	35.3 (31.6–39.2)	41.0 (38.2–43.9)	
				65–74 years	28.7 (25.2–32.5)	19.2 (16.4–22.4)	23.9 (21.6–26.3)	
				75+ years	19.4 (14.6–25.4)	8.7 (6.4–11.7)	13.5 (10.8–16.6)	
Socioeconomic status			Persons	Socioeconomic status			Persons	
Disadvantaged			49.5 (44.4–54.7)	Disadvantaged			52.6 (49.3–55.8)	
Quintile 2			58.8 (53.5–63.8)	Quintile 2			54.7 (51.3–58.1)	
Quintile 3			62.0 (56.7–67.1)	Quintile 3			52.0 (47.6–56.3)	
Quintile 4			53.3 (48.7–57.9)	Quintile 4			54.9 (50.7–59.0)	
Advantaged			49.7 (44.9–54.5)	Advantaged			56.8 (52.7–60.9)	
Remoteness			Persons	Remoteness			Persons	
Major cities			51.4 (48.3–54.4)	Major cities			53.7 (51.1–56.3)	
Inner regional			59.2 (54.5–63.7)	Inner regional			55.0 (52.0–58.0)	
Outer regional			56.1 (50.3–61.7)	Outer regional			55.1 (51.6–58.7)	
Remote			62.7 (49.3–74.5)	Remote			58.2 (53.8–62.4)	
Very remote			57.2 (43.9–69.7)	Very remote			52.7 (47.4–58.0)	

Figure 55: Prevalence of vitamin D deficiency by season, adults, Queensland and Australia, 2011–12²²⁵



Oral health and fluoride

The oral health of Queensland children was assessed in 2010–12 as a baseline study for the evaluation of water fluoridation.¹⁶⁸ Adult oral health behaviour was reported in the 2012 report of the Queensland Chief Health Officer³⁹ and more recent data is not available. The oral health status of children is also discussed in the dental disease section in *Chapter 3, page 62*.

What is the prevalence?

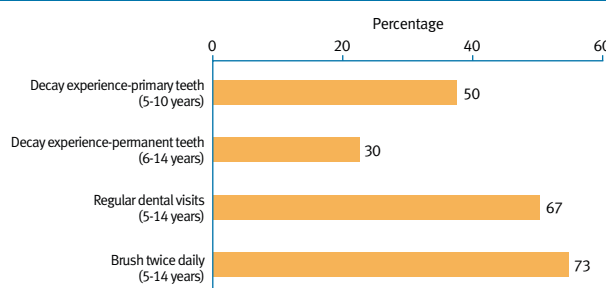
In 2010–12 among Queensland children (*Figure 56*)¹⁶⁸:

- 50% of 5–10 year olds had decay experience in their primary teeth.
- 30% of 6–14 year olds had decay experience in their permanent teeth.
- 20% of 5–14 year olds had first visited a dental provider at or before 2 years of age.
- 32% of children starting school (5–6 year olds) had never visited a dental provider.
- 81% of 5–17 years olds had visited a dental provider in the previous 12 months in 2013.¹⁹⁸
- 67% of 5–14 year olds had a regular dental visiting pattern
- 48% of 5–14 year olds had commenced brushing with toothpaste before the age of 18 months.
- 73% of 5–14 year olds brushed their teeth at least twice daily.
- 66% of 5–14 year olds used standard fluoridated toothpaste.
- 17% of 5–14 year olds had ever used fluoride tablets, 24% had ever used a fluoride mouthwash and 27% had ever had fluoride applied to their teeth.
- 8.2% of 6–14 year olds had dental fluorosis (TF score of 1 or higher) in permanent central incisor teeth and 0.4% had more definitive fluorosis (TF3+).

Dental visits

It is recommended that children make their first dental visit by 2 years of age. In 2010–12, among children aged 5–14 years, 1 in 5 had visited a dentist by 2 years of age, and by the age of starting school two-thirds had done so.¹⁶⁸ During the primary school years with access to school and community dental services, almost all children aged 11–12 years (97%) had visited a dental provider. The school dental service or community dental clinic was the most recent service visited for 55% of 5–14 year olds. By 11–12 years of age, three-quarters had also established a regular visiting pattern, that is, usually visiting a dentist/dental therapist at least once every two years. Children from higher income families and those whose parents had higher education were more likely to have commenced dental visits earlier and established a regular visiting

Figure 56: Prevalence of oral health behaviours, children, Queensland, 2010–12¹⁶⁸



pattern. In 2013, for children aged 5–17 years those in socioeconomically disadvantaged areas were 9% less likely to have made a dental visit in the previous 12 months: 77% compared with 85%, noting that this does not infer a regular visiting pattern.¹⁹⁸

Tooth brushing

Individuals can reduce their risk of dental diseases by early commencement of regular tooth brushing. It is recommended that children's teeth be wiped with a soft cloth or cleaned from the time the first tooth erupts, at around six months of age. Brushing with toothpaste had commenced before 18 months of age for about 1 in 2 Queensland children.¹⁶⁸ Low fluoride toothpaste is recommended for children up to 6 years of age and standard fluoride toothpaste for older children. Two-thirds of school-aged children were using standard toothpaste and nearly 3 in 4 were brushing twice daily. About half (51%) of 5–14 year olds had some parental help with tooth brushing. Higher prevalence of early commencement of brushing and regular brushing was associated with higher parental education and income, while use of fluoride toothpaste did not differ.

Fluoride

Fluoride is a naturally occurring compound found in water, plants, rocks, soil, air and most foods. Fluoride helps to protect teeth from tooth decay by fighting bacteria, strengthening tooth enamel and replacing lost minerals. Fluoride is particularly important for very young children and throughout the primary school years during important stages of dental development.

The use of fluoride to improve oral health has the aim of achieving an appropriate balance between the prevention of tooth decay and avoidance of dental fluorosis.¹⁶⁸ Dental fluorosis, or mottling of the teeth, can occur if young children ingest too much fluoride while their permanent teeth are forming, especially toothpaste or fluoride supplements. Most fluorosis is mild and only detectable by a dentist. National guidelines provide recommendations in relation to both fluoride products and water fluoridation.³⁴¹

Tooth decay experience in Townsville children was 20% lower than for children in non-fluoridated areas, and severe decay was 40% lower.

Fluoride products

The use of fluoride products by Queensland children in the 2010–12 study was generally low across all ages with the exception of fluoride toothpaste.¹⁶⁸ Until late 2008, 4% of Queensland children lived in an area with water fluoridation. Ideally, the level of fluoride product use in non-fluoridated areas would be higher than in fluoridated areas, however that was not the case. Professionally applied fluoride treatments and fluoride product use was positively associated with socioeconomic resources in the family, that is, higher education and income, while tooth decay was more prevalent in children from families with fewer socioeconomic resources – that is, those who most need preventive care are less likely to use fluoride products.



Water fluoridation

Water fluoridation is an efficient, effective, socially equitable and safe approach to reducing tooth decay for the whole population. Prior to the implementation of the *Water Fluoridation Act* in 2008, few areas in Queensland had access to fluoridated water—Townsville, Bamaga, Dalby, Moranbah, and Biloela. Water fluoridation commenced in south-east Queensland in late 2008 and by mid 2014, 80% of the population was living in an area with access to a fluoridated water supply (*Figure 57*), down from 87% in 2012. Areas not fluoridated were generally smaller, regional and remote communities.

The 2010–12 baseline survey showed that Townsville children had lower levels of tooth decay in primary teeth and permanent teeth compared to other children in Queensland.¹⁶⁸ The prevalence of decay experience was about 20% lower than other areas and severe decay experience was about 40% lower. Given the burden of early childhood decay in the population and its consequences such as discomfort, pain and infection, and related treatment, there is a definite advantage for Townsville children. The prevalence and severity of fluorosis in Townsville and across Queensland was relatively low.

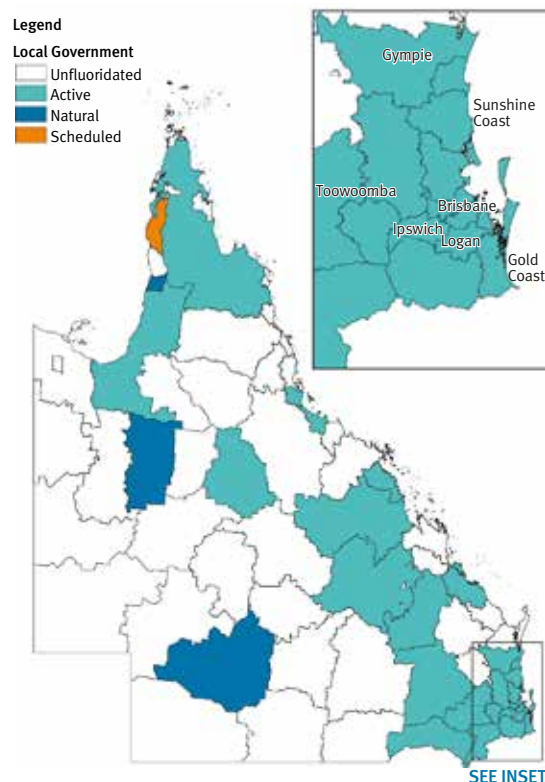
Challenges and opportunities

Making prevention a foundation: starting early to prevent dental disease through regular dental visits, effective oral hygiene practices, the appropriate use of fluoride products and support for fluoridation of water.

Addressing social inequalities in oral health by improved access to dental services, better information on the care of teeth and the implementation of water fluoridation—a mix of individual actions, provision of preventive programs and population wide health strategies. Access to dental care for children aged 2–17 years will improve with the introduction of the Medicare Child Dental Benefits Schedule which commenced in 2014.³⁴²

Taking opportunities to achieve the greatest gain—prioritising interventions and programs that target the largest number of people or those with the greatest need. Focusing on issues and behaviours that have multiple health benefits is another key strategy. For example, reducing the consumption of sugary foods and drinks will improve oral health and help to prevent weight gain in children and adolescents.

Figure 57: Current status, water fluoridation by local government area, Queensland, 2014



Immunisation

Many communicable diseases can be prevented through immunisation.³⁴³ Immunisation is one of the most successful and cost effective health interventions, as the benefits of personal immunity extend to the community by reducing the risk of disease spread. If there is high vaccination coverage in the community, protection is provided for those who lack immunity, including people with impaired immune systems due to disease or treatment and children too young to be vaccinated. This benefit is known as herd immunity.³⁴⁴

A number of vaccines are funded under the National Immunisation Program (NIP) for children, adolescents, and adults.³⁴⁵ Vaccines currently funded under the program for children can prevent measles, polio, diphtheria, tetanus, pertussis (whooping cough), varicella (chickenpox), hepatitis B, *Haemophilus influenzae* type b (Hib), meningococcal C, and pneumococcal and rotavirus diseases. Vaccines given to children up to seven years of age are recorded on the Australian Childhood Immunisation Register (ACIR). Adolescent immunisation in Queensland is delivered mainly through a secondary school based vaccination program. In 2013, the school program was expanded to include human papillomavirus (HPV) vaccination for Year 8 boys, with a time limited catch up program for boys in Year 10.

In addition to providing NIP funded vaccines to eligible children and adolescents, Queensland Health provides influenza and pneumococcal vaccines for individuals at high risk of disease.³⁴⁵ Influenza vaccine is funded under the NIP for people aged 65 years and older, Indigenous Queenslanders aged 15 years and older, pregnant women, and individuals over six months of age with medical conditions that predispose them to severe influenza disease. Pneumococcal vaccine is funded under the NIP for people aged 65 years and older, Indigenous people aged 50 years and older and those Indigenous Queenslanders aged 15–49 years with medical conditions which may predispose them to severe pneumococcal disease. Queensland Health also provides some vaccines for refugees, and rabies vaccine and immunoglobulin for people exposed to rabies or Australian bat lyssavirus.

What is the vaccination coverage?

- In 2013, 92% of Queensland children aged one year were fully immunised, slightly higher than the national coverage of 91% (Table 31).³⁴⁶ At the one-year milestone Indigenous Queensland children had a full immunisation status about six percentage points lower than non-Indigenous children and a similar difference was observed nationally. Coverage for Indigenous Queensland children at the two-year milestone was similar to non-Indigenous children, and at the five-year milestone was higher than for non-Indigenous children.
- Coverage for HPV dose 3 for Year 8 students was approximately 65%, and 52% for Year 10 boys. Approximately 53% of students were vaccinated in the school program for hepatitis B dose 2, and 43% for chicken pox (chicken pox vaccine is available for adolescents who have not previously been immunised or have not had chicken pox). Approximately 67% of students received dTpa (adult formulation diphtheria tetanus pertussis) in the school program. Adolescent coverage rates reported above are underestimated, as vaccines are also administered by GPs.

What are the trends?

In 1998, when the ACIR commenced reporting vaccine coverage, fewer than 70% of Queensland children aged two years were fully immunised. Over time, coverage has increased to more than 92% for this cohort, with coverage consistently maintained at or around this level (Figure 58). However, coverage for infants at one year of age remains at levels around 90%. This places unvaccinated young children at risk of vaccine preventable diseases. Not being vaccinated by one year of age poses a significant risk for whooping cough and pneumococcal disease in infants, as effective protection from these diseases relies on the timely administration of all required vaccine doses before one year of age.^{345,347}

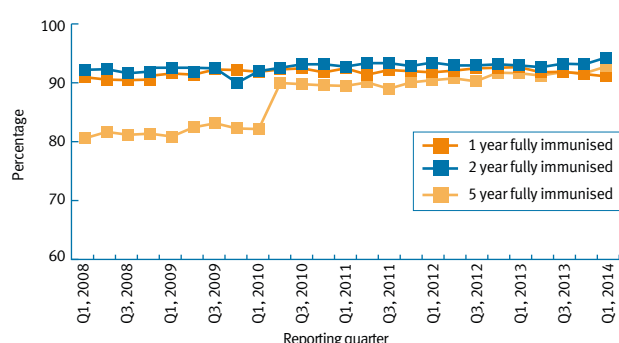
The five-year fully immunised coverage for Queensland children has been maintained at more than 90% since December 2011. While coverage for the one-year, two-year and five-year cohorts is now consistently over 90%, there are some geographic areas or subpopulations where the coverage needs to be improved, for example the Sunshine Coast and Gold Coast. Greater efforts will be required in these areas to achieve the target of 95%.

Table 31: Fully immunised Queensland and Australian children, 2013

	Fully vaccinated at 1 year			Fully vaccinated at 2 years			Fully vaccinated at 5 years		
	Indigenous	Non-Indigenous	All children	Indigenous	Non-Indigenous	All children	Indigenous	Non-Indigenous	All children
Queensland	86.2	92.1	91.6	92.5	92.7	92.7	93.6	91.7	91.8
Australia	85.6	91	90.7	91.7	92.2	92.2	93.1	91.8	91.9

* Immunisation status is assessed at ages 1 year (vaccines due at 6 months), 2 years (vaccines due at 12 months) and 5 years (vaccines due at 4 years).

Figure 58: Trend in immunisation status, Queensland children



Challenges and opportunities

Maintaining community immunity is a complex issue. Childhood vaccination coverage for example may be influenced by attitudes towards immunisation which, along with subsequent vaccine coverage, might be impacted by reports of adverse vaccination events.³⁴⁸ With respect to community immunity, adult immunisation coverage may impact on child disease, if adult immunisations are not kept up to date, and diseases spread to children not yet vaccinated.^{349,350}

Overall threats to community immunity include people's lack of awareness of their vaccination status, poor education about immunisation recommendations, and complacency.³⁵¹ Being up to date with vaccinations may be a very important factor in preventing the reintroduction of diseases into Queensland. Measles outbreaks, for example, have been reported in unvaccinated Australians who have been exposed to people entering Australia, or returning from countries where measles is still endemic.³⁵² Although many diseases are not as common as they were in the past, it is still important for children and adults to be vaccinated to help prevent more serious disease outbreaks.

There are many resources to assist Queenslanders to make informed decisions about immunisation. Current national

immunisation schedules are available from the Australian Government Department of Health and its website, and further information about the Queensland Health Immunisation Program is available on the Queensland Health website or from local immunisation providers.^{353,354}

The introduction of the national HPV vaccination program has resulted in reductions in pre-cancer lesions detected through cervical screening in Queensland women. Queensland research has shown that completion of the three-dose course of HPV vaccine in young women has been highly effective in preventing not only high grade pre-cancer lesions, but also other abnormalities detected from Pap smear.³⁵⁵ In 2013, the national HPV program was expanded to include HPV for boys. HPV vaccine is now offered to all Year 8 girls and boys as part of the School Based Vaccination Program. During 2013 and 2014, HPV vaccine is being offered to Year 10 boys in a time limited catch-up program.

In addition, new diagnoses of genital warts have dramatically declined among attendees at sexual health clinics across Australia, with a 93% decline among young women under 21 years of age between 2007 and 2011, as well as a significant 82% decline among age matched heterosexual males, suggesting herd immunity.³⁵⁶ Rates of treatment for genital warts in private hospitals have also declined since vaccination.³⁵⁷

Chapter 5 Population groups

The burden of ill health and risk is not equally distributed throughout the population. Higher burden is carried by older people, males, socioeconomically disadvantaged populations, Indigenous Queenslanders and those in remote areas. For the first time in the Queensland Chief Health Officer report series, the health of regional Queenslanders is profiled and this shows that outcomes and risks vary by HHS, with earlier deaths in some areas, and higher rates of death, disease and risk factors.

This chapter brings together demographic data from Chapter 2, health outcome data from Chapter 3 and risk factor data from Chapter 4 to describe the health characteristics of selected population groups. The final section includes some important groups for which limited data is available. Nevertheless, the needs of these and other groups are very important. For example, overseas migration is a large source of population growth in Queensland and yet the data to understand the health needs and issues of culturally and linguistically diverse populations is limited. Prisoners represent a separate group and it is evident that reducing risk among this population will lead to better health outcomes and wellbeing.

Health issues for each of the HHSs are summarised in a suite of factsheets in the Appendix (electronic release only) based on data from each chapter in the report. This chapter collates the information to describe regional variation in health outcomes and risks, and specifically how the HHSs differ, in a twelve-page summary beginning on *page 158*.

The health of Queenslanders is very good and continues to improve. However, continued improvement depends on achieving better outcomes across the whole population. This chapter provides information to identify where gains can be made for specific population groups.

In this chapter:

- Maternal and infant
- Children
- Young people
- Older people
- Males
- Females
- Socioeconomic disadvantage
- Indigenous Queenslanders
- Regional Queenslanders
- Other population groups



Maternal and infant

Good health in the earliest years of a child's life, actually beginning with the future mother's health before she becomes pregnant, lays the groundwork for a lifetime of wellbeing.³⁵⁸

Early childhood is considered the most important development phase in life affecting the quality of health, wellbeing, learning and behaviour across the lifespan.^{359,360} In recognition of the importance of getting a healthy start, the Australian Government has set a long-term objective that 'Australians are born healthy and remain healthy'.³⁶¹

There were on average 61,051 babies born to 60,452 mothers each year in Queensland in 2009–2011 (*Table 32*). The number of births increased by 3.3% per year over the previous decade.²⁷ The crude birth rate was 41 births per 1000 Queensland residents in 2012. The total fertility rate is the number of births a woman is estimated to have during her reproductive life, and in 2012 it was 2.0 for Queensland women. That is, the average Queensland woman has two children in her lifetime—for Indigenous Queensland women it was three. The net reproduction rate represents the average number of daughters that would be born to a group of females if they were subject to the fertility and mortality rates of a given year during their future life. It indicates the extent to which the population would reproduce itself. In 2012, the net reproductive rate for Queensland women was 0.95, which means that the Queensland population will not be maintained by reproduction alone. The crude birth rate, fertility rate and reproductive rate for Queensland were all slightly higher than national rates—about 3% higher for each.²⁷

In 2009–2011, 5.3% of infants were born to teenage mothers and 5.7% of infants were born to Indigenous Queensland mothers (*Table 32*). Indigenous Queensland women were 4.3 times more likely than non-Indigenous women to be a teenager at delivery (19.3% compared to 4.5%). The rate of teenage births in remote and very remote areas was about 3 times the major city rate and inner and outer regional areas about double the major city rate in 2007–2011 (*Figure 59a*).²⁸²

In 2011, 1 in 5 Queensland mothers was aged 35 years or older (20%), with no difference by Indigenous status. Over the past 10 years, the proportion of older mothers has increased by 31% or 2.5% per year (*Figure 59b*). Older maternal age was associated with increased risk of a number of factors. In 2009–2010, Queensland mothers aged 35 years or older were 87% more likely to have some form of diabetes during their pregnancy, twice as likely to have placenta praevia, 9% more likely to have an antepartum haemorrhage, 20% more likely to have gestational hypertension, and about 50% more likely to have a caesarean section delivery. Infants born to older

mothers were 14% more likely to be born preterm, 39% more likely to have fetal malpresentation, 6% more likely to have a congenital anomaly and 2.9 times more likely to have chromosomal anomalies.³⁶² Fetal mortality was more commonly observed for older mothers but not neonatal mortality.

While the majority of women (94%) completed at least five antenatal visits, the prevalence was higher among non-Indigenous than Indigenous Queensland women (95% compared with 80%) in 2009–2011 (*Table 35, page 165*).

In 2012, 15% of Queensland women smoked at some time during their pregnancy (about 9500) with 2.6% quitting before 20 weeks gestation and 13% smoking during the last 20 weeks of pregnancy (about 8000). Research suggests that women who quit smoking within the first three months of pregnancy reduce their risk of placental complications at birth, premature birth, infant illness and perinatal death.^{281,363} Smoking at some time during pregnancy was higher among Indigenous Queensland women (48%) than non-Indigenous (13%) and quit rates were also higher among Indigenous women—more than double the non-Indigenous rate (5.3% compared with 2.4%). Despite the higher proportion quitting, the smoking rate among Indigenous Queensland women during the last 20 weeks of pregnancy was 4 times the non-Indigenous rate (43% compared with 11% in 2012). Maternal smoking is also reported in *Chapter 4, page 101*.

There were 314 infant deaths per year on average in 2008–2010 in Queensland, and 12% were of Indigenous infants (38 deaths). The Indigenous infant mortality rate was nearly double the non-Indigenous rate (87% higher). There has been no change in the infant mortality rate in Queensland since 2002 for either Indigenous Queensland or non-Indigenous infants (*Figure 59c*). Queensland had the second highest infant mortality rate among the jurisdictions in 2008–2010 and was about 25% higher than the national rate on average (*Figure 59d*).² There were fewer than five maternal deaths per year over the period 2008–2010.²

Considering only the perinatal period, that is, stillborn infants and neonatal deaths (death in the first 28 days), in 2011 there were 400 still births and 200 neonatal deaths.³⁶⁴ The greater proportion of infant deaths occurs in the first 28 days of life. In 2010, 70% of deaths in the first year occurred in the neonatal period.²

In 2011, 50% of mothers giving birth in Queensland were either overweight (28%) or obese (22%), based on self report—typical of women of similar age in the general population.²⁸² Adverse effects of maternal overweight and obesity include increased risk of gestational diabetes, hypertension, caesarean delivery, post-partum haemorrhage, induction of labour, shoulder dystocia and likelihood of delivering an infant who is large for gestational age. Most of these impacts and risks have

been demonstrated among obese mothers in Queensland in recent years with obese women at conception 30% more likely to have a post-partum haemorrhage than healthy weight women, 2.9 times more likely to develop gestational hypertension and 2.6 times more likely to have gestational diabetes in 2008.³⁶⁵ Rising rates of obesity are likely to impact on infant health outcomes in the future.

Alcohol exposure in utero can also cause a range of abnormalities in the unborn child which are broadly described as fetal alcohol spectrum disorders. Fetal alcohol syndrome is at the severe end of these disorders, which also include alcohol related birth defects and neurodevelopmental disorders. The prevalence of the spectrum of disorders is unknown in Australia, although there is preliminary evidence that the rate of fetal alcohol syndrome in Indigenous Australians is at least 100 times higher than non-Indigenous rates.^{366,367} The Australian Government, through the NHMRC, has set guidelines for safe consumption of alcohol and recommends not drinking alcohol during pregnancy or while breastfeeding. An Australian women's longitudinal study found that only 20% of women fully abstained from alcohol during their pregnancy.²⁹⁹ The majority (60%) consumed between one and two drinks a day on average and the remaining 20% were consuming more. The proportion who abstained increased with each trimester of the pregnancy. Data for Queensland is unavailable.

There are other maternal factors which affect the health and wellbeing of both the mother and infant. Of Queensland women giving birth in 2012, 2% reported a depressive disorder.²⁸² Of those Australian women who had given birth in the previous two years, 20% reported having been diagnosed with depression, where three-quarters of these (73%) had been diagnosed prior to the birth of the child and 19% in the first year of the child's life.³⁶⁸ In addition, women in the childbearing age have specific nutritional requirements and these are discussed on page 89.

Over the past 20 years, there has been a steady upward trend in the proportion of low birth weight and high birth weight infants. It has long been established that low birth weight carries long-term health risks^{369,370}, however, high birth weight also has health risks including eventual adiposity and its comorbidities such as type 2 diabetes. This demonstrates a U-shaped relationship, showing trouble at both extremes of the birth weight spectrum.^{371,372} In 2009–2011, on average 6.9% of infants per year were low birth weight (less than 2500gm) and 12.5% were high birth weight (4000gm or more) (Table 32). The proportion of low birth weight infants born to Indigenous Queenslanders was nearly double the non-Indigenous proportion (11.8% compared with 6.6%). In contrast, the proportion of high birth weight infants born to Indigenous Queenslanders was 30% lower than those born to non-Indigenous mothers (8.9% compared with 12.8%).

In 2009–2011, on average about 1 in 12 infants (8.7%) were preterm births, that is, born before 37 weeks gestation (Table 32). Indigenous infants were about 50% more likely to be born preterm than non-Indigenous infants (12.5% compared with 8.4%). Infants born preterm are often also low birth weight. In 2011, 53% of those born before 37 weeks weighed less than 2500gm. Similarly, of all low birth weight infants, 71% were preterm. The health impact of preterm birth is confounded by the higher likelihood of also being low birth weight.

The majority of infants were breastfed in hospital, with 79% exclusively breastfed in the 24 hours immediately prior to discharge in 2009–2011 (Table 32). In 2011, 21% of infants received both breast milk and infant formula and 6% received infant formula alone.²⁸² Teenage mothers were more likely to have exclusively fed their infants on infant formula (11%) and less likely to have exclusively breastfed their infants (69%) than other mothers.²⁸² Indigenous mothers were also less likely to have exclusively breastfed in the 24 hours prior to discharge (72%). While about 90% of Queensland mothers initiated breastfeeding at birth or prior to discharge from hospital, only 2% breastfed exclusively until the infant was at least six months of age.²³² However, 96% of Queensland children aged 0–2 years had ever been breastfed, similar to national rates in 2010.

In the first months of life, an infant is protected from most infectious diseases by maternal antibodies, which are passively transferred during pregnancy. Immunisation in the first year of life provides protection from risk as passive immunity diminishes. In 2014, 92% of Queensland infants were fully immunised at one year of age (Table 31, page 131).

There are disparities in outcomes for infants in Queensland as seen in perinatal death rate differences. In 2009–2011, the perinatal death rate for Indigenous Queenslanders was 83% higher than the non-Indigenous rate, where the stillbirth rate was 52% higher and the neonatal death rate more than double (2.4 times). Furthermore, the Queensland perinatal death rate has been consistently higher than the Australian rate. The risk of stillbirth or neonatal death in Queensland was associated with a number of clinical and other factors, but not with Indigenous status per se.³⁷³ In the five-year period, 2007–08 to 2011–12, of the neonatal deaths, 24% were exclusively due to prematurity, 5% to inadequate antenatal care and 3% to maternal obesity. Considering only deaths of infants of Indigenous Queenslanders, the main causes were similar, except maternal obesity was not a factor.

The strongest predictors of preterm birth were pre-eclampsia (4.6 times increased risk), antepartum haemorrhage (3.8 times), pre-existing diabetes (3.3 times), pre-existing hypertension (2.5 times) and insufficient antenatal care visits (2.1 times).³⁷³ Indigenous status was one of a number of other factors that also raised the risk of preterm birth, but all had minimal impact—Indigenous status increased risk by 20%. For Indigenous Queensland women, smoking after 20 weeks gestation and not attending the recommended antenatal care visits accounted for 13% of preterm births. Modification of these risks is therefore important in reducing preterm births and consequently reducing the risk of perinatal death. These risks are higher among Indigenous Queensland women as reported in this section (Table 32) and in previous reports of the Chief Health Officer. Variability in key risks is also evident across HHSs as described below, leading to risk of death and poorer outcomes.

There are disparities across regions in Queensland. In 2009–2011, 11 HHSs had higher smoking rates than the Queensland rate (at any time during pregnancy as well as during the last 20 weeks), one did not differ, and four were lower (Table 35, page 165). Smoking rates varied from about 3 times the state rate in Torres Strait–Northern Peninsula to about 10% higher in Mackay, while the rate in Metro North, Metro South and Gold Coast was about 28% lower. There was a clustering of perinatal risks in some HHSs including smoking during last 20 weeks

and proportion of teenage mothers. Although the infant mortality rate did not differ between HHSs in 2008–2010, longer-term differences in health outcomes and poorer health for HHSs with greater perinatal risk is evident in this report.

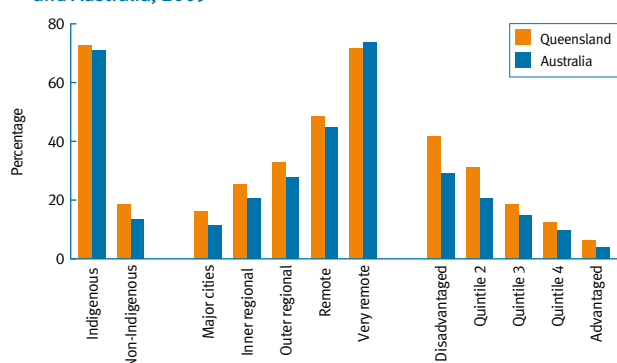
Table 32: Maternal and infant selected indicators by Indigenous status, Queensland, 2009–2011²⁸²

	Total*	Non-Indigenous	Indigenous
Number of live births (per year on average)	61,051	57,568	3,468
Number of mothers (per year on average)	60,452	56,977	3,461
Crude birth rate	40.6	n/a	n/a
Total fertility rate	81.1	n/a	n/a
% of all births born to Indigenous mothers	5.7	–	–
% of all births born to mothers < 20 years	5.3	4.5	19.3
% 5+ antenatal visits	93.8	94.7	79.8
% smoking during pregnancy	14.0	12.2	42.9
% quitting before 20 weeks	2.4	2.2	4.8
% smoking during last 20 weeks pregnancy	11.5	9.9	37.8
% low birth weight (<2,500 grams)	6.9	6.6	11.8
% high birth weight (4000+ grams)	12.5	12.8	8.9
% preterm births	8.7	8.4	12.5
% of live births discharged home who were exclusively breastfed in 24 hours prior to discharge	79.0	79.3	72.2

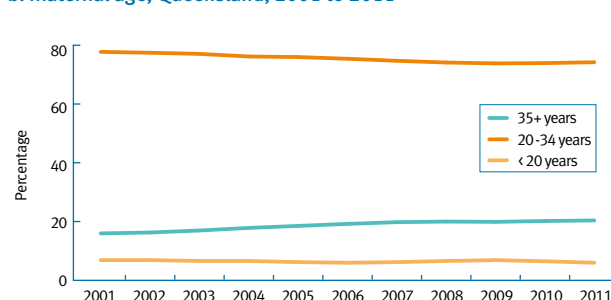
*Includes Indigenous status not stated. n/a Not available.

Figure 59: Maternal and infant, selected indicators²⁸²

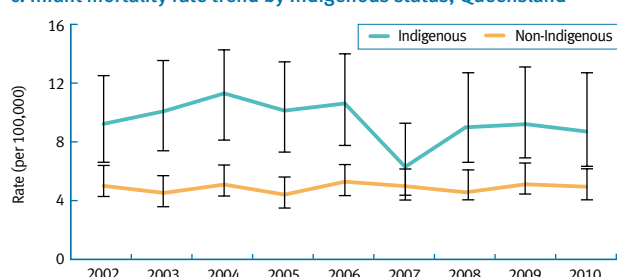
a. Teenage mothers by sociodemographic factors, Queensland and Australia, 2009



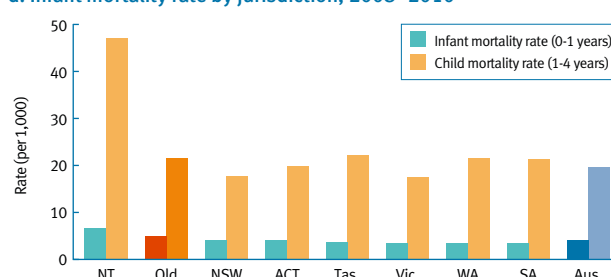
b. Maternal age, Queensland, 2001 to 2011



c. Infant mortality rate trend by Indigenous status, Queensland



d. Infant mortality rate by jurisdiction, 2008–2010



Summary

The health of mothers and babies in Queensland is generally very good and provides infants with a healthy start to life. This is important because the antenatal and neonatal environment is critical in the prevention of chronic disease and the promotion of wellbeing over the life course.³⁷⁴ For the individual, being born at full term, within the normal weight range, to a mother in good health and into a supportive social environment are essential protective factors for healthy childhood, adulthood and longevity.³⁷⁵

The health of Queensland infants would improve if maternal smoking rates were reduced. About 1 in 8 or 8000 Queensland infants, were exposed to tobacco smoke throughout the whole of the pregnancy. This is a completely avoidable risk which is likely to compromise the long-term health of the individual.

There are other factors that are amenable to improvement. These include better nutrition of mothers during pregnancy and more sustained antenatal care to reduce the risk of low birth weight

and preterm birth. Addressing maternal health and weight status, prior to conception as well as during pregnancy, will reduce potential risks at delivery and risk of fetal death. Increasing awareness of the need to abstain from alcohol while pregnant and breastfeeding, will improve the health of Queensland's infants. Maternal age also carries risk for both the very young and older mothers.

The health of many Indigenous infants is compromised by harmful exposures during the fetal and neonatal period. Poorer perinatal outcomes for Indigenous infants are associated with risks such as smoking during pregnancy and insufficient antenatal care as well as social and clinical factors. Not all these risk factors can be completely avoided but smoking is avoidable. Achieving gains in Indigenous health in the long term depends on getting a healthy start to life and it is evident that improvement in Queensland is both necessary and achievable.



Children

Most Queensland children are healthy and doing well. A positive start in life helps children to reach their full potential, while a poor start increases the chances of adverse outcomes. A child's health and wellbeing depends on what happens to them as individuals, as part of a family and as members of their community and society. Parental lifestyle factors greatly influence children's health and behaviours.²³⁴ This section reports on health information mainly about children aged 0–14 years, although for some national reporting children are defined as 5–17 years. Infants are discussed on [page 134](#) and young people on [page 140](#).

Demography

- One Queenslanders in 5 was aged 0–14 years in 2013—20% or 924,352 children, and 51% were males.³⁷⁶ Of these, 34% were aged 0–4 years, 34% aged 5–9 and 32% aged 10–14 years.
- HHSs with a higher proportion of children in 2012 were Torres Strait–Northern Peninsula (32%), Cape York and North West (24% each). Gold Coast had the lowest proportion of children (18%).

Burden of disease

- In 2007, 9% of the total burden of disease and injury was for children aged 0–14 years although this age group represented about 20% of the population.¹⁸⁴
- Three-quarters (75%) of the childhood burden was associated with disability (compared to about one-half for the total population).
- The leading causes of disease burden in 1–14 year old boys in 2006 were asthma, autism spectrum disorders, and anxiety and depression and for girls, anxiety and depression, asthma and autism spectrum disorders. These causes accounted for 50% of the burden for boys and 55% for girls.



Deaths

- There were 443 deaths of 0–14 year olds in 2010 and 61% were males (269 males, 174 females). The male rate was 46% higher than the female rate.
- Three-quarters of the deaths occurred within the first year of life (328 deaths).
- There were 115 deaths from all causes in 1–14 year olds in 2010 and 62% were males (71 males, 44 females). The major cause of death was cancer (15% of all deaths), followed by accidental drowning and submersion (10%).²
- In 2009–2010, the all-cause death rate for 0–14 year olds was:
 - 36% higher in disadvantaged areas than advantaged areas
 - 2.1 times higher in remote and very remote areas than major cities
 - 83% higher for Indigenous Queenslanders than the non-Indigenous rate.
- There was no change in the death rate for 0–14 year olds between 2001 and 2010, and no change in the average number of deaths annually.

Hospitalisation

- There were 119,690 hospitalisations for 0–14 year olds in 2011–12 of which 57% were males. Of these, 16,079 (13%) were associated with the birth and perinatal period, that is, the first 28 days.
- Respiratory conditions were the major cause of hospitalisation (19%), followed by injury (14%) and perinatal conditions (10%).
- In 2011–12, dental conditions accounted for about 1 in 7 potentially preventable hospitalisations in 0–4 year olds and about 1 in 2 (45%) in children aged 5–9 years ([page 33](#)).
- In the two-year period 2010–11 to 2011–12, the hospitalisation rate was:
 - 15% higher in disadvantaged than advantaged areas
 - 50% higher in remote and very remote areas than major cities
 - 24% higher for Indigenous Queenslanders than non-Indigenous.
- For the three-year period 2009–10 to 2011–12, all-cause hospitalisation rates were higher for nine HHSs—71% to 5% higher than the state rate and between 2% and 12% lower for seven.
- There was no change in the hospitalisation rate between 2001–02 and 2011–12, although the number of cases increased by 19% or 1.6% per year.

Cancer incidence and death

- There were 137 new cases of cancer diagnosed in children aged 0–14 years in 2011 of which 58% were males (79 males, 58 females).
- Leukaemia was the leading cancer accounting for 34% of all cancers, followed by bone and soft tissue cancers (17%) and brain cancer (14%).
- There were about 20 childhood cancer deaths per year in 2008–2010, 58% were males. Brain cancer was responsible for 44% of all cancer deaths followed by leukaemia (27%).

Oral Health

- 50% of 5–10 year olds had decay experience in their primary teeth in 2010–12 (*page 129*).
- 30% of 6–14 year olds had decay experience in their permanent teeth.
- 32% of children starting school (5–6 years of age) had never visited a dental provider.

Immunisation

- 92% of Queensland children aged one year were fully immunised in 2013. Similar rates were maintained for children aged two years and five years (*page 131*).
- Childhood immunisation rates in Queensland were slightly higher than national rates.

Risk and protective factors

For children aged 5–17 years in 2013¹⁹⁸:

- Overweight and obesity—18% were overweight and 11% were obese. The obesity rate in disadvantaged areas was 2.2 times the rate in advantaged areas.
- Physical activity and screen time—41% undertook sufficient physical activity, 46% travelled to or from school by any active transport including public transport, and 34% exceeded recommended screen time for entertainment.
- Nutrition—65% consumed adequate serves of fruit and the rate was 21% lower in disadvantaged areas than advantaged areas, 6% consumed adequate serves of vegetables, 8% consumed non-diet soft drink daily. In 2011–12 for children aged 4–13 years, 40% of energy was derived from energy-dense, low nutrition foods, described as discretionary foods.²⁰⁹ One in 2 children had consumed confectionary in the previous 24 hours, and about 70% had consumed discretionary cereal based products such as cakes, biscuits, pizza, and related foods. About 60% had consumed sugary drinks. The consumption of discretionary food among Queenslanders is discussed on *page 87*.

Summary

There is sound evidence that prevention initiatives early in life are highly effective. Prevention, early detection and early intervention can improve outcomes for children and build the foundation for a healthy and productive life.

Not all Queensland children have a healthy start. The overall disease burden is greater for boys than girls. Children living in disadvantaged and remote areas incurred a higher burden than those in advantaged areas and in cities. They are also more likely to be obese and eat less fruit. Indigenous children have higher disease burden than non-Indigenous children.

Key health challenges for children, with short term and longer term implications, include:

- high intake of energy-dense food, even in very young children, excess screen time and other factors leading to weight gain during childhood and the teenage years
- asthma management
- maintenance of high immunisation rates
- dental decay and oral health behaviours.

The disparity in disease burden in Queensland begins in childhood and flows through to marked health inequalities in adulthood. Minimising the disparity in health risk factors and promoting the protective factors in childhood will minimise the disparity among adults and reduce the disease burden in society.



Young people

Youth is a critical time for the development of health behaviours, as the patterns that develop when people are young often continue into adulthood.³⁷⁷ Health behaviours are an important determinant of both current and future health status of the population. This is especially true of young people. This section includes key health facts about young people broadly defined as 15–29 years old, although for some indicators the age groups vary depending on data availability.

Young people experience health risk factors and risk-taking behaviour differently from other age groups. Youth is a time of heightened risk taking sometimes undertaken under the influence of alcohol and illicit drugs. Prevention of risk-taking behaviours will have broad impact on the health and wellbeing of young people now and as they age.³⁷⁸ Young people are especially concerned with body image. In a 2007 survey of over 5000 selected Queenslanders aged 11–24 years, body image was the top issue of concern with about one-third identifying it as a significant issue, ahead of coping with stress and family conflict.³⁷⁹

Demography

- 1 in 5 Queenslanders was aged 15–29 years in 2013—982,000 young people and 51% of these were males.²⁵ One-third (31%) were aged 15–19 years, 34% aged 20–24 and 35% aged 25–29 years.
- Over the past 30 years the proportion of 15–29 year olds in the population decreased from 26% to 21% and over the next 20 years is projected to decrease to 19%.³⁸⁰
- HHSs with a higher proportion of 15–29 year olds in 2011 were Mount Isa (25%), Torres Strait–Northern Peninsula (24%), Townsville (23%), Metro North (23%) and Metro South (22%).

Burden of disease (15–24 years)¹⁸⁴

- In 2007, 8% of the total burden of disease and injury was incurred by young people aged 15–24 years although this age group represented about 14% of population.
- The burden (DALY) rate for young people was second lowest after children.
- About one-fifth of the total burden was associated with premature mortality (compared to about one-half for the total population).
- Anxiety and depression, substance use disorders and road traffic injury were the leading causes of total burden for young males.¹⁸⁴ For females, the leading cause was anxiety and depression, followed by asthma and migraine.

Deaths (15–29 years)

- There were 450 deaths of 15–29 year olds in 2010 and 70% were males.
- The major cause of death in 2009–2010, was suicide (28% of all deaths), followed by road transport injury (21%).
- The death rate decreased by 31% (4% per year) between 2001 and 2010, where this change was associated with male rate decline (5% per year), with no change in the female rate. The number of male deaths decreased by 2% per year, with no change in females deaths per year.

Hospitalisation (15–29 years)

- There were about 211,000 hospitalisations of 15–29 year olds in 2011–12, where 68% were for females. About 58,000 hospitalisations were for pregnancy and maternal conditions.
- The major causes of hospitalisation for males were injuries (24%) followed by digestive system diseases (16%) and for females, pregnancy (40%) followed by digestive system diseases (11%).
- Higher rates of hospitalisation for young people (both male and female) were evident in many HHSs with the exception of Metro North, Metro South and Gold Coast. If the rates in all HHSs were the same as the state average, there would have been about 13,000 fewer hospitalisations. If they were the same as the lowest (Gold Coast), there would have been about 43,000 fewer hospitalisations.
- There was no change in the hospitalisation rate over the past decade, although the number of cases increased by 30%.

Cancer incidence

- There were 484 new cases of cancer diagnosed in persons aged 15–29 years in 2011, 2% of all new cases.
- The leading cause was melanoma, accounting for 29% of all new cases followed by haematological cancers (19%).³⁸¹
- The incidence rate among those aged 15–29 years is decreasing, largely due to the 3.3% per year decrease in melanoma incidence rates between 2002 and 2011.²³

Long-term conditions (0–24 years)¹⁰¹

- About 1 in 4 (23%) reported a respiratory condition of at least six months duration in 2011–12 with asthma, hayfever and chronic sinusitis the leading causes.
- About 1 in 6 (18%) reported a disease of the eye with short sightedness and long sightedness the most common causes.
- One in 8 (12%) reported a mental or behavioural problem with alcohol and drug related problems, and mood and anxiety problems the most common.

Risk and protective factors

In 2014 the risk factor profile for young people aged 18–24 years was as follows¹⁹⁹:

- Smoking: 11% smoked daily and 3.7% non-daily, and in 2010, 7% of 14–19 year olds smoked daily, down from 9% in 2007²⁹⁷
- Weight (self report): 6% were underweight, 63% healthy weight, 21% overweight, 10% obese
- Weight (measured in 2011–12)⁷⁵: 62% were underweight/healthy weight, 22% overweight, 17% obese
- Physical activity: 73% undertook sufficient physical activity and 13% of 18–34 year olds were sedentary every day in 2011²⁵¹
- Alcohol: 18% drank at riskiest level (lifetime and single occasion) and 24% were drinking at single occasion risk (monthly)
- Nutrition: 56% consumed the recommended serves of fruit daily and 6% the recommended serves of vegetables, 17% consumed non-diet soft drink daily and 48% consumed takeaway food weekly. In 2011–12, 45% of daily energy intake was from energy-dense, nutrient-poor foods for 14–18 year olds.²⁰⁹
- Food insecurity in 2011: 11% of 18–34 year olds reported food insecurity²²⁹
- Sunburn and sun protection: 72% were sunburnt in the previous 12 months and 37% practised three of five sun protection behaviours in summer in 2012¹⁰⁷
- Illicit drug use: 17% of 14–19 year olds reported illicit drug use in the previous 12 months, 25% of 18–19 year olds and 31% of 20–29 year olds in 2010²⁹⁷
- Psychological distress: 14% were at high or very high risk in 2011–12.¹⁰¹

Summary

The immediate key health issues for young people in Queensland are:

- substance use particularly risky alcohol consumption, where recent gains have been made
- mental health problems including suicide
- injuries including transport related.

It is likely that these factors are interrelated. The overall burden is greater in males than females—evident in the higher number of deaths for males.

In the long term, preventing rapid weight gain as young people move from their teen years to their twenties and thirties, particularly for males, will protect against chronic disease and improve wellbeing. The very high consumption of energy-dense, nutrient-poor foods among young people is particularly concerning—45% of total daily energy intake of the average young person was derived from sugary drinks, alcoholic drinks, cakes, snacks, confectionery and other discretionary foods in 2011–12. Body image, however, is a key concern for young people and therefore it is important that public messages about weight gain are sensitive to this issue. For many young people, maintaining their current high levels of physical activity will protect them along with improved nutrition.

Many young people in Queensland have relatively poor sun protection behaviours and consequently are getting sunburnt and exposing themselves to long-term skin damage, although improvement is evident. Gains for their lifetime can be achieved by addressing these issues in youth.



Older people

People are living longer, and where health is maintained, those years are more likely to be lived with greater satisfaction and enjoyment.³⁸² There has been a 50% increase in the life expectancy of 70 year olds in the last century.^{69,383} In 2010–2012, 42% of Queensland males and 58% of females could expect to live to age 85 years. For those who reach the age of 85 years, they could expect to live another 6–7 years, similar to national. This section generally refers to the age group 65 years and older as ‘older people’ and includes age groups within this range as data allows.

Demography

- 1 in 7 Queenslanders (14%) was aged 65 years and older—634,000 persons in 2013. One in 8 was aged 65–84 years (12%) and 1 in 50 aged 85 years and older (1.6%).
- Over the past 22 years, there has been a doubling in the population aged 65 years and older and it is projected to double again over the next 20 years (*Figure 4b, page 11*), while for the age group 85 years and older, the population is projected to double in about 15 years.
- Of the HHSs, Wide Bay and Sunshine Coast had the highest proportion of older people in 2012 and Cape York and Torres Strait–Northern Peninsula the lowest (*Figure 4c, page 11*).
- Metro South and Metro North had the largest number of older people (more than 100,000) and Cape York and Torres Strait–Northern Peninsula the smallest (less than 1000).



Burden of disease

- In 2006, although older adults made up 12% of the population they experienced 39% of the total burden of disease and injury in Queensland where the burden rate was about 6 times that for children and young people.¹⁸⁴
- 62% of the total burden was associated with premature mortality (YLL).
- In 2010, the leading causes for older Australians were coronary heart disease, stroke, Alzheimer’s disease, COPD, low back pain and falls.⁶² Queensland data is not available.

Deaths

- There were 21,044 deaths of older people in 2010, 78% of all deaths.
- Coronary heart disease was the largest cause, followed by stroke, cancers of the digestive system (including colorectal), respiratory system cancers (including lung) and COPD.²
- The predominance of the cardiovascular diseases increases with age and accounted for 45% of deaths in those aged 85 years and older.
- The death rate for older people decreased by 13% between 2001 and 2010, while the number of deaths increased by 22%.
- The death rate was higher than the state for five HHSs in 2008–2010 and varied from 31% higher in North West to 4% higher in Darling Downs, and was about 16% lower in Gold Coast.

Hospitalisations

- There were about 690,000 hospitalisations of older people in 2011–12, 40% of all hospitalisations, excluding those due to pregnancy, the perinatal period and congenital anomalies. Of these, 108,000 were for people aged 85 years and older (6% of total).
- The leading cause of hospitalisation was contact with the health service for specific procedures, examinations and investigations and related issues (34% of total), followed by circulatory conditions (9%), digestive diseases (8%) and cancers (7%).
- The hospitalisation rate increased by 29% between 2001–02 and 2011–12, while the number of hospitalisations increased by 76%.
- The hospitalisation rate for older people was higher than the state for four HHSs in the three years, 2009–10 to 2011–12 and varied from 8% higher in Gold Coast to 2% higher in Sunshine Coast. For 11 HHSs the rate was lower than the state, varying from 3% lower in West Moreton to 34% lower in Torres Strait–Northern Peninsula.

Cancer incidence

- There were 13,292 new cases of cancer diagnosed in older people in 2011, 54% of all cancers.³⁸⁴ About three-quarters of cancer deaths occurred in this age group in 2010 (74%).³³⁵
- The top five cancers diagnosed in 2009–2011 were prostate cancer (18%), colorectal cancer (15%), lung cancer (11%), melanoma and haematological cancers (both 10%).
- There was no change in the all cancer incidence rate between 1990 and 2008, although the rate for males aged 80 years and older decreased by 0.4% per year.²³

Long-term conditions

- About 60% of older people reported a musculoskeletal condition of at least six months duration in 2011–12, with arthritis (43% of all older people), back pain (20%) and osteoporosis (14%) the leading causes.¹⁰¹
- Over half (56%) reported a circulatory condition with hypertensive disease the most common followed by heart and vascular conditions such as heart attack, heart failure and angina.
- In addition, disease of the eye was reported by 97% of older people, deafness by 31%, high cholesterol by 22%, type 2 diabetes by 11%, asthma, hayfever and chronic sinusitis by about 10% each, and mood disorders by 9%.

Risk and protective factors

Three of the major risks for cardiovascular disease increase markedly with age: in 2011–12 about 80% of older people were dyslipidaemic, 70 to 80% were hypertensive and up to a quarter had high blood sugar.¹⁰⁵ Furthermore, among those adults aged 75 years and older with dyslipidaemia only 40% were effectively treated, with about 40% not taking medication and about 20% ineffectively treated. Similarly, 19% of adults had untreated or inadequately treated high blood pressure.

For other factors, older people generally have a better profile than younger people (Chapter 4):

- Obesity declines in older age groups.
- Less than 10% are daily smokers.
- Lifetime and single occasion risky alcohol consumption declines and single occasion risky drinking is low.
- They are less likely to be sunburnt and more likely to be sun safe all year round.
- Fruit and vegetable consumption is generally higher.

Summary

Ageing is typified by an increasing number of ailments and illnesses, and increasing contact with the health system. Quality of life and satisfaction with health diminishes as illness and disabilities increase. Longer life has been achieved, but the years lived in good health have not kept pace—of the four-year gain in life expectancy in the past 20 years in Australia, only two of these were years of healthy life.

Although age may bring illness and frailty, and recognising such outcomes can be the consequence of earlier life choices and exposures, at all stages of life there is opportunity to reduce the risk of disease and the impact of illness and injury by careful management and protective and preventive measures.

Cardiovascular disease is the greatest killer in older people and results in substantial costs and disability. The main risk factors for cardiovascular disease, high blood pressure and cholesterol can be treated, so monitoring and assessment are a priority for all adults but particularly in older age groups. Improving the nutrition and exercise of older people and managing weight will also help to reduce the risk of disease. The impact of long-term smoking is evident in the development of lung cancer and COPD in older people, both of which have poor outcomes. Colorectal cancer is one of the more common cancers among older people and participation in the national screening program targeting older people has the potential to reduce cancer. Falls are very common in older people—one-quarter of Queenslanders aged 65 years and older had at least one fall in the previous year and of these, one-third required medical attention and about 10% were admitted to hospital.³⁸⁵ Preventing falls from occurring by regular strengthening exercises and continued physical activity as well as enhancing safety in the home will prolong the years of independent healthy life and reduce health system costs.

Good health across the life course is a priority. While it is never too early to make healthy choices, it is also never too late—healthy choices in later years can improve the health of older and elderly adults. WHO's vision is that 'if ageing is to be a positive experience, longer life must be accompanied by continuing opportunities for health, participation and security'.³⁸⁶

Males

Detailed health data for males is included in every section of this report. This profile includes selected health statistics to highlight the key health issues for Queensland males and to contrast with females. The data refers to the whole population unless otherwise stated.

In 2010–12, the life expectancy of male infants in Queensland was 79.5 years, and 42% could expect to live to 85 years.³⁸⁷ Male life expectancy was 4.5 years less than for females and 0.4 years less than for Australian males. The life expectancy of males aged 65 years was 18.9 years. Australian males were ranked fifth highest life expectancy among 187 countries in 2010.⁴²

Demography

- In 2013, there were 2.322 million males in Queensland, 49.9% of the population.²⁵
- The age profile was very similar to the female profile except there were relatively more males aged 0–24 years (34% compared with 33%), and relatively fewer aged 75 years and older (5% compared with 6%) (*Figure 60a*).
- The male population doubled between 1980 and 2013²⁵, and, similar to females, is projected to increase by about 44% over the next 20 years.³⁸⁸
- North West, Mackay and Cape York HHSs had the highest proportion of males in 2011 (54%, 53% and 52% respectively) and Sunshine Coast the lowest (49%).

Burden of disease

- The burden rate of Australian males in 2010 was about 15% higher than the female rate, with the premature death burden rate about 40% higher and the disability rate about 8% lower.⁶² Data for Queensland is not available.
- The leading causes of total male disease burden (DALYs) were coronary heart disease, low back pain and road injury (*Figure 60c*). The leading causes of:
 - premature death (YLL) were coronary heart disease, lung cancer and suicide.
 - disability (YLD) were low back pain, drug use disorders and falls.

Deaths

- There were 14,138 male deaths in 2010 and 46% (6448 deaths) were premature. Two-thirds of the premature deaths were avoidable: 3007 were preventable and 1440 treatable.
- Considering all male deaths in 2010, 3 in 10 could have been avoided; 2 through prevention (21%) and 1 through treatment (10%) (*Figure 12a, page 31*).

- The major causes of death were coronary heart disease, lung cancer, stroke, prostate cancer and COPD (*Figure 60b*).
- Males had higher death rates than females for many conditions as described in Chapter 3. The male premature death rate was 70% higher than the female rate, similar for all the major disease groups (*Figure 60e*).
- If the male death rate were the same as the female rate there would have been 4468 fewer male deaths in 2010. This is about one-third of all male deaths.
- The median age of death was 77 years, six years younger than females (*Figure 60d*). Earlier age of death for males was evident for all major causes, with a 20-year difference for injuries, largely because the types of injuries incurred by males occur in younger rather than older people, such as road transport, suicide and assault. For selected specific conditions, the greatest difference in median age of death was for coronary heart disease (seven years) and road transport injury (five years). For melanoma, however, males were on average, four years older than females at death.

Hospitalisations

- There were 872,557 hospitalisations for males in 2011–12, 47% of all hospitalisations.
- The male hospitalisation rate was 6% lower than the female rate. However, the rates were similar when hospitalisations for pregnancy and childbirth were excluded.
- The largest cause of hospitalisation was admissions for examinations, investigations and other contact with health services (28% of total) (*Figure 61a*). These hospitalisations were for admissions not specifically defined by a principal disease diagnosis. Digestive system diseases and injuries were the next largest causes (10% and 8% respectively).
- Potentially preventable hospitalisations accounted for 8% of all hospitalisations; the male rate was 5% higher than the female rate.
- The hospitalisation rate for selected chronic conditions was 11% higher than the female rate and for coronary heart disease alone it was about double.

Cancer incidence

- There were 14,039 new cases of cancer diagnosed in males in 2010. The male incidence rate was 45% higher than the female rate.
- The leading cause of new cases diagnosed was prostate cancer (28%), followed by melanoma (14%), colorectal cancer (12%) and lung cancer (9%). Excluding prostate cancer, male incidence rates were respectively 48%, 46% and 85% higher than female rates.

Long-term conditions

- About 1 in 2 (48%) of all males reported a disease of the eye of at least six months duration in 2011–12, with long sightedness and short sightedness the most common causes (*Figure 61b*).¹⁰¹ Males were 17% less likely to report an eye condition than females.
- About 1 in 4 (26%) of all males reported a respiratory condition with hay fever, asthma and chronic sinusitis the leading causes. Males were 8% less likely to report a respiratory condition than females.
- About 1 in 4 (26%) of all males reported a musculoskeletal condition with arthritis and back pain the leading causes. Males were 7% less likely to report a musculoskeletal condition than females.
- One in 8 males reported deafness, 27% higher than female prevalence.

Risk and protective factors

The origins of adult health often begin in childhood as described on *page 138*. Adult males generally have higher prevalence of risk factors than females and lower prevalence of protective factors (*Table 33*). The two most important risks for chronic disease burden are smoking and overweight and obesity—and the male adult prevalence is about 40% and 20% higher respectively than female. Fewer males consume the recommended serves of fruit and vegetables and they are more likely than females to consume soft drink daily and eat takeaway food weekly. They were more likely than females to be consuming energy-dense, nutrient-poor foods and drinks, particularly sugary drinks and alcohol, with males aged 19 years and older consuming about two cans of such drinks a day (730gms), compared with one for females.²⁰⁹ Males were about 4 times as likely as females to be drinking alcohol at the riskiest levels, that is, lifetime and single occasion risk combined. Conversely, males were 15% more likely to be physically active than females.



Summary

The health issues for males (relative to females) are:

- They have higher death rates.
- They die at younger ages.
- They have higher rates of preventable deaths.

And during their life they have poorer health outcomes with:

- higher hospitalisation rates for chronic disease
- higher cancer incidence rates including melanoma, colorectal and lung cancer.

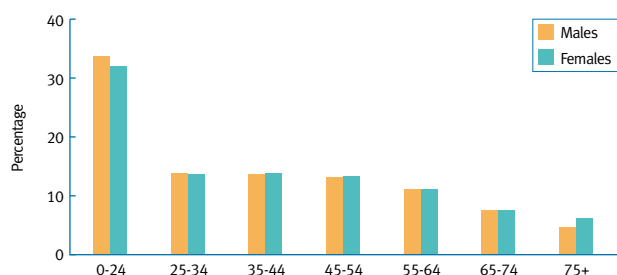
Some of this is due to their poorer risk profile. One positive is that they have a lower disability burden.

Male death rates are higher than female rates, and this is particularly evident in the largest cause of death, cardiovascular disease and, as a result, males have lower life expectancy than females. Males have higher rates of preventable death—2 in 10 deaths were preventable compared with 1 in 10 for females. However, despite the higher death burden compared to Queensland females, males compare very well internationally. In 2010, Australian males had the fifth highest life expectancy among 187 countries, with Queensland males not far behind.

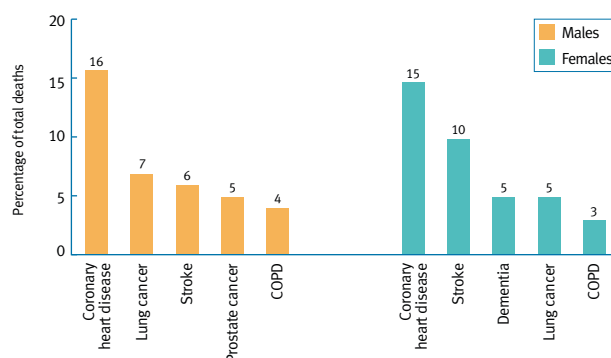
Burden of disease studies show that males have a lower disability burden than females, and this is evident in the lower prevalence of many long-term conditions, including musculoskeletal, respiratory and mental health conditions. However, males are more likely to report deafness than females.

The key to the relatively poorer death outcomes for males is their risk factor profile. Males have higher rates than females for the two leading causes of disease burden—smoking and overweight and obesity. These risks will explain higher rates of cardiovascular disease and cancer. Risky alcohol consumption for males is 3 times the female prevalence and this will result in a higher injury burden as well as greater social and economic impacts. Young males have the highest rates of risky alcohol consumption. Furthermore, the eating patterns of males are less healthy than females—they consume less fruit and vegetables, more takeaway food, and more sugary drinks. In contrast, males are more physically active than females and this helps to mitigate the higher rates of obesity. Males are less sun safe than females and as a result have higher rates of melanoma. There is great potential to improve the health of males by improved lifestyle choices. Maintaining the pressure on smoking cessation, and increasing the focus on preventing weight gain, healthy eating, drinking within guidelines and being sunsafe, will help Queensland males live a longer and healthier life.

Figure 60: Selected indicators, by sex

a. Population by age and sex, Queensland, 2012 ³⁸⁹

b. Top 5 specific causes of death, Queensland, 2010

c. Top 5 causes of disease burden by sex, Australia, 2010⁸

	Rank	Males	Females
DALYs	1	CHD	Low back pain
	2	Low back pain	CHD
	3	Road injury	Other musculoskeletal
	4	Lung cancer	Major depressive disorder
	5	COPD	Stroke
YLL	1	CHD	CHD
	2	Lung cancer	Stroke
	3	Self harm	Breast cancer
	4	Stroke	Lung cancer
	5	Road injury	Colorectal cancer
YLD	1	Low back pain	Low back pain
	2	Falls	Other musculoskeletal
	3	Drug use disorders	Major depressive disorder
	4	Neck pain	Neck pain
	5	Major depressive disorder	Anxiety disorders

d. Median age of death, selected specific conditions, Queensland, 2010

	Male	Female	Male-female difference
All causes	77	83	-6
Breast cancer	n/a	68	n/a
COPD	79	80	-1
Colorectal cancer	73	75	-2
Coronary heart disease	80	87	-7
Diabetes	78	82	-4
Lung cancer	71	71	0
Melanoma	71	67	4
Prostate cancer	80	n/a	n/a
Road transport injury	37	41	-5
Stroke	83	87	-4
Suicide	44	44	1
Falls	84	88	-4

n/a Not applicable

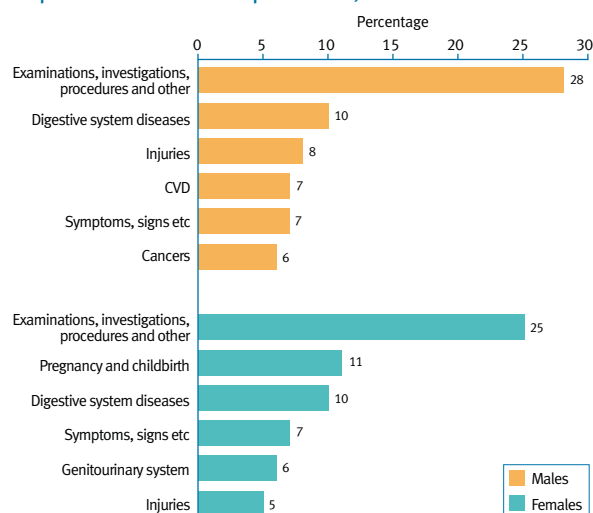
e. Broad causes of death, premature death rate ratio and median age difference, Queensland, 2010

Major disease group (ICD chapter)	Premature death rate ratio (male:female)	Median age difference (male-female)
All causes	1.7	-6
External causes	2.8	-20
Infectious and parasitic diseases	2.1	-9
Diseases of circulatory system	2.0	-6
Nervous system and sense organ	1.5	-5
Malignant neoplasms	1.5	-1
Diseases of respiratory system	1.5	-4
Endocrine including diabetes	1.4	-5
Diseases of the digestive system	1.4	-8
Mental and behavioural disorders	1.2	-3
Diseases of the genitourinary system	*1.0	-2
Diseases of musculoskeletal system and connective tissue	*1.0	-3

* A ratio of 1 indicates no difference

Figure 61: Selected indicators, by sex, Queensland

a. Top six broad cause of hospitalisation, 2011–12

b. Top 12 most prevalent conditions, 2011–12¹⁰¹

	Prevalence (%)			Ratio Female/male
	Males	Females	Persons	
Long sighted/hyperopia	27.1	31.6	29.4	1.17
Short sighted/myopia	18.3	26.2	22.3	1.43
Total arthritis	11.5	15.8	13.7	1.37
Back pain/problems etc.	13.5	12	12.7	0.89
Hayfever and allergic rhinitis	11.2	13.5	12.4	1.21
Deafness	11.9	9.4	10.7	0.79
Asthma	9.5	10.9	10.2	1.15
Mood (affective) problems	7.6	12.3	10	1.62
Hypertensive disease	9.7	9.9	9.8	1.02
Chronic sinusitis	8.4	10.7	9.6	1.27
Migraine	3.7	8.5	6.1	2.30
Anxiety related problems	3.2	5.5	4.4	1.72

Table 33: Prevalence of selected risk factors by sex, adults, Queensland, 2014¹⁹⁹

	Prevalence (%)		Relative difference	
	Males	Females	Male/ Female	Female/ Male
Smoke daily	16	12	37% higher	27% lower
Overweight – measured***	41	28	46% higher	32% lower
Overweight – self report	39	30	31% higher	24% lower
Obese – measured***	31	29	similar	similar
Obese – self report	24	22	similar	similar
Overweight or obese – measured***	73	57	27% higher	20% lower
Overweight or obese – self report	63	52	21% higher	17% lower
Sufficient physical activity	61	58	similar	similar
Sedentary every day**	14	11	similar	similar
Riskiest drinking (lifetime and single occasion)	27	8	3.3 times	68% lower
Single occasion risky drinking (monthly)	14	10	48% higher	33% lower
Recommended fruit consumption	54	63	14% lower	17% higher
Recommended vegetable consumption	3	15	78% lower	4.5 times
Full cream milk consumption usually**	52	38	38% higher	37% lower
Non-diet soft drink daily**	18	10	81% higher	45% lower
Takeaway food weekly**	40	28	45% higher	30% lower
Hypertension***	33	27	20% higher	17% lower
Dyslipidaemia***	66	63	similar	similar
Sunburnt in the previous 12 months	57	51	13% higher	10% lower
Sun protection (3 of 5 behaviours in summer)***	53	52	similar	similar
Illicit drug use, recent (12+ years)*	17	13	36% higher	26% lower
Psychological distress**	13	14	similar	similar
BreastScreen Queensland (50–69 years)***	n/a	57	n/a	n/a
Cervical screening (20–69 years)***	n/a	56	n/a	n/a

* 2010 ** 2011 *** 2011–12 n/a Not applicable.

Females

Detailed health data for females is included in every section of this report. This profile includes selected health statistics to highlight the key health issues for Queensland females and to contrast with males. The data refers to the whole population unless otherwise stated.

In 2010–12, the life expectancy of female infants in Queensland was 84.0 years, and 58% could expect to live to 85 years.³⁸⁷ Female life expectancy was 4.5 years more than for males and 0.3 years less than for Australian females. The life expectancy of females aged 65 years in 2010–12 was 21.9 years. Australian females were ranked ninth highest life expectancy among 187 countries in 2010.⁴²

Demography

- In 2013, there were 2.335 million females in Queensland, 50.1% of the population.²⁵
- The age profile was very similar to the male profile except there were relatively fewer females aged 0–24 years (33% compared with 34%), and relatively more aged 75 years and older (6% compared with 5%) (*Figure 60a*).
- The female population doubled between 1981 and 2013, and, similar to males, over the next 20 years²⁵ is projected to increase by about 46%.³⁸⁸
- Sunshine Coast, Metro North and Wide Bay HHSs had the highest proportion of females (51%) in 2011, and Mount Isa, North West and Cape York the lowest (46%, 47% and 48% respectively).

Burden of disease

- The burden rate in Australian females in 2010 was about 15% lower than the male rate.⁶² Data for Queensland is not available.
- The leading causes of total female disease burden (DALYs) were low back pain, coronary heart disease and other musculoskeletal disorders (*Figure 60c*). The leading causes of:
 - premature death (YLL) were coronary heart disease, stroke and breast cancer
 - disability (YLD) were low back pain, other musculoskeletal disorders and major depressive disorders.

Deaths

- There were 12,784 female deaths in 2010 and 30% (3854 deaths) were premature. Two-thirds of the premature deaths were avoidable: 1391 were preventable and 1210 treatable.
- Considering all female deaths in 2010, 2 in 10 could have been avoided, 1 through prevention (11%) and 1 through treatment (9%) (*Figure 12a, page 31*).

- The leading causes of death were coronary heart disease, stroke, dementia, lung cancer and COPD (*Figure 60b*).
- Females had lower death rates than males for many conditions as described in Chapter 3. The female all-cause premature death rate was 40% lower than for males, and this was evident for all the major disease groups (*Figure 60e*).
- The median age of death was 83 years, six years older than males (*Figure 60d*). Older age of death was evident for all major causes, with a 20-year difference for injuries largely because falls in older people are a larger component of the injury burden in females. For selected specific conditions, the greatest difference in median age of death was for coronary heart disease (seven years) and road transport injury (five years). However, for melanoma, females were on average, four years younger than males at death.

Hospitalisation

- There were 971,389 hospitalisations for females in 2011–12, with 11% (106,274 hospitalisations) for pregnancy or childbirth.
- The largest cause of hospitalisation was admissions for examinations, investigations and other contact with health services (25% of total) (*Figure 61a*). These hospitalisations were for admissions not specifically defined by a principal disease diagnosis. As well as pregnancy and childbirth, digestive system diseases and admissions for signs and symptoms (another group not defined by a disease diagnosis) were the next largest causes (11% and 10% respectively).
- Potentially preventable hospitalisations accounted for 7% of all hospitalisations and the female rate was 5% lower than the male rate.
- The hospitalisation rate for other major causes was higher than the male rate; genitourinary diseases were 73% higher, mental disorders were 25% higher and endocrine diseases 24% higher.

Cancer incidence

- There were 10,422 new cases of cancer diagnosed in females in 2011. The female incidence rate was 31% lower than the male rate.
- The leading cause of new cases diagnosed was breast cancer (28%) followed by melanoma (13%), colorectal cancer (12%), and lung cancer (8%). Excluding breast cancer, female incidence rates were respectively 33%, 32% and 46% lower than male rates.



Long-term conditions

- More than 1 in 2 (57%) of all females reported a disease of the eye of at least six months duration with short sightedness and long sightedness the most common causes in 2011–12 (*Figure 61b*). Females were 20% more likely to report an eye condition than males.¹⁰¹
- About 1 in 4 (28%) of all females reported a respiratory condition with hay-fever, asthma and chronic sinusitis the leading causes. Females were 9% more likely to report a respiratory condition than males.
- About 1 in 4 (28%) of all females reported a musculoskeletal condition with arthritis and back pain the leading causes. Females were 8% more likely to report a musculoskeletal condition than males.
- In addition, 1 in 8 females reported a mood disorder, 1 in 12 reported migraine and 1 in 20 an anxiety disorder with prevalence of each higher than male prevalence (about 60%, 130% and 70% higher respectively).

Risk and protective factors

Females have lower prevalence of many risk factors than males including the two with the greatest impact on the development of chronic disease—smoking and obesity (*Table 33*). Smoking rates in females are relatively low but obesity rates are high—28% of adult females were measured as overweight in 2011–12 and 29% obese. Furthermore, the rate of overweight and obesity is increasing. The origins of these and other health risk in adults often begin in childhood as described on *page 138*.

Although females have a better nutrition profile than males, only about half eat sufficient fruit each day and about 1 in 8 sufficient vegetables. While risky alcohol consumption is a problem for males, the prevalence in females is much lower, about one-third the male prevalence. However, females are less active than males, with 53% meeting the recommendations compared with 61% of males. Women of childbearing age have specific nutrient needs. In 2011–12, 63% of Australian women aged 16–44 years had levels of blood iodine below WHO recommendations, while folate and vitamin B12 levels were at or above recommendations for the vast majority.²²⁵ Participation in cancer screening programs in Queensland women in the target age groups is consistent with national participation (56% for cervical screening and 57% for BreastScreen Queensland).

Summary

Females enjoy a longer life than males. Their life expectancy at birth is higher, they have lower premature death rates and they are less likely to die of preventable causes. However, still 1 in every 10 deaths of Queensland females in 2010 could have been avoided through treatment and 1 in 10 through prevention. Considering only premature deaths, 1 in 3 female deaths was preventable and 1 in 3 treatable.

Females, however, carry a higher burden of disability. This is evident in a number of disabling conditions that often do not require hospitalisation and rarely lead to death. These include mood and anxiety disorders, migraine, musculoskeletal conditions and some respiratory conditions.

The origin of longer life for females is seen in their less risky lifestyle behaviours. While they are more inactive than males, they are less likely to smoke, be overweight, consume alcohol to excess, consume takeaway food and drink soft drink, get sunburnt or use drugs illicitly. While gains have been achieved for females through better lifestyle choices, there are challenges ahead. Rising rates of obesity are affecting the whole population so females and males need to prevent weight gain, particularly women in the childbearing years as excess weight adds risk to pregnancy and birth outcomes.

Women have lower rates of smoking than men. However, about 1 in 7 women are smoking during pregnancy. The health of Queensland's children will improve if a reduction in this rate can be achieved. A number of factors related to pregnancy will also improve outcomes—avoiding alcohol while pregnant and breastfeeding, better nutrition and regular antenatal care.

Breast cancer is an important but diminishing cause of death for females, in part due to improved screening. While further gains can be made, if the current good level of participation in the cancer screening programs is maintained, Queensland women will continue to benefit.

Overall, the health of Queensland women is good and improving. They have life expectancies as good as women in the top 5% countries worldwide. Maintaining and improving healthy lifestyles will be a key to further improvement. However, there is a need to also focus on health issues associated with disability to ensure good health throughout life.

Socioeconomically disadvantaged

Socioeconomic disadvantage is prevalent throughout Queensland and is the major cause of health inequality.⁶³ The association between socioeconomic status and life expectancy, mortality, and risk factors has been well established and demonstrated within Queensland as well as nationally and internationally.³⁹⁰ There are many factors which influence the health and wellbeing of populations, with socioeconomic factors the major influence. These were described in the 2012 Queensland Chief Health Officer report (Chapter 2).³⁹ Within this report, the ABS Index of Relative Socioeconomic Advantage and Disadvantage was used to report socioeconomic disadvantage as described on page 8.²⁸

Demography

Socioeconomic disadvantage is widespread across the state and is particularly prevalent among Indigenous Queenslanders and in areas outside cities (*Figure 4i, page 12*). In 2011, the prevalence of disadvantage (proportion of the population in the most disadvantaged areas), was as follows:

- all Queenslanders: about 1 in 5 (19%)
- major cities: about 1 in 8 (12%)
- inner regional areas: about 1 in 3 (33%)
- outer regional and remote areas: about 1 in 4 (26–27%)
- very remote areas: about 1 in 2 (55%)
- Indigenous Queenslanders: about 1 in 2 (44%).

The socioeconomic profiles of the HHSs vary considerably, with many displaying greater disadvantage compared to the state and some areas of relative advantage (*Figure 63*). The profile has a large bearing on the health outcomes, risk of disease and wellbeing of individuals and populations.

Burden of disease

- The burden rate in disadvantaged areas in 2006 was 42% higher than in advantaged areas.³⁹
- Assuming the burden rate in the most advantaged areas prevailed across the whole population, 25% of total burden in 2006 was estimated to be due to socioeconomic disadvantage.

Deaths

The death rate for the majority of key conditions was higher in disadvantaged areas than advantaged in 2009–2010. People in disadvantaged areas often die at younger ages, particularly for those conditions with a high level of risk attribution such as cardiovascular disease, diabetes and injuries (*Figure 62a,b*). This is evident in the following:

- The all-cause death rate was 31% higher in disadvantaged areas than advantaged, and for premature deaths it was 74% higher. This equated to about 2500 premature deaths per year due to socioeconomic disadvantage in Queensland, 25% of all premature deaths.
- The socioeconomic differential in death rates was greatest among those aged 15–44 years, (the rate in disadvantaged areas was more than double that of advantaged areas in 2008–2010) and diminishing to 30% higher for children 0–14 years with no difference for those aged 85 years and older. A similar pattern was evident nationally.³⁹¹
- Socioeconomic differences for selected conditions were greater, particularly for premature deaths. The premature death rate for road transport injury in disadvantaged areas was 4.4 times the advantaged rate, for COPD and diabetes it was about 3.1 times, for suicide and coronary heart disease it was about double with lower differentials for stroke and lung cancer. If there were no socioeconomic differences and the avoidable death rate in all areas was the same as in advantaged areas, there would have been about 2000 fewer avoidable deaths per year on average in 2009–2010, about 30% fewer avoidable deaths.
- People die at a younger age in disadvantaged areas. There was a four-year difference in median age of death in 2009–2010, 78 years in disadvantaged areas and 82 years in advantaged areas.
- The difference in median age of death between disadvantaged and advantaged areas varied with condition and by sex. People in disadvantaged areas died earlier than those in advantaged areas: four years earlier for diabetes and road transport injury, and two years earlier for coronary heart disease, stroke and lung cancer. For some conditions there was a marked difference between socioeconomic groups for males and females: for injuries (excluding suicide) there was a two-year difference in the median age of death between disadvantaged and advantaged populations for males while for females the difference was 20 years.

Hospitalisations

While hospitalisation rates may reflect underlying levels of disease in the population, they are also dependent on the availability of ambulatory care services, access to hospital care and hospital admission practices. As these vary across areas in Queensland, caution is required when interpreting rates between areas as a measure of health status. Recognising these caveats, hospitalisation rates were higher in disadvantaged than advantaged areas for many conditions, while median age of admission varied:

- The all-cause hospitalisation rate was 10% higher in disadvantaged areas than advantaged areas in the two years 2010–11 to 2011–12 (*Figure 62c*).
- The rate of potentially preventable hospitalisations (PPHs) increased with increasing socioeconomic disadvantage. The PPH rate in disadvantaged areas was 69% higher than advantaged areas (*Figure 13d, page 33*). Socioeconomic disadvantage represented about 29,000 excess hospitalisations per year in Queensland (22% of all PPHs).
- The average age of people admitted to hospital in disadvantaged areas was about three years older than advantaged areas (*Figure 62d*). However, when considering individual causes there were marked differences—for road transport injury, people in disadvantaged areas were five years younger at admission (32 and 37 years respectively). In contrast, for asthma the median age of hospitalisation in disadvantaged areas was 20 years, compared with nine years in advantaged areas—a difference of 11 years. This difference may be due to the higher use of hospital services for those living in disadvantaged areas¹⁶², and lower use of asthma management plans.

Cancer incidence and death

The all cancer incidence rate in disadvantaged areas was similar to that in advantaged areas in 2010–2011, while the death rate was 24% higher. Specific differences are:

- For lung cancer and colorectal cancer, incidence rates were higher in disadvantaged areas, about 70% to double for lung cancer and 26% to 94% higher for colorectal cancer. Female breast cancer and melanoma incidence rates were 17% and 22% lower respectively in disadvantaged areas.
- For deaths, the lung cancer rate was 48% higher in disadvantaged than advantaged areas.

Risk and protective factors

The prevalence of selected risk factors in adults was higher in disadvantaged areas than advantaged in 2014¹⁹⁹:

- Smoke daily: 87% higher
- Ever smoked: 29% higher
- Obese: 80% higher
- Insufficient daily fruit: 33% higher
- Full cream milk: 60% higher in 2011.²²⁹

For a number of risk and protective factors, there was no difference between the prevalence in advantaged and disadvantaged populations as reported in Chapter 4. The socioeconomic disparity in health risk in adults, often begins in childhood. Of particular note, the prevalence of childhood obesity in disadvantaged areas was double that in advantaged areas in 2013.

For the key risk factors of obesity and smoking, the trend in prevalence in advantaged and disadvantaged populations over the past decade was assessed.²⁰⁰ These risks are significant in reducing health inequalities. Since 2004, the socioeconomic difference in prevalence of daily smoking has remained steady at about double (*Figure 62e*). Similarly, the socioeconomic gradient in obesity prevalence has continued with a difference of about 60% maintained over the past 10 years (*Figure 62f*). It is evident that while gains in smoking reduction have been achieved, the inequality gap remains. Similarly, the epidemic of obesity is affecting both advantaged and disadvantaged populations equally. In contrast, for physical activity, the gap between advantaged and disadvantaged populations has diminished over the past decade (*Figure 1e, page 3*).

Summary

Health disparity has many causes with socioeconomic factors the major influence. Socioeconomic disadvantage is prevalent across Queensland and is evident in urban areas, regional and remote communities and among Indigenous Queenslanders. It is a concept which is described and measured in relative terms—1 in 5 Queenslanders experienced relative disadvantage in 2011.

Communities and populations with higher levels of disadvantage experience higher rates of death for many conditions. These include the major causes of death such as cardiovascular disease, cancers and respiratory conditions. Disadvantaged people die at younger ages, with some stark sex related socioeconomic differences, for example, a 20-year gap in median age of death for injury for females in disadvantaged areas compared to advantaged, while the male gap was only two years.

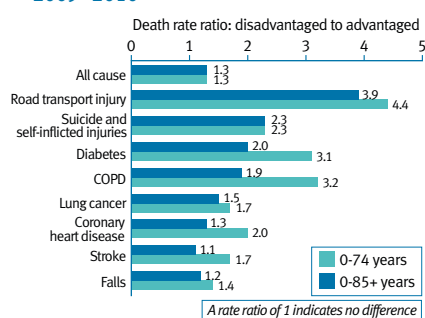
Those diseases and conditions which show the most marked socioeconomic differences are often the most preventable. These include coronary heart disease, stroke, diabetes, lung cancer, melanoma, COPD and injuries such as road transport, falls and suicide.

The causes of poorer health are evident in higher rates of the two most disabling risk factors, obesity and smoking. The large differential in prevalence of smoking that has been evident in the past decade has not changed, with the smoking rate in disadvantaged populations about double the advantaged rate. Obesity has a similar socioeconomic difference which has not changed. Reducing health inequalities will require a focus on reducing the risk factor gap.

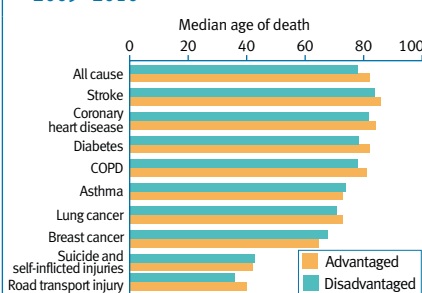
Looking beyond the immediate causes of disease outcomes, that is, to the causes of the causes, underlying levels of social deprivation, and lack of opportunity, access, knowledge and capacity to change, are ongoing issues for a number of individuals and communities. These causes are defined as the social determinants of health and have been widely described and reported in Queensland and internationally. Closing the gap on health disadvantage will be achieved through a concerted approach to lift the health behaviours, opportunities and resources of those most in need.

Figure 62: Selected indicators of socioeconomic disadvantage, Queensland

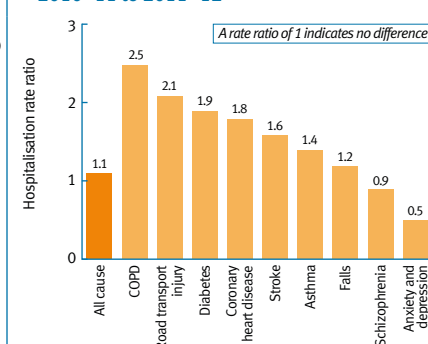
a. Death rate ratio, disadvantaged to advantaged areas, selected conditions, 2009–2010



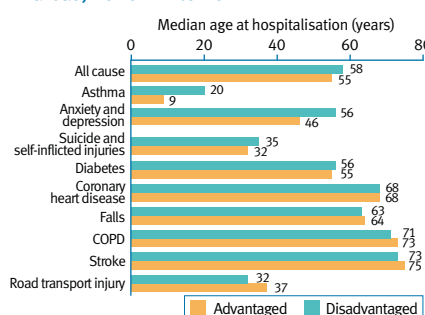
b. Median age of death, disadvantaged and advantaged areas, selected conditions, 2009–2010



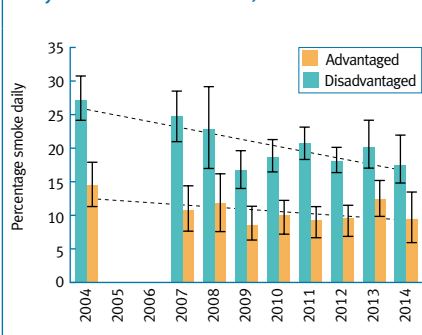
c. Hospitalisation rate ratio, disadvantaged to advantaged areas, selected conditions, 2010–11 to 2011–12



d. Median age of hospitalisation, difference between disadvantaged and advantaged areas, 2010–11 to 2011–12



e. Trends in prevalence of daily smoking by socioeconomic status, adults



f. Trends in prevalence of obesity by socioeconomic status, adults

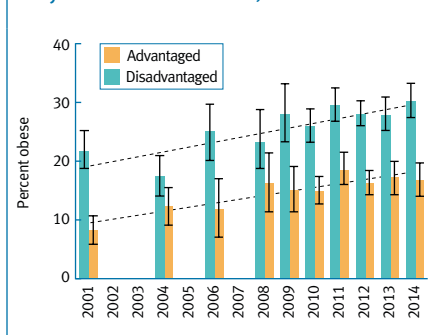
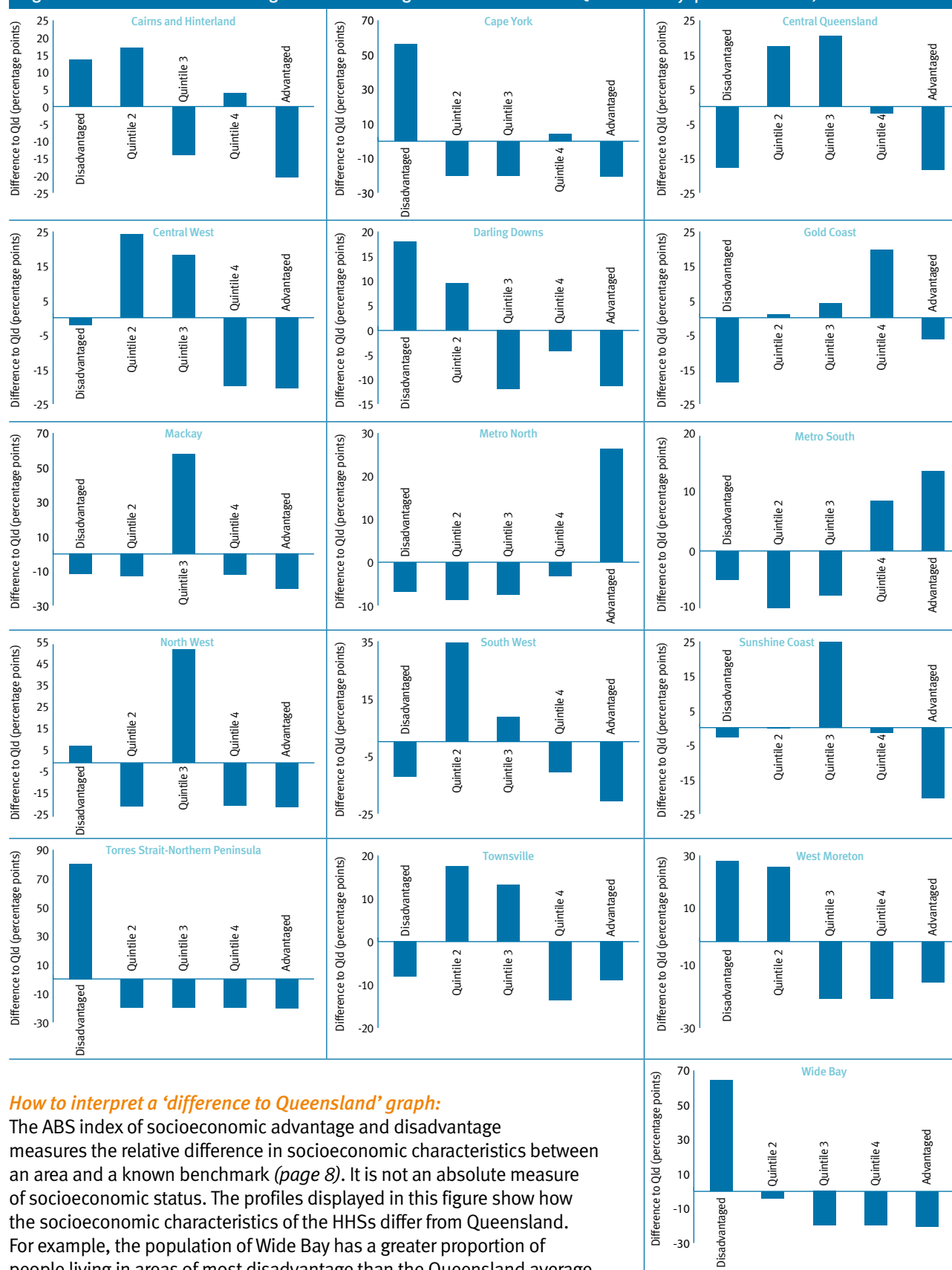


Figure 63: Socioeconomic advantage and disadvantage relative difference to Queensland by quintile and HHS, 2011

It is important to note that the index used to generate these profiles may not fully capture the socioeconomic characteristics of all population groups. For example while it includes income, it does not include assets, and these may be a feature of the economic resources of some populations such as older people and those on rural land holdings.

Indigenous Queenslanders

Indigenous Queenslanders carry a greater burden of ill health and early death than non-Indigenous Queenslanders, and the disparity is greater than any other population group. This is evident in the life expectancy gap—a 10.8 year difference between Indigenous Queenslander males and all non-Indigenous males in 2010–2012 and for females an 8.6 year gap.⁴³ Compared to Indigenous Australians, Indigenous Queenslanders are doing slightly better with a life expectancy gap in their favour of 1.3 years for males and 2.1 years for females.⁴³

This section includes a selection of health indicators for Indigenous Queenslanders and a map of population density (*Figure 64*). In all sections of this report, further detail is presented where available and where Queensland data is unavailable, Australian data is included.

Demography³⁰

- In 2011, there were 188,954 Indigenous Queenslanders, 4.2% of the total population and a similar proportion for males and females (*Figure 65a*).
- Indigenous Queenslanders had a younger age profile than the non-Indigenous population—46% were aged 0–19 years compared with 24% (*Figure 4f, page 12*).
- They were less likely to be older than the non-Indigenous population—3% were aged 65 years and older compared with 13%.
- They were about twice as likely to live in areas of greatest disadvantage compared with all Queenslanders (44% compared with 19%).
- They were more likely to live in remote or very remote areas than non-Indigenous Queenslanders (19% compared with 2%) and less likely to live in major cities (31% compared with 63%).
- About half (47%) of Indigenous Queenslanders lived in four HHSs in 2011: Cairns and Hinterland, Metro South, Townsville and Metro North (*Figure 4j, page 12*).
- The HHSs with the highest proportion of Indigenous Queenslanders were Torres Strait–Northern Peninsula (83%), Cape York (53%) and North West (25%) (*Figure 4k, page 12*).

Burden of disease⁶¹

- In 2007, the per capita burden of disease and injury for Indigenous Queenslanders was double that of non-Indigenous Queenslanders (2.1 times).
- The leading causes of burden for Indigenous Queenslanders were mental disorders (17% of total), cardiovascular disease (15%), diabetes (10%) and chronic respiratory disease (9%).

Figure 64: Indigenous Queensland population by local government area, 2011



- Relative to the non-Indigenous population the burden rate for Indigenous Queenslanders was at least triple for three of these four major causes and 50% higher for mental disorders.
- Over one-third (36%) of the total disease burden was due to the joint effect of 11 modifiable risk factors with high body mass the largest cause followed by tobacco use and physical inactivity.

Maternal and infant

- There were on average 3468 infants per year born to 3461 Indigenous Queenslander mothers in 2009–2011, 5.7% of all infants (*Table 32, page 136*).
- The infant mortality rate was 87% higher than the non-Indigenous rate with no change since 2002 (*Figure 59c, page 136*).
- 12% of infants were low birth weight (less than 2500gm) and 8.9% were high birth weight (4000gm or more), compared to 6.6% and 13% respectively for all Queensland infants.
- Indigenous Queenslander infants were 1.7 times more likely to be born preterm than non-Indigenous infants, leading to greater risk of perinatal death. About 13% of preterm births were associated with smoking after 20 weeks gestation and not completing the recommended antenatal care visits.
- Compared to non-Indigenous mothers, Indigenous Queenslander mothers were:
 - more likely to be aged under 20 years at the birth (19% compared to 4.5%).
 - less likely to have made five or more antenatal visits during their pregnancy (80% compared to 95%).
 - less likely to have exclusively breastfed their infants at some time in the 24 hours prior to discharge (72% compared to 79%).

- more likely to have smoked at some time during pregnancy (48% compared to 13%).
- more likely to have quit before 20 weeks gestation (5.3% compared with 2.4%). However, this had little effect on the proportion who smoked during the second half of pregnancy, 43% of Indigenous Queensland women and 11% of non-Indigenous women.

Deaths

- There were 614 deaths of Indigenous Queenslanders in 2010—the death rate was 55% higher than the non-Indigenous rate.
- Two-thirds (65%) of Indigenous Queensland deaths were in the 0–64 year age group compared with 20% of non-Indigenous deaths.
- If the Indigenous death rate were the same as the non-Indigenous rate, there would have been 300 fewer deaths per year of Indigenous Queenslanders in 2009–2010, reducing the number of Indigenous Queensland deaths by about half (49%).
- The major causes of death were cardiovascular disease (25% of all deaths), cancers (21%), injuries (12%), endocrine diseases including diabetes (10%) and respiratory conditions (8%) (*Figure 65c*).
- The median age of death of Indigenous Queenslanders in 2009–2010 was 57 years, compared with 80 years for the non-Indigenous population—a 23-year age difference (*Figure 6, page 15*) and varied by 15 years across HHSs from 67 years to 52 years in 2008–2010.
- For Indigenous Queensland males, the median age of death in 2009–2010 was 54 years, compared to 77 years for non-Indigenous males, and for females, 60 years and 83 years respectively, a 23-year difference for both.
- Compared to non-Indigenous Queenslanders, the greatest difference in death rates was among those aged 30–44 years, (the Indigenous Queensland death rate was more than 3 times the non-Indigenous rate in this age group in 2008–2010), diminishing to 80% higher for children 0–14 years and 26% higher for those aged 65 years and older.
- In 2009–2010, there were an average of 370 avoidable deaths of Indigenous Queenslanders per year—217 that were avoidable through prevention and 154 through treatment. The avoidable death rate for Indigenous Queenslanders was 2.9 times the non-Indigenous rate. The greater difference was for treatable conditions than preventable, 3.2 times the non-Indigenous rate compared with 2.8 times (*Figure 12f, page 31*). If the rate of avoidable deaths were the same as the non-Indigenous rate, there would have been far fewer deaths—about 240 fewer deaths per year, which would reduce the number of deaths by two-thirds.
- In all HHSs the median age of death was lower for Indigenous Queenslanders than for non-Indigenous except Torres Strait–Northern Peninsula (*Figure 68*). Metro North had the greatest median age of death difference between Indigenous and non-Indigenous Queenslanders (29-year difference) and the lowest median age of death of Indigenous Queenslanders in the state in 2008–2010.
- Between 2001 and 2010 the Indigenous Queensland death rate decreased by 25%, double the death rate decline of the non-Indigenous population (*Figure 1a, page 2*). There was greater death rate reduction for Indigenous Queenslanders aged 0–64 years, 36% over the 10 years, than for the whole population (17% decline for similar aged non-Indigenous Queenslanders).
- Of the 2620 deaths of Indigenous Australians in 2012, 26% occurred in Queensland.⁴¹ In contrast, 19% of the 143,309 non-Indigenous deaths occurred in Queensland.

Hospitalisations

- There were 83,884 hospitalisations per year of Indigenous Queenslanders in the two-year period 2010–11 to 2011–12, representing 4.6% of all hospitalisations.
- The Indigenous Queensland hospitalisation rate was 2.1 times the non-Indigenous rate (*Figure 65b*). If the Indigenous Queensland rate was the same as the non-Indigenous rate there would have been about 42,000 fewer hospitalisations per year, about half the current number.
- The Indigenous Queensland hospitalisation rate was higher than the non-Indigenous rate across all age groups with peak difference in the age range 45 to 64 years (*Figure 65b*).
- The median age of hospitalisation for Indigenous Queenslanders was 44 years, compared with 58 years for non-Indigenous, a 14-year difference and was greater for males (15 years) than females (12 years).

Cancer incidence and death

- The all cancer incidence rate for Indigenous Queenslanders was 11% higher than the non-Indigenous rate in 2010–2011, while the all cancer mortality rate was 30% higher in 2008–2010 (*page 37*).

Long-term conditions

- The most commonly reported long-term problems reported by Indigenous Australians were eye diseases and sight problems (33%), respiratory problems (31%) and musculoskeletal conditions (20%) in 2012–13.¹¹⁹
- Prevalence of some long-term conditions was substantially higher for Indigenous Australians than non-Indigenous—complete or partial blindness was 7 times higher, kidney disease was 4 times higher, diabetes was more than 3 times higher, asthma and COPD were about double as was otitis media.
- The available data for Indigenous Queenslanders showed that the prevalence of long-term conditions was similar to Indigenous Australians.

Risk and protective factors

In 2012–13, Indigenous Queensland adult had a higher prevalence of selected risk factors than non-Indigenous Queenslanders (*Figure 65d*).²⁰¹ They were:

- more likely to be obese (prevalence was 39% higher), or overweight or obese (12% higher) and consequently less likely to be a healthy weight (prevalence was 25% lower)
- more likely to smoke daily—2.5 times more likely
- less likely to consume recommended serves of fruit daily (prevalence was 12% lower)
- likely to have the same rates of alcohol consumption, vegetable consumption and in non-remote areas, prevalence of sedentary or low exercise.

The risk factor profile for Indigenous Queenslanders and Indigenous Australians did not differ based on the selected lifestyle risks (*Table 34*).

Indigenous Australian adults had higher rates of key risk factors for cardiovascular disease than non-Indigenous adults (after adjusting for age): the prevalence of high blood pressure was 18% higher, dyslipidaemia was 13% higher, measured obesity was 39% higher and fasting plasma glucose levels were 3.3 times.^{310,392} Among Indigenous Australian adults living in remote areas, 79% were dyslipidaemic and the majority were not using lipid lowering medication—two-thirds had untreated high cholesterol (data not age standardised). Combined with high smoking rates (2.5 times non-Indigenous rates), these risks highlight critical opportunities to reduce the causes of premature death among Indigenous Queenslanders.

Selected risk factors for Indigenous Queensland children (5–17 years) in 2012–13²⁰¹:

- 30% were measured as overweight or obese, 17% overweight and 13% obese. The prevalence did not differ from non-Indigenous Queensland children or Indigenous Australian children.
- 68% consumed the recommended serves of fruit daily and 9% the recommended serves of vegetables. The prevalence did not differ from non-Indigenous Queensland children or Indigenous Australian children.

Summary

The health disadvantage of Indigenous Queenslanders is evident across many domains:

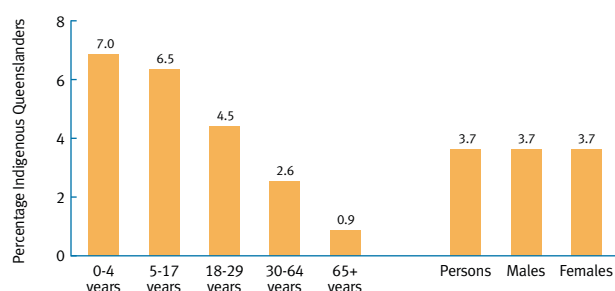
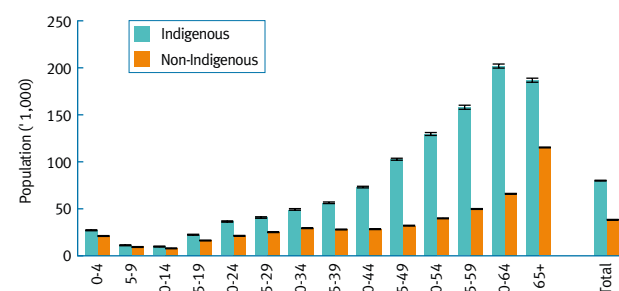
- 10-year difference in life expectancy
- 23-year gap in median age of death
- death rates 55% higher than non-Indigenous rates
- hospitalisation rates double the non-Indigenous rates
- earlier age of hospitalisation—14 years earlier
- higher rates of avoidable deaths for preventable conditions (2.8 times higher)
- higher rates of avoidable deaths for treatable conditions (3.2 times higher)
- relatively poorer cancer outcomes—slightly higher incidence rates and markedly higher death rates
- higher prevalence of disabling long-term conditions—blindness, kidney disease, diabetes, asthma, COPD and otitis media
- higher prevalence of selected risk factors, particularly the two most important causes of disease burden—obesity and smoking
- riskier maternal behaviours, and poorer infant outcomes.

Encouraging trends and behaviours include:

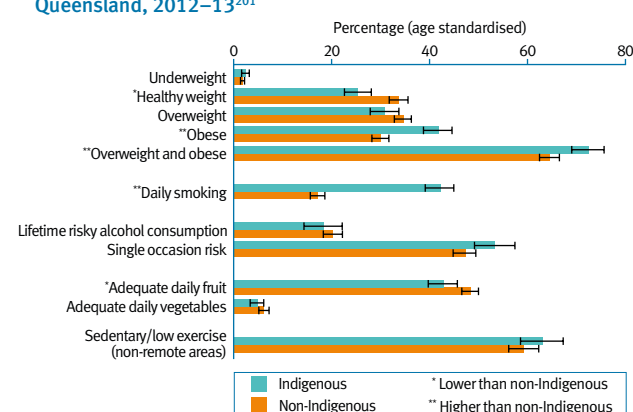
- more rapid decrease in the all-cause death rate—about double the non-Indigenous rate
- no difference in risky alcohol consumption
- stillbirth and neonatal deaths due to social context, rather than to Indigenous status.

The origins of Indigenous disadvantage are complex and difficult to address, going well beyond the activity of the health system. However, a continued focus on decreasing smoking during pregnancy, reducing risk in the population and improving the delivery of treatment services will go some way towards improving outcomes for Indigenous Queenslanders.³⁶¹



Figure 65: Selected indicators for Indigenous Queenslanders**a. Indigenous Queenslanders, percentage of total population by age and sex, 2011³⁹³****b. Hospitalisations by age and Indigenous status, 2010–11 to 2011–12****c. Top 5 major causes of death by Indigenous status, 2009–2010**

Indigenous Queenslanders			Non-Indigenous	
Rank	Major cause	% of total	Major cause	% of total
1	Circulatory system	25.0	Circulatory system	32.5
2	Malignant neoplasms	20.5	Malignant neoplasms	30.6
3	Injuries	12.0	Respiratory system	8.1
4	Endocrine incl. diabetes	9.8	Injuries	6.6
5	Respiratory system	7.6	Mental disorders	4.2

d. Prevalence of selected risk factors by Indigenous status, adults, Queensland, 2012–13²⁰¹**Table 34: Prevalence of selected risk factors for Indigenous adults, Queensland and Australia 2012–13²⁰¹**

	Age standardised		Non-age standardised	
	Queensland	Australia	Queensland	Australia
Measured BMI				
Overweight	30.7 (27.6–33.8)	29.9 (28.4–31.4)	30.3 (27.4–33.2)	29.4 (27.9–30.9)
Obese	41.7 (38.5–44.9)	42.5 (40.8–44.2)	39.8 (36.6–43.0)	39.8 (38.2–41.4)
Overweight/obese	72.4 (69.4–75.4)	72.4 (70.9–73.9)	70.1 (66.9–73.3)	69.2 (67.6–70.8)
Current daily smoker	42.1 (38.9–45.3)	42.1 (40.3–43.9)	44.8 (41.6–48.0)	44.4 (42.6–46.2)
Alcohol consumption: 2009 NHMRC guidelines				
Exceeded lifetime risk guidelines	18.2 (14.5–21.9)	19.2 (17.6–20.8)	19.4 (15.5–23.3)	19.7 (18.1–21.3)
Exceeded single occasion risk guidelines	18.2 (13.9–22.5)	51.9 (50.0–53.8)	59.3 (55.4–63.2)	57.1 (55.2–59.0)
Fruit and vegetable consumption: 2013 NHMRC guidelines				
Adequate daily fruit consumption	42.7 (39.4–46.0)	42.6 (41.0–44.2)	41.4 (38.0–44.8)	41.2 (39.6–42.8)
Adequate daily vegetables consumption	4.7 (3.4–6.0)	5.5 (4.7–6.3)	4.2 (3.0–5.4)	4.6 (3.9–5.3)
Sedentary/low exercise (non-remote areas)	63.1 (58.4–67.8)	63.3 (61.0–65.6)	59.5 (54.8–64.2)	60.6 (58.2–63.0)

Regional Queenslanders

Health status varies across regions within Queensland. Regional data is presented throughout this report where available, from demography to health outcomes and risks. This section brings this information together, focusing on the remoteness categories (major cities, inner and outer regional areas, and remote and very remote areas) and the HHSs (*Figure 66*). In addition, the Appendix includes a factsheet for each of the HHSs. It is important to recognise that regional variation in health outcomes is due to complex and diverse reasons, including exposure to environmental factors, socioeconomic status, access to health services such as screening and, importantly, chance.

Information on health issues for Medicare Locals can be gathered from the integration of HHS profiles. Risk factor profiles for Queensland Medicare Locals and local governments have been released.^{394,395}

For comparison of health status across areas, rates are age standardised to eliminate differences due to differing age structures and this is the most sound epidemiological approach. However, this method is likely to overestimate the actual burden in areas with a younger age profile (such as Torres Strait–Northern Peninsula and Cape York HHSs) and underestimate the burden in areas with an older age profile (such as Wide Bay HHS).

Demography

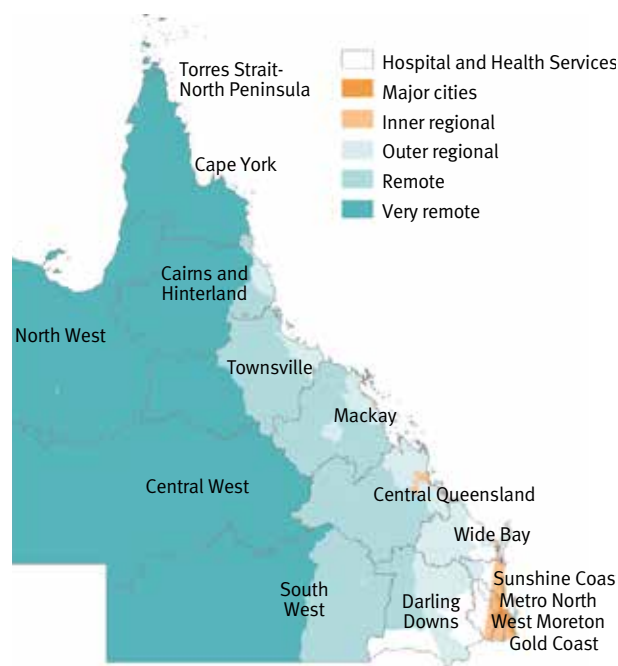
The population of Queensland is clustered along the coast and in major regional areas (*Figure 2, page 7*). In 2011:

- 12 in 20 Queenslanders lived in major cities (62%)
- 4 in 20 lived in inner regional areas (20%)
- 3 in 20 lived in outer regional areas (15%)
- 1 in 20 lived in remote or very remote areas (3%).

The Indigenous Queensland population is, however, more widely dispersed across the state—in 2011 they were 6 times more likely to live in remote and very remote areas than all Queenslanders and less than half as likely to live in major cities. (*Figure 4h, page 12*).

The HHS populations differ in size with over half of the population living in three HHSs in south-east Queensland: Metro South (22%), Metro North (19%) and Gold Coast (12%) (*Figure 67a*). The Queensland population is projected to increase by about 10% every five years up to 2031 although a slowing in the rate of change during this period is expected (*Figure 67b*). Some HHSs are projected to reverse this trend with sustained and increasing growth (West Moreton and Darling Downs), while others such as the western HHSs are projected to change very little.

Figure 66: Queensland by remoteness areas and HHS



Maternal and infant

Maternal and infant data for Queensland is described more fully on *page 134* and other sections of this report including infant nutrition on *page 88*. This section uses selected indicators to compare HHSs (*Table 35*):

- On average in 2009–2011, there were 61,051 babies born to 60,452 mothers per year in Queensland and over 50% of births were in three HHSs: Metro South (about 25%), Metro North (about 20%) and Gold Coast (about 10%).
- The crude birth rate was highest in Torres Strait–Northern Peninsula (77 births per 1000 persons) and North West (60 births per 1000) and lowest in Sunshine Coast and Wide Bay (both 32 births per 1000). The fertility rate showed a similar pattern.

There is a clustering of perinatal risk in some HHSs relative to Queensland and this is evident for all infants and mothers, for non-Indigenous and Indigenous mothers and infants (*Table 35*):

- For non-Indigenous infants and mothers, Wide Bay, West Moreton, Darling Downs and Central Queensland have a greater number of risks relative to Queensland than other HHSs, with Gold Coast and Metro North having a less risky profile. The indicators that featured most frequently as risks for non-Indigenous infants and mothers across multiple HHSs were smoking during pregnancy and higher rates of teenage pregnancy.

- For Indigenous Queenslanders infants and mothers there is less clustering of risk, however, Darling Downs, North West and South West carry a greater number of risks relative to Queensland. Gold Coast had the lowest risk profile relative to Queensland. The indicators that featured most frequently as risks for Indigenous infants and mothers across multiple HHSs were lower rates of breastfeeding in the 24 hours prior to discharge and smoking during pregnancy.

Burden of disease

- The burden rate in remote areas of Queensland was 50% higher than the major city rate in 2006.⁶⁵ The main causes that contributed to this difference were cardiovascular diseases, diabetes and unintentional injuries.
- For Indigenous Queenslanders in 2007, the burden rate in remote areas was about 50% higher than in major cities and in regional areas it was 30% higher.⁶¹ While the excess burden in regional and remote areas of the state was similar for most broad causes, the burden rate due to intentional injury in remote areas was 4 times that of major cities and in regional areas, it was double. The unintentional injury burden and the diabetes burden, were each at least twice as high in remote areas as major cities.

Deaths

The death rate due to all causes:

- was 55% higher in remote and very remote areas than in major cities in 2009–2010 (*Figure 10b, page 26*)
- varied by HHS, from about 50% higher than the state in North West to 4% higher in Darling Downs, and from 4% lower than the state in Metro North to 16% lower in Gold Coast in 2008–2010 (*Figure 10c, page 26*).
- The number of deaths of Indigenous Queenslanders in HHSs reflects the population and the death rate, with Cairns and Hinterland reporting the highest number of Indigenous Queensland deaths per year in 2008–2010. (*Figure 67d*).

There was a similar pattern for selected conditions when compared across remoteness categories or by HHS as discussed in Chapter 3.

The proportion of deaths that were premature and, of those that were premature, the proportion that were avoidable varied between HHSs (*Figure 69a,b*). In 2008–2010:

- The premature death rates were higher than the state in nine HHSs and varied from 2.1 times the state in North West to 9% higher in West Moreton. Four HHSs had lower rates, from 4% lower in Metro South to 20% lower in Gold Coast (*Table 36b*).

- 1 in 2 premature deaths in Torres Strait–Northern Peninsula, Cape York and North West were potentially avoidable, whereas for Metro North, Metro South, Sunshine Coast and Gold Coast about 1 in 4 were.
- Furthermore, the three HHSs with the highest proportion of avoidable deaths had the highest proportion of preventable deaths.
- Torres Strait–Northern Peninsula had the highest proportion of treatable deaths of all HHSs.
- In all HHSs except Torres Strait–Northern Peninsula, there were more preventable deaths than treatable deaths.

The median age of death varies markedly by population group and by region. Sex, socioeconomic and Indigenous status are major causes of difference as discussed in preceding sections of this chapter. However, regional differences are also evident:

- The median age of death in major cities was 81 years in 2009–2010 while for remote and very remote areas it was 69 years, a 12-year difference (*Figure 6, page 15*).
- For Indigenous Queenslanders, there was little difference in median age of death by remoteness with the lowest median age of death in remote and very remote areas (54 years), followed by major cities (57 years) and the highest (60 years) in inner regional areas (*Figure 67c*).
- There was a 21-year difference in median age of death between HHSs in 2008–2010, from 60 years in Torres Strait–Northern Peninsula and 62 years in Cape York to 81 years in Sunshine Coast, Gold Coast, Metro South and Metro North (*Figure 7, page 15*).
- There was marked variation among the HHSs in the median age of death difference between Indigenous Queenslanders and non-Indigenous (*Figure 68*). The largest gap was in Metro North with a 29-year difference while for Torres Strait–Northern Peninsula non-Indigenous Queenslanders had a younger median age of death, resulting in a 3.5-year gap in favour of Indigenous Queenslanders.
- Relative to Queensland, Indigenous Queenslanders in Metro North died at younger ages than the state, while non-Indigenous people died at older ages than the state. This implies substantially poorer health outcomes for Indigenous Queenslanders in Metro North than the state while non-Indigenous Queenslanders have better health.
- In contrast, in Sunshine Coast, Indigenous Queenslanders died at an older age than the state as did non-Indigenous Queenslanders, both with better outcomes than the state.
- In Torres Strait–Northern Peninsula, non-Indigenous Queenslanders died 22.5 years earlier than the state while Indigenous Queenslanders died 4 years later than the state.

Death rates differed markedly across HHSs with a clustering of poorer death rate outcomes in some HHSs relative to Queensland in 2008–2010:

- Considering the broad causes of death (*Table 36a*), four HHSs had a greater number of disease groups with higher death rates than Queensland: Cairns and Hinterland, North West, Central Queensland and Townsville. In contrast, Gold Coast had the greatest number of disease groups with lower death rates than Queensland, followed by Sunshine Coast. The disease groups that featured most frequently for poorer death outcomes across multiple HHSs were circulatory conditions, endocrine disorders including diabetes, and injury.
- Considering potentially avoidable deaths (*Table 36b*), about two-thirds of the HHSs had higher rates of death than Queensland with Gold Coast, Sunshine Coast, Metro South and Metro North having lower rates. Preventable conditions were the major cause of avoidable death across HHSs.
- Considering selected specific conditions (*Table 36b*), two HHSs have a greater number of conditions with higher death rates than Queensland: North West and Darling Downs. In contrast, Gold Coast had the greatest number of conditions with lower death rates than Queensland, followed by Sunshine Coast. The conditions that featured most frequently with poorer death outcomes across multiple HHSs were coronary heart disease and road transport injury.

Hospitalisations

While hospitalisation rates may reflect underlying levels of disease in the population, they are also dependent on availability of ambulatory care services, access to hospital care and hospital admission practices and as these vary across the state, caution is required when interpreting rates between areas. Recognising these caveats, the all-cause hospitalisation rate in the two-year period 2010–11 to 2011–12 was:

- 17% higher in remote and very remote areas than major cities.
- higher for Indigenous Queenslanders than for non-Indigenous Queenslanders across all remoteness categories with a threefold difference in outer regional areas.
- higher than Queensland for eight HHSs and lower for six HHSs (2009–10 to 2011–12) (*Table 37*).

There is a clustering of higher hospitalisation rates among HHSs:

- There was substantial clustering of hospital burden associated with potentially preventable hospitalisations, with acute and chronic conditions the major cause (*Table 37*).
- Higher hospitalisation rates for selected specific conditions were evident in a number of HHSs. In the three years, 2009–10 to 2011–12 (*Table 37*), North West, West Moreton, South West and Central West had higher hospitalisation rates than Queensland for at least six key selected conditions. However, many HHSs carried hospital burdens greater than expected based on the state rate. Gold Coast had lower hospitalisation rates for each of these conditions.

Cancer incidence and death

- In 2010–2011, the all-cancer incidence rate for major cities and inner regional areas was 14% higher than remote and very remote areas.
- For melanoma and colorectal cancer, the incidence rate in remote and very remote areas was lower than in major cities, 53% lower for melanoma and 27% lower for colorectal cancer. The breast cancer incidence rate was 12% lower in outer regional areas than major cities. However, lung cancer rates were 46% higher in remote and very remote areas.
- All-cancer incidence rates in HHSs generally did not differ from the Queensland rate in 2009–2011, with few exceptions—the Gold Coast rate was 5% lower, Torres Strait–Northern Peninsula was 29% lower and Wide Bay was 5% higher. Incidence rates for selected cancers by HHS are reported on *page 37*.
- The all-cancer death rate was 31% higher in remote and very remote areas than for major cities in 2009–2010 with lung cancer the major cause—rates were 42% higher in remote and very remote areas.
- Cancer death rates vary little by HHS. However, in 2008–2010 compared to the state, the lung cancer death rate was higher in North West, Central Queensland and Wide Bay, the melanoma death rate was higher in South West and the prostate cancer death rate was higher in Wide Bay.

Risk and protective factors

The prevalence of risk factors across all areas of Queensland indicates there is potential to improve health outcomes. Selected information on adult self reported prevalence in the regions relative to Queensland includes:

- Risk prevalence by remoteness is reported within Chapter 4 for each of the risk and protective factors.
- Most HHSs have some excess exposure to risk, relative to Queensland, based on selected key self reported prevalence in 2011–12. Four HHSs had higher prevalence for a greater number of risk factors: Cape York, Central Queensland, Townsville and Darling Downs, although other HHSs have substantial exposure (*Table 38*). The risk factors that featured most frequently across multiple HHSs were obesity and daily smoking. These two risks have the greatest impact on health outcomes and pose significant challenges to these HHSs and across Queensland.
- A relatively better risk profile is evident for Gold Coast and Sunshine Coast with lower rates of obesity for both.
- Excess risky alcohol consumption is evident in selected HHSs, including Cairns and Hinterland, Cape York and Mackay.
- A number of HHSs in northern and western Queensland are more sun safe, that is, adults are more likely to protect themselves from the sun in summer and winter, and less likely to get sun burnt. This contrasts with Gold Coast and Sunshine Coast where adults have lower prevalence of sun protection in summer.
- For several indicators there is little variation across Queensland including fruit and vegetable consumption and physical activity. There was no variation between the HHSs for prevalence of overweight and self reported high cholesterol.
- Considering five selected chronic disease risks, five HHSs had greater exposure to at least three risks in 2012, from 60% higher prevalence in Torres Strait–Northern Peninsula to 26% higher in North West (*Figure 67e*).

Risk factor data for children by HHS will be released in 2015.



Summary–remoteness

The majority of Queenslanders live in major cities and inner regional areas including coastal towns in Queensland. These more urbanised populations generally enjoy better health. They have:

- lower death rates
- lower premature death rates and die at older ages
- lower hospitalisation rates
- better cancer outcomes with similar incidence rates and lower death rates for many selected cancers.

Some of this is due to having a healthier risk factor profile with lower rates of obesity, smoking, risky alcohol consumption and physical inactivity.

There are gains to be made particularly by addressing chronic disease risk and its causes and this applies to regional and remote populations as well as urban Queenslanders. Obesity rates are rising across the whole population and smoking rates while generally decreasing can be further reduced. Improved nutrition and food choices will bring benefit as will increased

physical activity. Replacing car travel with public transport and other forms of active transport is much more achievable for urban populations than those in remote areas. Enabling workplaces to support healthy lifestyles is achievable, and will result in better productivity and wellbeing.

Remote and outer regional populations carry a higher health burden based on death rates, hospitalisation rates and risk profiles. However, there are areas where remote populations are more health conscious, such as sun protection. As a result, melanoma rates are lower outside major cities. Similarly, higher screening rates have improved breast cancer outcomes. Many Queenslanders need to improve their diet by reducing their consumption of sugary drinks, snacks and confectionary while increasing their consumption of fruit and vegetables. Access to affordable healthy food is a barrier for many regional and remote communities and there have been multiple strategies supporting access in the past decade.



Summary–HHSs

The health status and risk factor profile for the population of each HHS is included in this report series for the first time. Variation in health status is due to diverse and complex influences, including demography, socioeconomic status, exposure to environmental factors, access to health services including screening services and, importantly, chance.

Key modifiable drivers of difference are increased risk associated with poorer lifestyle behaviours and physiological risk among some populations, principally, socioeconomically disadvantaged communities, Indigenous Queenslanders and remote populations. For males, about half the mortality difference across Australia between those living in cities compared to those in outer regional and remote areas was due to the combined effect of smoking, high cholesterol and high blood pressure. For females these three risks accounted for about one-third of the difference.³⁹⁶ Obesity was not included in this study but would contribute substantially to health burden across regions.

This analysis shows marked variations among the HHSs:

- Demographic differences which help to explain difference in mortality outcomes and health burden: some HHSs have higher proportion of Indigenous Queenslanders, such as Torres Strait–Northern Peninsula and Cape York, or a large Indigenous Queensland population such as Cairns and Hinterland. Socioeconomic disadvantage is very prevalent in Torres Strait–Northern Peninsula, Wide Bay and Cape York and this will drive poorer outcomes, earlier deaths and greater service needs. Some HHSs have a higher proportion of older people, for example, Wide Bay at 21% has the highest of the HHSs and, while this does not affect age-standardised health outcomes, it will affect the health service burden within the HHS particularly when combined with a poorer risk factor profile.
- Maternal and infant outcome differences and risks: the most common risks affecting infants across many HHSs were smoking during pregnancy, low maternal age and fewer antenatal visits.
- Death outcomes differ markedly: the premature death rate in North West was double the state rate, with similar differences evident for other HHSs for various specific causes. The median age of death varied from 60 years in Torres Strait–Northern Peninsula to 81 years in HHSs in the south-east.

- Indigenous Queensland and non-Indigenous differences: The non-Indigenous population of Torres Strait–Northern Peninsula die on average about three years earlier than Indigenous Queenslanders in the HHS; a unique situation not seen in other HHSs where Indigenous Queenslanders die on average 10 to 30 years earlier than their respective non-Indigenous populations. The largest difference in median age of death is in Metro North where Indigenous Queenslanders have the earliest age of death among the HHSs and non-Indigenous Queenslanders the oldest age of death—resulting in a 29-year difference.
- Hospitalisation rates and burden vary: Cape York and North West HHS had the highest hospitalisation rate for all causes, but for many selected conditions a number of HHSs were higher than the state. There are many opportunities to reduce the hospital burden by addressing preventable conditions including those that could have been treated in a primary healthcare setting—the potentially preventable hospitalisation rate was higher than the state for 12 of the HHSs and lower for the remainder, indicating the scale of gains to be achieved in primary healthcare.
- Risk factor burden varies: HHSs with greater risk factor burden have an increased likelihood of disease development, disability and premature death. The origins of poorer health outcomes including earlier deaths in some HHSs are evident in high rates of obesity and smoking—Torres Strait–Northern Peninsula, Cape York, Central West and Wide Bay particularly.

This profile of population health in the HHSs of Queensland provides insight into the distribution of better and poorer outcomes, where the disease burden is greatest and some of the possible causes. Although the context is Queensland, comparison with national and international rankings are included in the Appendix factsheets where possible. This will assist in planning across Queensland regions including HHS specific initiatives, to decrease the burden of early death and disability, reduce health system costs and improve the wellbeing and longevity of all Queenslanders.

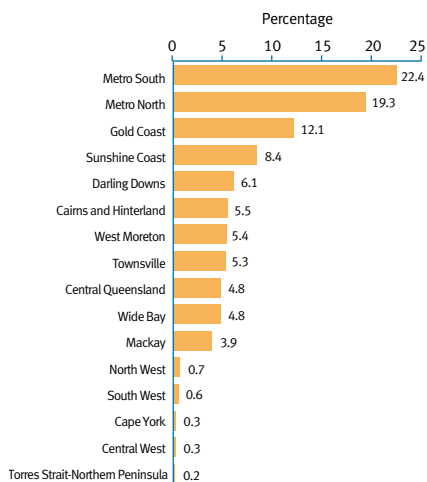
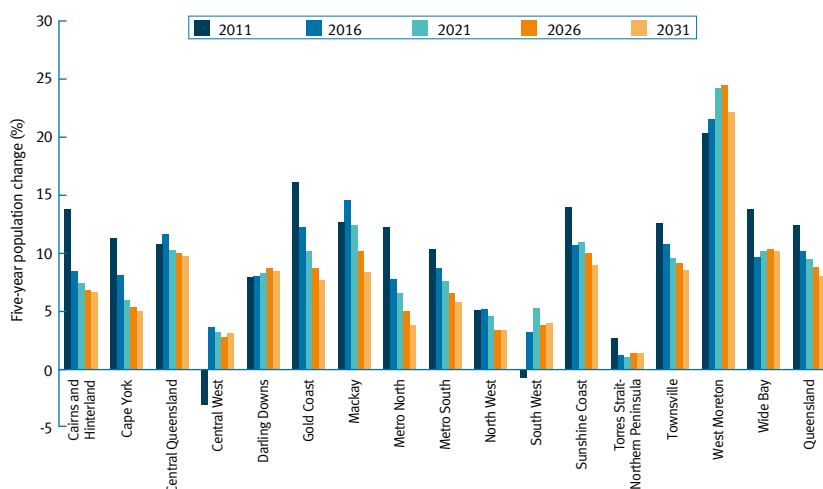
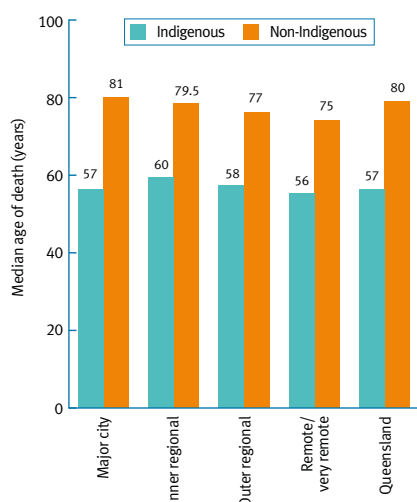
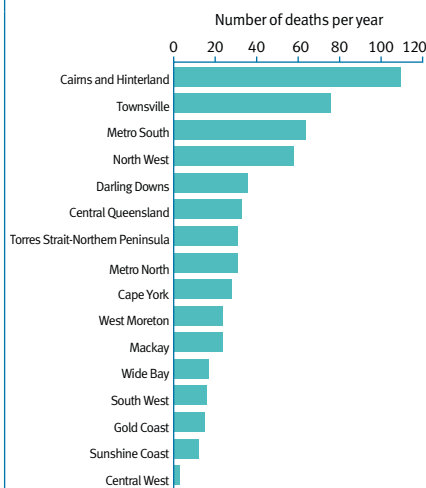
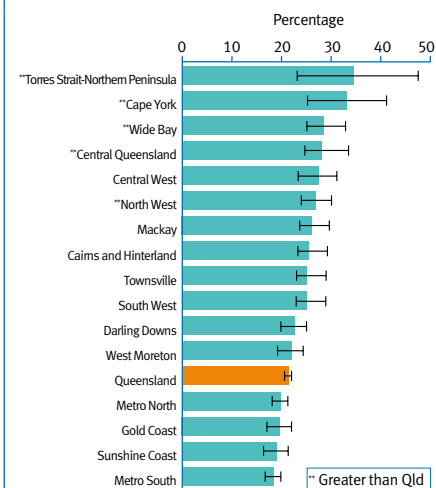
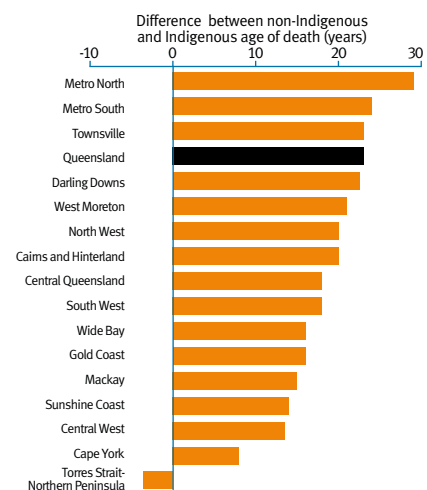
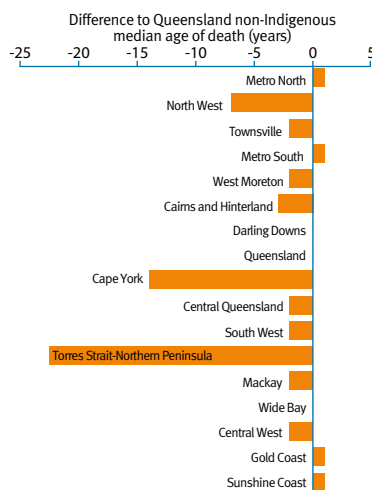
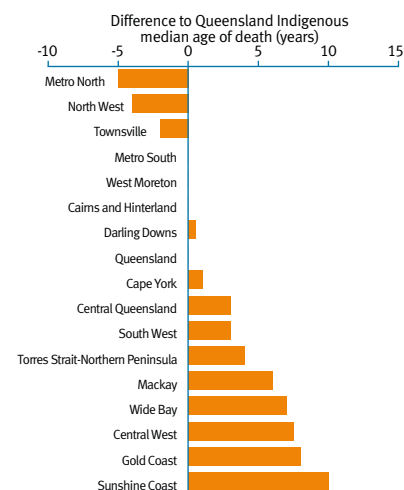
Figure 67: Selected indicators by region, Queensland**a. Percentage of Queensland population by HHS, 2011****b. Five year projected population growth 2006 to 2031 by HHS, 2011****c. Median age of death by remoteness, 2009–2010****d. Number of deaths per year of Indigenous Queenslanders by HHS, 2008–2010****e. Prevalence of higher chronic disease risk by HHS, 2012****Figure 68: Median age of death differences for all causes by Indigenous status and HHS, Queensland, 2008–2010****a. Indigenous Queenslanders compared to non-Indigenous****b. Non-Indigenous compared to Queensland non-Indigenous****c. Indigenous compared to Queensland Indigenous**

Table 35: Maternal and infant indicators by Indigenous status, HHS and Queensland, 2009–2011²⁸²

Total Queensland									
	Smoking during pregnancy	Smoking after first 20 weeks	Births to mothers <20 years	5+ antenatal visits	Quitting before 20 weeks	Livebirths discharged home who were exclusively breastfed in 24hrs prior to discharge	Preterm births	Low birth weight (<2500g)	High birth weight (4000g+)
North West	30	26	12	86	10	69	10	10	12
Cape York	48	42	15	89	10	85	13	11	8
Torres Strait–Northern Peninsula	54	44	16	91	19	85	13	11	10
Central Queensland	22	17	7	93	22	70	9	7	12
Darling Downs	24	20	8	94	13	78	8	6	13
South West	26	23	7	92	11	76	7	6	13
Wide Bay	26	23	9	93	12	79	9	7	14
West Moreton	24	20	8	94	16	71	9	7	14
Townsville	20	17	7	94	16	81	10	8	12
Cairns and Hinterland	24	19	8	90	18	84	8	7	12
Central West	19	17	6	94	7	78	8	5	15
Mackay	19	16	5	96	18	86	7	6	13
Metro South	13	10	4	93	22	77	8	7	12
Metro North	13	10	3	96	14	80	9	7	13
Sunshine Coast	16	13	4	94	19	88	8	7	14
Gold Coast	13	9	3	95	26	81	8	6	12
Queensland	17	14	5	94	18	79	9	7	13
Relative to Queensland	worse		same				better		

Indigenous Queenslanders									
	Livebirths discharged home who were exclusively breastfed in 24hrs prior to discharge	Smoking after first 20 weeks	Smoking during pregnancy	Quitting before 20 weeks	5+ antenatal visits	Low birth weight (<2500g)	Preterm births	Births to mothers <20 years	High birth weight (4000g+)
Darling Downs	63	55	61	8	82	10	10	23	8
North West	62	46	51	6	71	15	15	20	7
South West	57	55	58	4	76	11	10	14	12
West Moreton	64	52	57	7	82	9	10	17	10
Townsville	72	45	50	10	78	14	15	22	8
Cape York	82	55	63	11	89	13	15	20	7
Central Queensland	64	44	52	13	76	11	13	22	10
Cairns and Hinterland	79	47	54	12	76	13	13	19	9
Torres Strait–Northern Peninsula	83	47	58	19	91	11	13	18	10
Sunshine Coast	83	40	42	4	81	11	11	11	11
Wide Bay	76	43	48	9	80	10	13	19	8
Mackay	77	44	52	14	92	10	9	19	9
Central West	61	38	41	8	90	9	11	20	8
Metro North	74	39	48	12	82	9	10	18	10
Metro South	69	36	43	12	78	11	12	17	10
Gold Coast	68	30	36	17	87	11	10	12	11
Queensland	72	46	52	11	80	12	13	19	9
Relative to Queensland	worse		same				better		

Non-Indigenous Queenslanders									
	Smoking during pregnancy	Smoking after first 20 weeks	Births to mothers <20 years	Quitting before 20 weeks	5+ antenatal visits	Livebirths discharged home who were exclusively breastfed in 24hrs prior to discharge	High birth weight (4000g+)	Preterm births	Low birth weight (<2500g)
Wide Bay	25	22	9	13	94	79	14	9	7
West Moreton	23	19	7	17	94	71	14	9	7
Darling Downs	21	17	7	14	95	79	13	8	6
Central Queensland	20	15	6	24	94	70	12	8	6
Cairns and Hinterland	17	13	5	22	93	85	12	7	6
North West	16	13	6	16	96	73	15	8	6
South West	19	16	5	15	96	79	13	6	5
Mackay	18	14	5	19	97	86	13	7	6
Central West	16	14	4	7	94	80	16	7	4
Cape York	17	16	3	7	90	90	11	8	5
Torres Strait–Northern Peninsula	22	18	3	18	93	94	9	11	10
Townsville	16	13	5	19	96	82	13	9	7
Sunshine Coast	15	12	4	20	95	88	14	8	7
Metro South	13	9	4	23	94	77	12	8	7
Metro North	12	10	3	15	96	80	13	9	7
Gold Coast	12	9	3	26	95	81	12	8	6
Queensland	15	12	4	19	95	79	13	8	7
Relative to Queensland	worse		same				better		

How to interpret a heat map:

A heat map is a ranking method to compare multiple health indicators across multiple geographic areas such as HHSs.

The heat map approach is used in this section for perinatal outcomes (Table 35), death outcomes (Table 36), hospitalisations (Table 37) and risk factors (Table 38).

Each table reports the rate in the HHS for a given indicator in a designated period. The shading identifies HHSs with higher, lower or similar rates to Queensland. Difference to Queensland is based on statistical difference, using the method of non-overlap of 95% confidence intervals of the age standardised prevalence or rate. For simplicity, confidence intervals are not shown.

The columns and rows associated with the indicators and HHSs are sorted, to create a heat spot, that is, a clustering of risk in one section of the matrix, hence the term heat map. It is important to identify areas that are not significantly different to the state, or where the case numbers are insufficient for reliable reporting, and these categories are both included where relevant.

Table 36: Death rates by HHS and Queensland, 2008–2010

a. Broad causes including all causes—by ICD chapter

	Deaths rates (per 100,000) – ICD Chapter																
	All cause	Diseases of circulatory system	Endocrine, nutritional and metabolic disorders incl. diabetes	External causes of morbidity and mortality	Diseases of the digestive system	Malignant neoplasms	Mental and behavioural disorders	Nervous system and sense organ disorders	Symptoms, signs and abnormal findings	Benign and other neoplasms	Infectious and parasitic diseases	Diseases of blood and blood forming organs etc	Diseases of respiratory system	Diseases of the genitourinary system	Diseases of musculoskeletal system and connective tissue	Congenital anomalies	Conditions originating in perinatal period
Cairns and Hinterland	620	189	30	54	24	174	25	28	4	7	8	n/a	50	12	6	3	5
North West	853	232	83	66	n/a	272	n/a	n/a	n/a	n/a	n/a	n/a	53	n/a	n/a	n/a	n/a
Central Queensland	632	216	24	43	25	191	29	18	n/a	5	4	n/a	46	13	6	n/a	3
Townsville	611	195	29	42	25	181	27	18	n/a	5	7	n/a	52	14	5	4	3
Darling Downs	599	208	28	43	20	170	25	19	2	4	5	2	48	12	6	4	3
Mackay	630	215	27	41	19	185	27	19	n/a	6	10	n/a	53	12	n/a	n/a	n/a
Wide Bay	588	179	27	47	22	185	17	21	6	5	7	3	42	12	6	n/a	n/a
West Moreton	613	217	27	42	23	178	17	17	n/a	4	6	n/a	47	14	4	3	3
Central West	658	225	n/a	61	n/a	196	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Metro South	574	197	22	34	16	173	24	23	2	4	7	1	47	11	4	4	3
Cape York	675	140	n/a	74	n/a	220	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
South West	619	206	27	51	29	178	n/a	n/a	n/a	n/a	n/a	n/a	51	n/a	n/a	n/a	n/a
Torres Strait–Northern Peninsula	589	111	n/a	n/a	n/a	181	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Metro North	552	179	21	31	18	169	24	26	2	3	6	1	50	12	5	3	3
Gold Coast	481	155	18	34	16	153	15	21	4	3	6	n/a	34	11	4	2	3
Sunshine Coast	504	150	16	41	17	163	20	26	3	3	5	n/a	38	10	5	2	3
Queensland	575	187	23	39	19	174	22	23	3	4	6	2	46	12	5	3	3
Compared to Queensland	higher		similar				lower						n/a Not reportable				

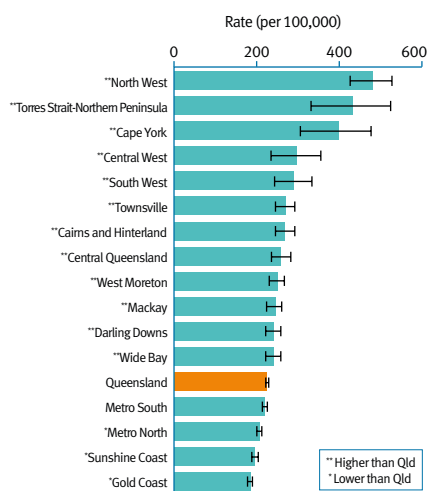
Table 36: Death rates by HHS and Queensland, 2008–2010

b. Selected specific conditions including potentially avoidable deaths by sub-category

Death rates (per 100,000) – Selected specific conditions																
	Premature deaths	Total potentially avoidable deaths			Coronary heart disease	Diabetes	Road transport injury	Pneumonia and influenza	Lung cancer	COPD	Prostate cancer	Melanoma of the skin	Stroke	Breast cancer	Colorectal cancer	Suicide and self-inflicted injuries
		Preventable	Treatable													
North West	480	335	224	111	140	58	n/a	n/a	79	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Darling Downs	242	170	106	64	107	21	10	10	31	23	14	6	52	12	16	14
Central Queensland	259	182	112	70	119	18	8	6	40	25	14	7	43	13	17	13
Townsville	269	185	113	72	104	22	8	8	38	29	13	6	42	10	16	12
Torres Strait–Northern Peninsula	432	314	152	162	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cairns and Hinterland	268	181	115	65	92	21	11	7	33	28	13	5	51	11	18	15
West Moreton	250	176	109	67	108	20	9	6	38	26	12	8	54	9	18	12
Mackay	245	175	106	69	121	19	9	12	35	29	13	9	42	11	17	13
Wide Bay	241	168	109	58	87	20	10	6	39	24	17	7	43	9	17	15
South West	289	194	126	68	99	n/a	n/a	n/a	36	31	n/a	n/a	51	n/a	n/a	n/a
Central West	296	223	139	84	124	n/a	n/a	n/a	49	n/a	n/a	n/a	58	n/a	n/a	n/a
Cape York	397	290	213	77	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Metro North	207	140	83	57	88	14	3	11	33	23	13	9	50	11	19	9
Metro South	220	150	92	57	103	16	5	6	35	23	14	6	50	11	17	11
Sunshine Coast	194	129	81	48	68	11	9	4	30	20	15	7	42	11	14	11
Gold Coast	184	124	76	48	75	11	4	5	29	17	13	7	41	9	16	12
Queensland	229	157	96	60	95	17	7	7	34	23	14	7	48	11	17	12
Compared to Queensland	higher				similar			lower				n/a Not reportable				

Figure 69: All deaths, premature and avoidable, by HHS, Queensland 2008–2010

a. Premature death rates



b. Premature and avoidable deaths

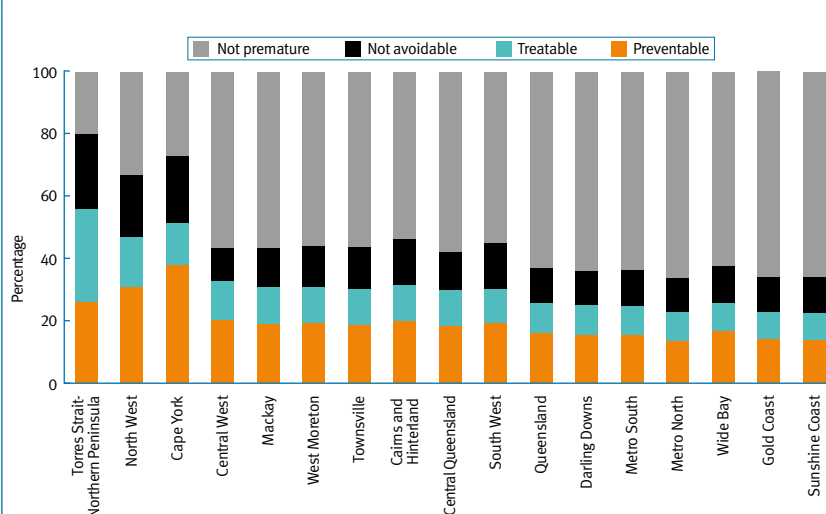


Table 37: Hospitalisation rates for selected conditions by HHS and Queensland, 2009–10 to 2011–12

Hospitalisation rates (per 100,000)														
	All causes	Potentially preventable hospitalisations				Specific conditions								
		Total PPHs	PPH – acute	PPH – chronic	PPH – vaccine preventable	COPD	Diabetes	Coronary heart disease	Road transport injury	Stroke	Pneumonia and influenza	Asthma	Mental and behavioural disorders	Falls 65+
North West	51,768	6,217	3,174	2,812	285	626	562	1,042	472	421	1,084	274	1,177	2,837
West Moreton	39,979	3,289	1,423	1,779	111	359	285	909	240	294	372	201	1,544	2,593
South West	40,059	5,040	2,583	2,336	144	698	389	927	599	402	699	254	1,042	3,253
Cape York	56,190	7,240	3,873	3,192	251	535	772	1,375	545	563	1,083	204	1,482	2,249
Central West	35,630	4,603	2,554	1,996	62	409	349	814	773	380	605	264	1,091	2,230
Wide Bay	41,242	3,299	1,664	1,586	60	350	267	927	305	315	382	163	916	2,761
Darling Downs	37,446	3,213	1,632	1,513	82	307	293	675	277	272	369	177	1,437	2,437
Central Queensland	38,369	3,661	2,054	1,538	85	326	314	760	382	261	348	163	858	2,785
Torres Strait–Northern Peninsula	43,178	6,232	2,875	3,181	372	349	1,226	631	167	449	758	267	802	1,480
Cairns and Hinterland	39,096	3,201	1,711	1,434	73	343	226	722	274	237	375	141	1,383	2,735
Mackay	38,018	3,241	1,628	1,538	83	299	263	835	345	250	306	149	790	2,920
Townsville	39,013	3,120	1,525	1,523	90	336	362	694	218	253	331	141	666	2,670
Sunshine Coast	37,460	2,633	1,374	1,201	68	217	175	790	258	240	301	136	1,095	2,683
Metro North	39,427	2,803	1,412	1,316	90	258	220	619	201	217	320	167	2,439	2,898
Metro South	39,980	2,817	1,340	1,405	89	244	247	626	180	226	309	188	2,083	2,594
Gold Coast	36,982	2,350	1,292	1,006	61	194	191	475	189	201	235	124	1,074	2,788
Queensland	39,089	2,956	1,493	1,394	84	274	246	688	236	242	330	164	1,583	2,720
Compared to Queensland		higher		similar		lower								

Table 38: Self reported risk factor prevalence by HHS and Queensland, 2011–2012⁹⁴

Selected risk and protective factors (%)																
	Obese (BMI 30+)	Overweight/obese (BMI 25+)	Daily smoking	Alcohol – lifetime risk	High blood pressure	Alcohol – single occasion risk (at least weekly)	Recommended fruit daily	Sunburnt previous year	Sun protection 3 or more – winter	Diabetes/high blood sugar	Sufficient activity for health benefit	Sun protection 3 or more – summer	Recommended vegetables daily	Overweight (BMI 25–<30)	High cholesterol	
Cape York	34	67	27	32	30	22	48	63	59	13	53	71	12	34	21	
Central Queensland	29	65	16	24	31	17	50	59	38	9	50	61	11	35	31	
Townsville	29	65	15	24	35	17	46	56	44	10	53	62	10	36	32	
Darling Downs	27	62	17	19	33	14	51	50	28	11	52	56	12	35	29	
Mackay	26	62	18	30	29	23	50	59	38	8	59	59	10	36	27	
North West	29	68	20	26	33	19	49	56	41	10	54	62	7	39	27	
Wide Bay	30	67	19	22	36	17	52	47	29	14	55	54	12	37	31	
Cairns and Hinterland	22	58	17	27	27	21	52	52	36	9	57	54	10	36	24	
South West	29	65	15	25	32	18	52	52	36	10	53	67	14	36	34	
Torres Strait–Northern Peninsula	38	65	16	28	31	18	54	55	39	*15	59	54	*14	27	*20	
West Moreton	26	60	16	16	30	13	45	53	26	9	54	52	9	35	29	
Central West	28	64	21	26	33	15	47	51	34	9	55	63	11	36	26	
Gold Coast	19	53	14	21	26	15	54	49	21	8	61	48	9	34	28	
Metro South	21	54	14	18	28	13	53	50	24	9	55	51	8	33	29	
Metro North	21	55	12	23	27	16	53	54	25	8	61	49	9	34	30	
Sunshine Coast	18	55	12	22	32	16	56	48	24	9	57	53	11	37	31	
Queensland	23	57	14	22	29	16	52	52	27	9	57	52	9	35	29	
Compared to Queensland	higher risk			similar			lower risk			* RSE of 25–50% and should be used with caution						

Other population groups

This section includes a brief overview of selected population groups using a selection of available data.

Culturally and linguistically diverse populations

Australia is a multicultural nation and in Queensland, 1 in 5 people were born overseas, with overseas migration making up about half the annual population growth. More information on cultural diversity is available on *page 9*. There are diverse cultural and language groups in Queensland and each has its own distinctive health needs and issues. The health characteristics of these populations may be influenced by their country of origin and by the process of migration itself. Data specific to each population group is limited and in some datasets, it is based solely on identifiers such as country of birth, which does not fully capture the ethnicity of these populations.

Consistent with Australia and other and other jurisdictions^{52,397}, Queenslanders born overseas generally have lower all-cause, avoidable or potentially preventable, and chronic disease death and hospitalisation rates than the Australian born population in 2003–2007.³⁹⁸



However, there are some indicators of poorer health—for those Queenslanders born in non-English speaking countries, the diabetes death rate was 25% higher than for the Australian born population, and for vaccine preventable hospitalisations, it was 20% higher. In 2011–12, the prevalence of daily smoking, risky alcohol consumption, low exercise, overweight and obesity and inadequate fruit and vegetable consumption was similar in Australians born overseas to those born in Australia.¹⁰¹

Considering country of origin differences, hospitalisation rates for a number of conditions for those born in Oceania, North Africa and the Middle East, were higher than for Australian born Queenslanders.³⁹⁸ Further analysis for Samoans, Tongans, Fijians and Australian South Sea Islanders showed higher rates for many conditions.^{399,400} While hospitalisation data is not considered an accurate indicator of health status alone, higher hospitalisation rates would suggest there is a significant burden of disease for these population groups that could be addressed, and that better primary prevention would be a key to achieving health benefits.³⁹⁸ While more detailed analysis may identify more regional and country differences, the relatively small number of cases in some country of birth populations limits reliable reporting of difference.⁴⁰¹

Overall, Queenslanders born overseas generally enjoy better health than those born in Australia. This is probably because of the ‘healthy migrant effect’—only those migrants in good health migrate to Australia.³⁹⁷ However, this effect diminishes over time as the duration of their living in Australia increases. Some migrants may face challenges, such as language barriers and cultural practices that make it difficult to access health services.⁵²

Refugees

In 2012–13, the Australian Humanitarian Program provided more than 20,000 visa places, approximately 12,000 (60.0%) to refugees, 500 (2.5%) humanitarian places and 7,500 (37.5%) ‘onshore’ places to illegal maritime arrivals.⁴⁰² Of these, about 20% were settled in Queensland.

The health needs of refugees include preventive, acute and chronic health services. They present with multiple causes rather than single issues and with underlying mental and social health problems. Health checks and medical examinations are conducted before departure and on arrival in Australia. Treatment where required is commenced.

Refugees may present with a range of specific health issues including communicable and non-communicable diseases, nutritional deficiencies and skin disorders, reflecting their background and journey to Australia. Some common health issues are described below⁴⁰³:

- Mental health—lack of family and cultural support, prolonged separation and potential trauma in the process of seeking asylum can exacerbate underlying mental health issues as well as create new tensions. Accessing mental health services can be a difficult.
- Sexual and reproductive health—many refugee young people arrive in Australia with limited information about sexual and reproductive health and potentially little support and opportunity to learn about this in the Australian context.
- Food and nutrition—prior to arrival in Australia, refugees may have lived for some time with only limited access to food, both in terms of amount and variety, leading to poor nutrition.

Prisoners

More than 6000 adults were being detained in Queensland prisons in mid-2013.⁴⁰⁴ Most (91%) prisoners were male, half (52%) were aged 20–34 years and one-third (31%) were Indigenous Queenslanders. Two in 3 (65%) had been previously imprisoned. Nationally, prison entrants are 2.5 times more likely to have less than a Year 10 education, 10 times more likely to be unemployed, and at least 50 times more likely to be homeless.^{405–408} For information regarding variations in health status and outcomes related to socioeconomic disadvantage, see page 150.

Incarcerated populations experience poorer health than other Australians, and have higher prevalence of health conditions and risk factors for many diseases. One in 3 prison entrants (32%) had at least one chronic condition in 2012, with the asthma prevalence—the most common chronic condition at 24%—2.4 times the prevalence in the general population.^{101,407} Nationally, about 40% of inmates were estimated to have hepatitis C compared with 1% of the general population⁴⁰⁹, and 19% tested positive to hepatitis B on admission.⁴⁰⁷ Prison entrants were at least 5 times more likely to smoke than the general population (84% compared with 16%), about 4 times more likely to have consumed alcohol during the previous 12 months that placed them at risk of long-term harm (46% compared with 13%), and at least 4 times more likely to report illicit drug use in the previous year (70% compared with 15%).^{75,297,407}

Mental health problems are 2.5 times more common among prison detainees than the general population.⁴¹⁰

In 2010, 31% of prison entrants nationally reported ever being told by a doctor, psychiatrist, psychologist or nurse that they had a mental health disorder (including drug and alcohol abuse), and in 2012, the prevalence increased from 38% on entry to 46% at discharge.⁴⁰⁷

The prevalence of high or very high psychological distress among prisoners was about 3 times that of the general population in 2010 (31% compared to 11%) and higher for female prisoners (51%).

Time in prison can, however, provide the opportunity for offenders to access health services, to stabilise behaviours and to improve social and health outcomes.⁴¹¹ On entry to Queensland prisons, all offenders receive a medical examination.⁴¹² Smoking by offenders, staff and visitors is no longer permitted in Queensland correctional facilities.⁴¹³ A *Drug and alcohol action plan*⁴¹⁴ and *Food and nutrition policy and implementation plan*⁴¹¹ have also been developed to improve the health of Queensland's incarcerated populations.

Gay, lesbian, bisexual and transgender

There is limited information on the health status of Queenslanders who identify as gay, lesbian, bisexual and transgender (GLBT), although known information suggests poorer health status than other Queenslanders for some indicators. Death and hospitalisations rates for this population are unknown, as individuals are not asked to identify their sexual orientation at the point of data collection.

Rates of HIV and syphilis of men who have sex with men are reported on page 71. Mental health disorders are more common in GLBT Australians and internationally. In 2007, GLBT Australians aged 16–85 years, compared to heterosexual people, were more than twice as likely to have anxiety disorders, higher rates of depression and mood disorders, and higher prevalence of suicidal thoughts, plans and attempts.⁴¹⁵

Homosexual and bisexual Australians aged 14 years and older were twice as likely as heterosexual people to be current smokers, about 70% more likely consume alcohol on a single occasion at least weekly, about 50% more likely to drink at levels of lifetime risk, and 2.6 times more likely to have reported illicit drug use in the previous 12 months.²⁹⁷

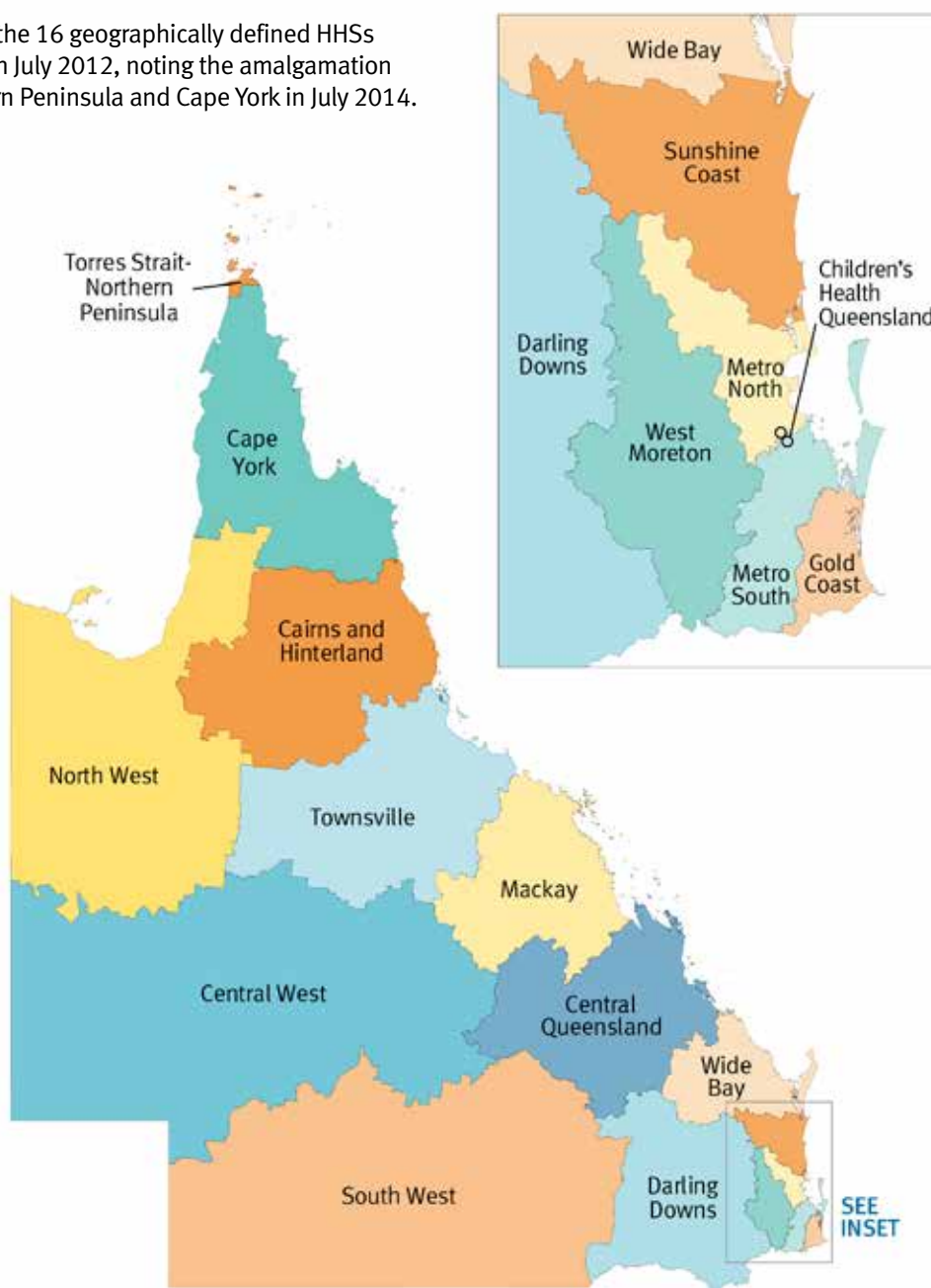
Appendix

Population health in Hospital and Health Service areas of Queensland

The Appendix to the 2014 Chief Health Officer report provides HHS specific factsheets building on health status reporting within the body of the report, particularly Chapter 5, pages 158 and following. The 16 factsheets are available in electronic version only at www.health.qld.gov.au/CHO_report

The objective is to provide key local data, in a consistent format for each HHS, that will inform decision making across the state and within local communities and drive policy and action to improve the health and longevity of Queenslanders.

The report is based on the 16 geographically defined HHSs that were established in July 2012, noting the amalgamation of Torres Strait–Northern Peninsula and Cape York in July 2014.



End matter

Data sources and methods

Many data sources were used to develop this report. The latest available data are presented and sources cited. Selected summary information is included below with further information on sources and methods available in a separate methods report.³⁸

Age standardisation: Rates are standardised to the 2001 Australian population for all death, cancer incidence and hospitalisation data and for selected prevalence comparisons from national and state surveys. Death rates for OECD comparison were standardised to the 2010 OECD population. Other reported prevalence estimates such as daily smoking and obesity are not age standardised. Notification rates are not age standardised.

Deaths: The most recent final-release death data was for 2010 and this has been used for all reporting in this report. Deaths of Queensland residents who died in Queensland are included. Queensland residents who died interstate or overseas are not included, nor are interstate or overseas visitors who died in Queensland. Aggregated years are used to provide more robust estimates for socioeconomic, remoteness and Indigenous status differentials (two years of data) and for HHS reporting (three years of data). All death data is reported according to the underlying cause.⁴¹⁶ Deaths were reported by year of registration (reference year) for all state level reporting, remoteness and sociodemographic differentials. For Indigenous Queenslanders reporting and all HHS reporting, year of death was used. For median age of death, year of death was used exclusively. The use of median age of death and its limitations was noted on page ii.

Format for reporting years: Financial and hospitalisation data are displayed using the format 2011–12. The same format is used for data collected over two years but not the full period. Data which refers to two full years is displayed in the format 2009–2010.

Hospitalisations: Hospitalisation data (separations or episodes of care) were derived from the Queensland Hospital Admitted Patient Data Collection, including admissions of Queensland residents to private and public hospitals, with certain exclusions which are noted.³⁸ The hospitalisation was coded to the residence of the patient. All disease-specific hospital separations were derived using the primary diagnosis of inpatient episode of care unless otherwise specified.

International Classification of Diseases (ICD) codes:

The codesets for all conditions are listed in the methods report.³⁸ Of note, for all state-based reporting of PPHs the nationally defined indicator was used⁸⁶ and for all sub-state reporting, such as for HHSs, the Queensland specific codeset was used.⁴¹⁷ The codes for chronic disease are included (*Table 39*).

International comparisons: Where available, rates in Queensland and Australia for health conditions and risks are compared with other countries, in particular the OECD and the 187 countries included in the Global Burden of Disease study. The diverse nature of health and healthcare systems across countries adds a level of complexity to international comparisons. Different definitions and data collection methods can produce variation that is not due to an underlying pattern or trend.

Notifications: All notification data comes from Queensland's notifiable conditions system (NOCS), that is maintained in the register legislated by the *Public Health Act 2005*.

Prevalence: The prevalence of a disease or condition is assessed by population survey, conducted nationally or by the Queensland Government.

Population: Estimated resident population data at 30 June for each year were used for calculation of all rates, including prevalence data from Queensland Health surveys.

Statistical inference: The reporting of difference between categories is noted only when the difference is statistically significant, based on non-overlap of 95% confidence intervals. Estimates for population subgroups may be based on small numbers and have large relative standard errors and this is noted in relevant tables including suppression of data where relative standard error of an estimate exceeds 50%. Generally, for reporting health outcome data such as deaths, cancer incidence and hospitalisations, rates are based on a minimum of 20 cases, and data not released where there were fewer than five cases.³⁸

Trend: Trends in health outcome reporting were based on linear fit to the log of the annual estimates. For general risk factor reporting, Poisson regression methods were used and cited, as well as linear fit of point prevalence estimates.

Table 39: Disease codes: non-communicable diseases and selected chronic diseases

Disease group	Inclusions	ICD10-AM Code – hospitalisations	ICD10 Code – deaths
Non communicable diseases	Malignant neoplasms	C00 – C97	C00 – C97
	Benign and other neoplasms	D00 – D48	D00 – D48
	Diseases of blood and blood forming organs etc	D50 – D89	D50 – D89
	Endocrine, nutritional and metabolic disorders including diabetes	E00 – E89	E00 – E90
	Mental and behavioural disorders	F00 – F99	F00 – F99
	Nervous system and sense organ disorders	G00 – G99	G00 – G99
	Diseases of eye and adnexa	H00 – H59	H00 – H59
	Diseases of ear and mastoid process	H60 – H95	H60 – H95
	Diseases of circulatory system	I00 – I99	I00 – I99
	Diseases of respiratory system – chronic respiratory	J40 – J99	J40 – J99
	Diseases of the digestive system	K00 – K93	K00 – K93
	Diseases of skin and subcutaneous tissue	L00 – L99	L00 – L99
	Diseases of musculoskeletal system and connective tissue	M00 – M99	M00 – M99
	Diseases of the genitourinary system	N00 – N99	N00 – N99
	Symptoms, signs and abnormal findings	R00 – R99	R00 – R99
	Factors influencing health status and contact with health services	Z00 – Z99	
Communicable, maternal and neonatal	Infectious and parasitic diseases	A00 – B99	A00 – B99
	Diseases of respiratory system – acute respiratory	J00 – J39	J00 – J39
	Pregnancy, childbirth and puerperium	O00 – O99	O00 – O99
	Conditions originating in perinatal period	P00 – P96	P00 – P96
	Congenital anomalies	Q00 – Q99	Q00 – Q99
Injury	Injury poisoning and other external causes	U50 – Y98	V01 – Y98
Selected chronic conditions	Malignant neoplasms	C00 – C97	C00 – C97
	Endocrine, nutritional and metabolic disorders including diabetes	E00 – E89	E00 – E90
	Mental and behavioural disorders	F00 – F99	F00 – F99
	Nervous system and sense organ disorders	G00 – G99	G00 – G99
	Diseases of circulatory system	I00 – I99	I00 – I99
	Diseases of respiratory system – chronic respiratory	J40 – J99	J40 – J99
	Diseases of the digestive system	K00 – K93	K00 – K93
	Diseases of musculoskeletal system and connective tissue	M00 – M99	M00 – M99
	Benign and other neoplasms	D00 – D48	D00 – D48

Terminology, definitions and abbreviations

Aboriginal and Torres Strait Islander populations: referred to as ‘Indigenous Queenslanders’ or ‘Indigenous Australians’ except where there is reference to either population separately

Adults and age groups: adults are persons aged 18 years and older. Unless otherwise specified, all data in this report refer to the whole population, that is, those aged 0–85+ years. Children are defined in relevant sections and where not explicitly stated refer to the age group 5–17 years, consistent with national indicator reporting.

Age-standardisation: the adjustment of rates by relating them to a standard population to facilitate comparisons between various populations with different age structures (or the same population over time).

Anaemia: described as a decrease in either the number of red blood cells in the body or the quantity of haemoglobin within red blood cells. The risk of anaemia is defined using haemoglobin levels: for children aged 12–14 years

and for non-pregnant women aged 15 years or older, haemoglobin levels less than 120 g/L are defined as at risk of anaemia. For pregnant women, haemoglobin levels less than 110 g/L are defined as at risk of anaemia. For males aged 15 years or older, haemoglobin levels less than 130 g/L are defined as at risk of anaemia.²³⁰

Avoidable deaths: deaths before the age of 75 years considered avoidable at the present time given available knowledge and comprising preventable and treatable deaths.^{418,419}

BMI (body mass index): measure correlated closely with body density and skinfold thickness, calculated as BMI = weight (kg)/height (m) squared.⁴²⁰ For adults, BMI less than 18.5 is underweight, 18.5 to less than 25 is normal, 25 to less than 30 is overweight and 30 or more is obese.⁴²¹ For children, BMI is compared with age and sex-specific BMI percentile charts.⁴²²

Chronic disease: diseases of long duration and generally slow progression.⁴²³ In this report, chronic disease refers to either all non-communicable disease or selected chronic conditions as defined (*Table 39*).

CI (confidence interval): in general, a range of values expected to contain the true value 95% of the time (95% CI).

Decay experience: number of decayed, missing or filled teeth termed dmft in primary teeth, and DMFT in permanent teeth.

DALY (disability adjusted life year): measure of overall burden of disease and injury, where the DALY for a disease or condition is the sum of the YLL and YLD.⁵⁹

Disability: temporary or long-term reduction of a person's capacity or function.⁴²⁰

Dyslipidaemia: refers to a number of different lipid disorders (that is, conditions where there are too many fats in the blood). In this report, a person was considered to have dyslipidaemia if they had one or more of the following²²⁵:

- taking cholesterol-lowering medication
- total cholesterol greater than or equal to 5.5mmol/L
- HDL cholesterol less than 1.0mmol/L for men and less than 1.3mmol/L for women
- LDL cholesterol greater than or equal to 3.5mmol/L
- triglycerides greater than or equal to 2.0mmol/L.

Discretionary foods: as described in the *Australian dietary guidelines 2013*, discretionary foods are those that are not essential or a necessary part of a healthy dietary pattern. These foods are high in kilojoules, saturated fat, added sugars and/or salt or alcohol.²²⁶

Hospitalisations: is the term used for the total number of separations in all hospitals (public and private) that provide acute care services. A separation is an episode of care which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay ending in a change of status (for example from acute care to rehabilitation).⁴²⁴ About 98% of admissions comprise only one episode of care. Unless otherwise indicated all hospitalisation data refers to principal diagnosis only.

Hypertension: High blood pressure, often referred to as hypertension, is prolonged elevation of the blood pressure. The three criteria for diagnosis of hypertension or high blood pressure are²²⁵:

- systolic blood pressure of 140 mmHg or more or
- diastolic blood pressure of 90 mmHg or more or
- receiving medication for high blood pressure.

ICD (International classification of diseases and health conditions): Standard classification of specific conditions and groups of conditions determined by an internationally representative group of experts⁴²⁰ and used for health records.

Incidence: number of new health-related events (for example, illness or disease) in a defined population in a defined period of time.⁴²⁰

Infant mortality rate: number of deaths of children under 1 year of age in one calendar year per 1,000 live births in the same calendar year.⁴²⁰

Long-term condition: a medical condition (illness, injury or disability) which has lasted at least six months, or which the respondent expects to last for six months or more.

Low birth weight: less than 2500gm.

Life expectancy: average number of additional years a person of a given age and sex might expect to live if the age-specific death rates of the given period continued throughout their lifetime.⁶⁹

Neonatal death: death of any child born alive who died within 28 days of birth.⁴²⁵

Notifications: reports of specified health conditions to government by medical practitioners, pathology laboratories and hospitals. In Queensland, this is legislated by the *Public Health Act 2005*.

Perinatal mortality rate: is the annual number of perinatal deaths per 1,000 births. Perinatal deaths include all fetal and neonatal deaths of at least 400gm birth weight or at least 20 weeks gestation.⁴²⁶

PPHs (potentially preventable hospitalisations): admissions to hospital that potentially could have been prevented through the provision of appropriate non-hospital health services.⁸⁴

Premature death: in this report, generally refers to a death that occurs before the age of 75 years

Prevalence: a measure of disease occurrence or disease frequency, often used to refer to the proportion of individuals in a population who have a disease or condition.⁴²⁰

Preventable deaths: premature deaths which are considered avoidable because they are amenable to screening and primary prevention and reflect the effectiveness of the current health activities of the health sector.⁸³

Psychological distress (risk of): is assessed using the Kessler 10 Scale (K10) which is a scale of non-specific psychological distress based on 10 questions about negative emotional states in the four weeks prior to interview.⁴²⁷

Rates: refers to a measure of the frequency of the occurrence of an event or phenomenon in a defined population in a specified period of time.⁴²⁰

Regular dental visiting pattern: for children, where a parent has indicated that their child usually visits a dentist/dental therapist at least once every two years.

Relative difference in rates or prevalence: is expressed as percentage for ratios up to 100%, for example if the prevalence in area A is 40% and in area B it is 60%, area B is described as 50% higher than A. However, ratios of 100% and above are expressed as times or fold. For example, if the rate in area A is 100% higher than area B (for example A is 40% and B is 20%), area A is described as two-fold or double or 2 times area B.

Relative survival rate: a survival rate adjusted for other independent causes of death.⁴²⁰

Remoteness: determined using the Accessibility/Remoteness Index of Australia (ARIA+) which is used to create the six-category remoteness areas (RA) classification: major cities, inner regional, outer regional, remote, very remote, and migratory.³² ARIA scores are based on how far the population must travel to access services.

Significant: a term used in this report to reflect a level of importance as well as statistical difference. In the context of statistical difference, non-significant results are described with terms such as 'similar', 'stable' or 'no difference'. In this report statistical significance is based on non-overlap of 95% confidence intervals.

Socioeconomic advantage or disadvantage: refers to populations profiled using the ABS Index of Relative Socioeconomic Advantage and Disadvantage.²⁸ This index summarises information about the economic and social conditions of people and households within an area and includes characteristics of advantage and disadvantage, with areas categorised into quintiles.²⁹

Survival rate: the proportion of persons in a specified group alive at the beginning of the time interval (for example, a five-year period) who survive to the end of the time interval.⁴²⁰

TF index (Thylstrup-Fejerskov index): provides a 10-point classification system for recording enamel changes associated with increasing levels of fluoride in water.

Treatable deaths: premature deaths which are considered avoidable because they are amenable to therapeutic interventions, reflecting the safety and quality of the current treatment system.⁸³

YLD (years of life lost due to disability): measure of burden of disease and injury, capturing the future loss of healthy years of life from new cases of conditions.⁵⁹

YLL (years of life lost due to premature mortality): measure of burden of disease and injury, calculated as the number of deaths multiplied by the standard life expectancy at the age at which death occurs.⁵⁹

Abbreviations

ABS:	Australian Bureau of Statistics
AIHW:	Australian Institute of Health and Welfare
CHD:	Coronary heart disease
COPD:	Chronic obstructive pulmonary disease
CVD:	Cardiovascular disease
DALY:	Disability adjusted life year
FOBT:	Faecal occult blood test
GBD:	Global Burden of Disease study
GDP:	Gross domestic product
GLBT:	Gay, lesbian, bisexual and transgender
GP:	General practitioner
HALE:	Health adjusted life expectancy
HIV:	Human immunodeficiency virus
HHS:	Hospital and Health Service (<i>page iv</i>)
HPV:	Human papillomavirus
ICD:	International classification of diseases and related health problems
NHMRC:	National Health and Medical Research Council
OECD:	Organisation for Economic Co-operation and Development
PPH:	Potentially preventable hospitalisation
WHO:	World Health Organization
YLD:	Years lost to disability
YLL:	Years of life lost

Guidelines

This section describes in brief, changes that have occurred with the release of new NHMRC guidelines for recommended fruit and vegetable consumption and Australian Government physical activity recommendations. It also includes a brief summary of the new analysis undertaken by Queensland Health for more effective reporting against the 2009 alcohol guidelines.

1. Dietary guidelines

The 2013 Australian dietary guidelines are used within this report for monitoring fruit and vegetable consumption and to assess the dietary patterns of the population.²²⁷ This section includes a brief summary of changes that have occurred since 2003.^{238,239} The 2013 guidelines outline five key nutrition related recommendations for Australians to follow in order to achieve and maintain a varied and balanced diet, according to the most up-to-date knowledge and high quality scientific evidence. They focus on food and eating patterns, rather than single nutrients. The number of recommended serves of fruit and vegetables has changed for many age groups. A serve of fruit is one medium piece or two small pieces, or a cup of diced pieces. For vegetables a serve is half a cup of cooked or one cup of salad vegetables. 'Extra foods' are now described as 'discretionary choices' reflecting the advice that they should be consumed only sometimes and in small amounts. The recommendations for additional foods for those who are taller or more active, are included below (Table 40). These additional foods could include foods from other the five food groups or discretionary foods.

Changes in recommended daily fruit and vegetables consumption are presented below, noting age group differences (Table 40):

- 2–3 years: for the first time, the 2013 guidelines recommended 1 daily serve of fruit and 2.5 serves of vegetables
- 4–8 years (4–7 year olds in 2003 guidelines): the recommended fruit and vegetable serves increased by 0.5 and 2.5 serves respectively
- 9–11 years: increased by 1 serve of fruit and 2 serves of vegetables
- 12–18 years: decreased by 1 serve of fruit, but increased by 1 to 1.5 serves of vegetables for girls and boys respectively
- For adults, the recommended 2 serves of fruit remained unchanged. While the 2003 guidelines recommended 5 serves of vegetables for adults (19 years and older), the 2013 guidelines made varied recommendations of serves for different age groups for men only.
- For pregnant women, the recommended minimum daily serves of fruit decreased by 2 serves. For breastfeeding women, the recommended daily serves of fruit decreased by 3 serves and for vegetables increased by 0.5 serve.

2003 guidelines (daily serve)*				2013 guidelines (daily serve)*			
Age group (year)	Fruit	Vegetables	'Extra' foods	Age group (year)	Fruit	Vegetables	'Additional' foods
2–3	No recommendations			2–3	1	2.5	0–1
4–7	1	2	1–2	4–8	1.5	4.5	Boys 0–2.5 Girls 0–1
8–11	1	3	1–2	9–11	2	5	0–3
12–18	3	4	1–3	12–13	2	Boys 5.5 Girls 5	Boys 0–3 Girls 0–2.5
19–60	2	5	Men 0–3 Women 0–2	14–18	2	5.5	0–5
61+ years	2	5	0–2	19–50	2	Men 6 Women 5	Men 0–3 Women 0–2.5
Pregnant	4	5–6	0–2	51–70	2	5.5	0–2.5
Breastfeeding	5	7	0–2	71+ years	2	5	0–2.5
				Pregnant	2	5	0–2.5
				Breastfeeding	2	7.5	0–2.5

*The daily serves for males and females are the same unless specified otherwise.

2. Physical activity

The 2005 Australian physical activity guidelines are used in the report for monitoring the physical activity in the Queensland population.⁷ The recommendations were revised in 2014⁴²⁸⁻⁴³², and will be used for monitoring in future. This section highlights the main recommendations of the 2014 guidelines, and how they have changed since 2005. One of the key changes is the inclusion of recommendations for reducing sedentary behaviour for adults. The revised guidelines are supported by a rigorous review of the evidence and were subject to stakeholder and expert consultation and consensus.

The 2014 guidelines outline the amount, frequency, intensity and type of physical activity and health outcome indicators, including the risk of chronic disease and obesity. The guidelines are described in greater detail in the associated methods report³⁸ and in summary include:

- 0–5 years:
 - Birth to 1 year: For healthy development in infants, physical activity, particularly supervised floor-based play in safe environments, should be encouraged from birth.
 - 1–5 years: Toddlers and pre-schoolers should be physically active every day for at least three hours, spread throughout the day.
 - Sedentary behaviour: infants, toddlers and pre-schoolers should not be sedentary, restrained, or kept inactive, for more than one hour at a time, with the exception of sleeping. For children under the age of 2 years, no television or electronic media is recommended, and for children 2–5 years such screen time viewing should be limited to less than one hour per day.
- 5–17 years:
 - The current recommendation of an accumulated minimum of 60 minutes of moderate to vigorous intensity physical activity every day remains unchanged.
 - The revised guidelines recommended including in children's physical activity a variety of aerobic activities, including some vigorous intensity activity.
 - Children and young people should engage in activities that strengthen muscle and bone on at least three days per week.
 - Sedentary behaviour: to reduce health risks, minimise the time spend being sedentary every day, and break up long periods of sitting as often as possible. Limit the use of electronic media for recreational activity to no more than two hours per day.
- 18–64 years:
 - Doing any physical activity is better than doing none. If a person in this age group is currently doing no physical activity, the guidelines recommend for doing some and gradually building up to the recommended level.
 - Be active on most and preferably all days, every week.
 - Accumulate 150 to 300 minutes of moderate intensity physical activity or 75 to 150 minutes of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities each week.
 - Minimise the amount of time spent in prolonged sitting or other sedentary behaviours. Break up long periods of sitting as often as possible.
- 65 years and older:
 - Older people should be active every day in as many ways as possible, doing a range of physical activities that incorporate fitness, strength, balance and flexibility.
 - The current recommendation of an accumulated 30 minutes of moderate intensity physical activity on most, preferably all days of a week, remains unchanged.

3. Alcohol

In March 2009, the NHMRC released the *Australian guidelines to reduce health risks from drinking alcohol* (page 108).⁵ Guideline 1 (lifetime risky drinking) and Guideline 2 (single occasion risky drinking) apply to the healthy adult population with a focus on improving health and wellbeing by reducing risks of alcohol related injury and disease. Guidelines 3 and 4 address factors specific to children, adolescents, and pregnant and breastfeeding women. The prevalence of alcohol consumption in Queensland populations adhering to the guidelines is described in Chapter 4. This section highlights an analytical complexity arising from reporting against the guidelines and a solution that is described more fully in associated reports and used within this report to more fully characterise consumption patterns.^{38,200}

For monitoring the prevalence of risky alcohol drinking, Guideline 1 and Guideline 2 are generally reported as independent categories. However, reporting is limited by usual consumption patterns—a large proportion of adults are engaged in both behaviours. As a result, it is difficult to determine changes in drinking pattern and to assess the sociodemographic characteristics of consumers. The overlapping risk groups show that 65% of lifetime risky consumers also drank at weekly single occasion risk levels and conversely 90% of single occasion risky drinkers also consumed alcohol at lifetime risky levels (Figure 70). In effect, prevalence of risky drinking whether for lifetime risk or single occasion risk was primarily attributable to those who were risky drinkers by both guidelines.

To more accurately describe the consumption patterns, mutually exclusive categories were created (Table 41). Consumers were categorised into six groups based on their daily consumption (less than or greater than 14 drinks per week) as well as single occasion consumption (that is, never consuming more than four drinks on a single occasion as well as the frequency of doing so). In 2013, among Queensland adults, the prevalence of these drinking patterns, from the least to the most risky was:

- 17% were abstainers
- 30% were low risk consumers
- 1% were lifetime risky drinkers—only
- 20% were less than monthly single occasion risky drinkers—only
- 13% were monthly single occasion risky drinkers—only
- 2% were less than monthly single occasion risky drinkers and lifetime risky drinkers
- 18% were monthly single occasion risky drinkers and lifetime risky drinkers combined, that is, the riskiest drinkers.

Figure 70: Overlap between NHMRC 2009 alcohol guidelines

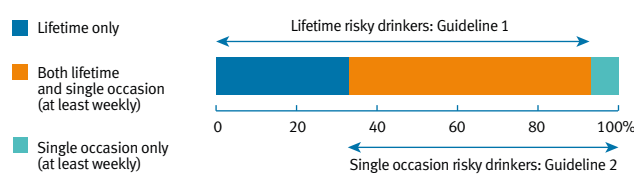


Table 41: Alcohol consumption categories, new analysis, and prevalence, adults, Queensland 2013

		Guideline 1, single occasion risk: greater than 4 drinks on any occasion		
		Never	Less than monthly	At least monthly (includes weekly)
Guideline 2, lifetime risk: no more than 2 drinks per day even if daily (less than 14 drinks per week)	Less than or equal to 14 drinks per week	Low risk 30.4%	Less than monthly single occasion only 19.8%	At least monthly single occasion only 12.5%
	Greater than 14 drinks per week	Lifetime only 0.7%	Less than monthly single occasion <u>and</u> lifetime 1.6%	At least monthly single occasion <u>and</u> lifetime 18.2%

Abstainers made up the remaining 16.8% of adults in 2013.

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