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. 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.

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. 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. 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. 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. 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. 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). 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. 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. 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. 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. 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.

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. 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. 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.

City dwellers have 12 more years of life than others.
Chapter 3 – Health outcomes

Figure 5: Life expectancy and HALE by OECD country, 2010
![Life expectancy and HALE by OECD country, 2010](image)

Figure 6: Median age of death by population group, Queensland
![Median age of death by population group, Queensland](image)

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

<table>
<thead>
<tr>
<th>Population Group</th>
<th>Median Age of Death (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torres Strait Northern Peninsula</td>
<td>60</td>
</tr>
<tr>
<td>Cape York</td>
<td>62</td>
</tr>
<tr>
<td>North West</td>
<td>66</td>
</tr>
<tr>
<td>Cairns and Hinterland</td>
<td>76</td>
</tr>
<tr>
<td>Townsville</td>
<td>77</td>
</tr>
<tr>
<td>West Moreton</td>
<td>77</td>
</tr>
<tr>
<td>South West</td>
<td>77</td>
</tr>
<tr>
<td>Mackay</td>
<td>78</td>
</tr>
<tr>
<td>Central Queensland</td>
<td>78</td>
</tr>
<tr>
<td>Central West</td>
<td>78</td>
</tr>
<tr>
<td>Wide Bay</td>
<td>79</td>
</tr>
<tr>
<td>Darling Downs</td>
<td>80</td>
</tr>
<tr>
<td>Queensland</td>
<td>80</td>
</tr>
<tr>
<td>Sunshine Coast</td>
<td>81</td>
</tr>
<tr>
<td>Metro North</td>
<td>81</td>
</tr>
<tr>
<td>Metro South</td>
<td>81</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>81</td>
</tr>
</tbody>
</table>

People in advantaged areas have four years more healthy life than disadvantaged areas.
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 201335). 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 (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.14 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.15 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.14 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 $13,513.16 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, 2011–1217,50,52

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

Table 3: Estimates of health expenditure by disease group, area of expenditure, 2011–1217,50,52,53

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

* 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. 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. 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. 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. 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. An Indigenous Queensland study was released in 2014 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. 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. 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).

**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).

**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).

**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). 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.

**Trends:**

DALY burden in Australia increased by 14% between 1990 and 2010, while the rate decreased by 10% over this period. 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. 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. 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 2013.44

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, although the number of deaths for each decreased by 19% and 13% respectively.

**Table 4:** Change in DALYs, YLL and YLD ranking of leading specific causes, Australia 1990 and 2010

<table>
<thead>
<tr>
<th>Cause</th>
<th>1990</th>
<th>2010</th>
<th>% change*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coronary heart disease</td>
<td>1</td>
<td>Coronary heart disease</td>
</tr>
<tr>
<td>2</td>
<td>Low back pain</td>
<td>2</td>
<td>Low back pain</td>
</tr>
<tr>
<td>3</td>
<td>Road injury</td>
<td>3</td>
<td>COPD</td>
</tr>
<tr>
<td>4</td>
<td>Stroke</td>
<td>4</td>
<td>Other musculoskeletal</td>
</tr>
<tr>
<td>5</td>
<td>COPD</td>
<td>5</td>
<td>Stroke</td>
</tr>
<tr>
<td>6</td>
<td>Lung cancer</td>
<td>6</td>
<td>Falls</td>
</tr>
<tr>
<td>7</td>
<td>Other musculoskeletal</td>
<td>7</td>
<td>Major depressive disorder</td>
</tr>
<tr>
<td>8</td>
<td>Major depressive disorder</td>
<td>8</td>
<td>Lung cancer</td>
</tr>
<tr>
<td>9</td>
<td>Asthma</td>
<td>9</td>
<td>Neck pain</td>
</tr>
<tr>
<td>10</td>
<td>Self harm</td>
<td>10</td>
<td>Road injury</td>
</tr>
<tr>
<td>11</td>
<td>Neck pain</td>
<td>11</td>
<td>Drug use disorders</td>
</tr>
<tr>
<td>12</td>
<td>Falls</td>
<td>12</td>
<td>Alzheimer's disease</td>
</tr>
<tr>
<td>13</td>
<td>Drug use disorders</td>
<td>13</td>
<td>Asthma</td>
</tr>
<tr>
<td>14</td>
<td>Alzheimer's disease</td>
<td>14</td>
<td>Self harm</td>
</tr>
</tbody>
</table>

**Table 5:** Change in YLL and YLD ranking of leading specific causes, Australia 1990 and 2010

<table>
<thead>
<tr>
<th>Cause</th>
<th>1990</th>
<th>2010</th>
<th>% change*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coronary heart disease</td>
<td>1</td>
<td>Low back pain</td>
</tr>
<tr>
<td>2</td>
<td>Coronary heart disease</td>
<td>2</td>
<td>Lung cancer</td>
</tr>
<tr>
<td>3</td>
<td>Stroke</td>
<td>3</td>
<td>Major depressive disorder</td>
</tr>
<tr>
<td>4</td>
<td>Colorectal cancer</td>
<td>4</td>
<td>Neck pain</td>
</tr>
<tr>
<td>5</td>
<td>Self harm</td>
<td>5</td>
<td>Falls</td>
</tr>
<tr>
<td>6</td>
<td>Road injury</td>
<td>6</td>
<td>Anxiety disorders</td>
</tr>
<tr>
<td>7</td>
<td>COPD</td>
<td>7</td>
<td>Migraine</td>
</tr>
<tr>
<td>8</td>
<td>Breast cancer</td>
<td>8</td>
<td>Asthma</td>
</tr>
<tr>
<td>9</td>
<td>Alzheimer's disease</td>
<td>9</td>
<td>Drug use disorders</td>
</tr>
<tr>
<td>10</td>
<td>Diabetes</td>
<td>10</td>
<td>COPD</td>
</tr>
<tr>
<td>11</td>
<td>Prostate cancer</td>
<td>11</td>
<td>Diabetes</td>
</tr>
<tr>
<td>12</td>
<td>Pancreatic cancer</td>
<td>12</td>
<td>Alzheimer's disease</td>
</tr>
</tbody>
</table>

* 1990 to 2010

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

### Table 5: Change in DALY, death and YLD ranking of leading risk factors, Australia 1990 and 2010

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

Queensland

In 2007, a greater proportion of total disease burden in Queensland was associated with disability (54%) than premature death (46%). 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.43

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

### Dietary risks are the leading cause of disease burden.4

**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.43 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 Queenslander burden of disease study\(^{61}\) was based on methods previously reported in Australia\(^{59,67}\) and similar to the 2007 Queensland study\(^{39}\), while the 2010 global study introduced methodological and conceptual improvements.\(^{57,68}\) The 2014 Indigenous Queenslander 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 Queenslander 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.\textsuperscript{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 2010–2012\textsuperscript{21}), and the 12.3-year gap in HALE (61.2 years compared with 73.5 years in 2007). HALE for Indigenous Queenslanders 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).\textsuperscript{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%).\textsuperscript{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 Queenslanders 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 9c)

**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%).\textsuperscript{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 Queenslanders 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.\textsuperscript{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 Queenslanders\textsuperscript{61} than for all Queenslanders.\textsuperscript{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).\textsuperscript{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 Queenslanders 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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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, 2007

a. Broad causes, percentage of total burden

<table>
<thead>
<tr>
<th>Broad Cause</th>
<th>Percentage of Total Burden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental disorders</td>
<td>17.2%</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>14.8%</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>9.8%</td>
</tr>
<tr>
<td>Chronic respiratory disease</td>
<td>9.3%</td>
</tr>
<tr>
<td>Malignant neoplasms</td>
<td>8.1%</td>
</tr>
<tr>
<td>Unintentional injuries</td>
<td>6.2%</td>
</tr>
<tr>
<td>Intentional injuries</td>
<td>5.4%</td>
</tr>
<tr>
<td>Neonatal causes</td>
<td>4.8%</td>
</tr>
<tr>
<td>Nervous system and sense organ disorders</td>
<td>4.2%</td>
</tr>
<tr>
<td>Infectious and parasitic diseases</td>
<td>3.4%</td>
</tr>
<tr>
<td>Other</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

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

![Burden (DALYs) by age and sex and Indigenous status chart]

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

<table>
<thead>
<tr>
<th>Broad Cause</th>
<th>Rate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>All causes</td>
<td>2.1</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>6.7</td>
</tr>
<tr>
<td>Infectious and parasitic diseases</td>
<td>4.2</td>
</tr>
<tr>
<td>Intentional injuries</td>
<td>3.0</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>2.8</td>
</tr>
<tr>
<td>Chronic respiratory disease</td>
<td>2.7</td>
</tr>
<tr>
<td>Neonatal causes</td>
<td>2.2</td>
</tr>
<tr>
<td>Other</td>
<td>1.9</td>
</tr>
<tr>
<td>Unintentional injuries</td>
<td>1.8</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>1.5</td>
</tr>
<tr>
<td>Malignant neoplasms</td>
<td>1.4</td>
</tr>
<tr>
<td>Nervous system and sense organ disorders</td>
<td>0.9</td>
</tr>
</tbody>
</table>

A rate ratio of 1 indicates the Indigenous Queenslander rate is the same as the state.

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

![Distribution of fatal burden and deaths by age and sex and Indigenous status chart]
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 there was only one cause, and on average for each death, there were 3.2 causes. In this section and throughout this report, the underlying cause is reported unless noted. 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. 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. 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. 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. 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.
• Australia was ranked second lowest among 33 OECD countries for all-cause deaths in 2009. 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

Percentage of total

- Infectious and parasitic diseases
- Malignant neoplasms
- Benign and other neoplasms
- Diseases of blood and blood forming organs etc.
- Endocrine, nutritional and metabolic disorders including diabetes
- Mental and behavioural disorders
- Nervous system and sense organ disorders
- Diseases of eye and adnexa
- Diseases of ear and mastoid process
- Diseases of circulatory system
- Diseases of respiratory system
- Diseases of the digestive system
- Diseases of the genitourinary system
- Diseases of the perinatal period
- Congenital anomalies
- Symptoms, signs and abnormal findings
- Injury poisoning and other external causes
- Factors influencing health status and contact with health services

b. Deaths by sociodemographic factors, 2009–2010

Percentage of total

- Non-Indigenous
- Indigenous
- Remote/very remote
- Outer regional
- Inner regional
- Major cities
- Advantaged
- Quintile 4
- Quintile 3
- Quintile 2
- Disadvantaged
- Females
- Males

- Rate (per 100,000)

- Sunshine Coast
- Gold Coast
- Metro North
- Central Queensland
- Mackay
- Cairns and Hinterland
- Townsville
- Central West
- Cape York
- North West
- Torres Strait Northern Peninsula
- South West
- Darling Downs
- Wide Bay
- Queensland
- Metro South
- Metro North
- Sunshine Coast
- Gold Coast

- Higher than Qld
- Lower than Qld

- Rate (per 100,000)

- Number of hospitalisations ('1000)

- Number of hospitalisations
- Hospitalisation rate

- Males
- Females

- Age group (years)

- Number of hospitalisations (1000)

- Number of hospitalisations
- Hospitalisation rate

- Year
- 2001-02
- 2002-03
- 2003-04
- 2004-05
- 2005-06
- 2006-07
- 2007-08
- 2008-09
- 2009-10
- 2010-11
- 2011-12

- Number of hospitalisations (1000)
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. 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 that 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

<table>
<thead>
<tr>
<th>Category</th>
<th>All deaths 2010</th>
<th>Premature deaths 2010</th>
<th>Hospitalisations 2011–12</th>
<th>Allocated expenditure 2011–12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>% of total</td>
<td>Median age</td>
<td>Number</td>
</tr>
<tr>
<td>All causes</td>
<td>26,922</td>
<td>100</td>
<td>80</td>
<td>10,302</td>
</tr>
<tr>
<td>Communicable, maternal and neonatal</td>
<td>1,025</td>
<td>4</td>
<td>77</td>
<td>493</td>
</tr>
<tr>
<td>Non-communicable diseases</td>
<td>24,079</td>
<td>89</td>
<td>81</td>
<td>8,490</td>
</tr>
<tr>
<td>Injuries</td>
<td>1,818</td>
<td>7</td>
<td>51</td>
<td>1,319</td>
</tr>
<tr>
<td>Selected chronic conditions</td>
<td>23,181</td>
<td>86</td>
<td>80</td>
<td>8,236</td>
</tr>
</tbody>
</table>

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

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. 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. 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’ or ‘generation risk’. 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. 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.

Managing, treating and preventing these multi-morbidities will be a challenge. 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.
Figure 11: Non-communicable and selected chronic diseases, selected indicators, Queensland, 2008–2010

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

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 services, 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. 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 (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.\textsuperscript{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.\textsuperscript{87} The PPH rate was however 8% higher than the national rate—10% higher for chronic conditions and 6% higher for acute conditions.\textsuperscript{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 2010,\textsuperscript{88} 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.
Figure 13: Potentially preventable hospitalisations, selected indicators, Queensland

a. PPHs by category, 2011–12

- Total chronic
- Total acute
- Total vaccine preventable
- Diabetes complications
- COPD
- Congestive cardiac failure
- Angina
- Asthma
- Iron deficiency anemia
- Hypertension
- Rheumatic heart disease
- Nutritional deficiencies
- Pyelonephritis
- Dehydration and gastroenteritis
- Dental conditions
- Cellulitis
- Ear, nose and throat infections
- Convulsions and epilepsy
- Appendicitis with generalized peritonitis
- Gangrene
- Pelvic inflammatory disease
- Perforated/bleeding ulcer
- Influenza and pneumonia
- Other vaccine-preventable conditions

b. Australia by jurisdiction, 2009–10

<table>
<thead>
<tr>
<th>NT</th>
<th>WA</th>
<th>Qld</th>
<th>Vic.</th>
<th>SA</th>
<th>NSW</th>
<th>Tas.</th>
<th>ACT</th>
<th>Aus.</th>
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<td>4,000</td>
<td>3,000</td>
<td>2,000</td>
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</tr>
</tbody>
</table>

- Rate (per 100,000 persons)

<table>
<thead>
<tr>
<th>Rate (per 100,000 persons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 400 800 1,200 1,600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of hospitalisations ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 5 10 15 20</td>
</tr>
</tbody>
</table>

- Age by category, 2011–12

<table>
<thead>
<tr>
<th>Rate (per 100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 3,000 6,000 9,000 12,000 15,000 18,000</td>
</tr>
</tbody>
</table>

- Sociodemographic factors, 2010–11 to 2011–12

- HHS, 2009–10 to 2011–12

<table>
<thead>
<tr>
<th>Rate (per 100,000)</th>
</tr>
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<tbody>
<tr>
<td>0 2,000 4,000 6,000 8,000</td>
</tr>
</tbody>
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- Impact of rate difference on cases by HHS, 2009–10 to 2011–12

<table>
<thead>
<tr>
<th>Excess cases due to rate difference from Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4,000 -3,000 -2,000 -1,000 0 1,000 2,000</td>
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</tbody>
</table>

- Gold Coast
- Sunshine Coast
- Metro South
- Metro North
- Townsville
- Cairns and Hinterland
- Darling Downs
- Mackay
- Central West
- Central Queensland
- North West
- South West
- Torres Strait-Northern Peninsula
- Greater Brisbane
- Other Queensland
- Other Australia
- Other

- Male
- Female
- 0-4 years
- 5-9 years
- 10-14 years
- 15-19 years
- 20-24 years
- 25-29 years
- 30-34 years
- 35-39 years
- 40-44 years
- 45-49 years
- 50-54 years
- 55-59 years
- 60-64 years
- 65-69 years
- 70-74 years
- 75-79 years
- 80-84 years
- 85+ years

- Advantaged
- Disadvantaged
- Quintile 1
- Quintile 2
- Quintile 3
- Quintile 4

- Non-Indigenous
- Indigenous
- Remote/very remote
- Outer regional
- Inner regional
- Major cities

- Higher than Qld
- Lower than Qld
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 total, 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 7                | 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 9                | 53                          |
| Prostate       |                 |                  |                   |                             |                  |                        |                       |                           |
| Males          | 3,989           | 681              | 92                | 67                         | 80              | 1 in 6                  | 1 in 44               | 27                          |
| Females        | 1,923           | 231              | 91                | 63                         | 71              | 1 in 12                 | 1 in 101              | 55                          |
| 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 17                 | 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                          |

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 Australia\(^3\), 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.
Chapter 3 – Health outcomes

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 in 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 Queenslander death rate was 29% higher than the non-Indigenous rate—in major cities 66% 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. 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.

- Australia was ranked tenth lowest among the 33 OECD countries for cancer death rates in 2009. 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). 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). 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%. 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.21 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.\(^5\) 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%  |


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.

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).

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

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
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. 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. 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 30% (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.

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.
Expenditure

Cardiovascular diseases were the largest cause of allocated healthcare expenditure in Australia in 2008–09. 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). 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. 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. 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 2010—the leading causes along with high body mass, physical inactivity, smoking and poor nutrition (Chapter 4). 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.

Many Queenslanders are at risk of CVD:

- 5 in 10 adults have untreated high cholesterol
- 1 in 10 has untreated high blood pressure
- 3 in 10 are obese and another 3 to 4 are overweight
- 1 in 12 has diabetes
- 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
- 4 in 10 are insufficiently active
- 9 in 10 (at least) are not consuming the recommended serves of fruit and vegetables daily
- 1 in 10 smoke daily.

One third of HHSs have higher coronary heart disease death rates than the state.
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. 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. The cost of admitted hospital services increased 55% in seven years, and was the largest inflation-adjusted component of CVD expenditure in Australia. 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). The calculator is a tool for the management of CVD risk in the primary healthcare setting. 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 burden\(^90\), 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.\(^41\)

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.

### 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.\(^105\)

### Table 10: Diabetes, Queensland: summary facts

<table>
<thead>
<tr>
<th></th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deaths</strong></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>745</td>
</tr>
<tr>
<td>% of all deaths</td>
<td>2.8</td>
</tr>
<tr>
<td>% premature</td>
<td>36</td>
</tr>
<tr>
<td>Median age of death</td>
<td>80</td>
</tr>
<tr>
<td>Annual rate change</td>
<td>no change</td>
</tr>
</tbody>
</table>

| **Hospitalisations** |               |
| Number (principal diagnosis) | 8,209   |
| % of all hospitalisations  | 0.4      |
| Number (other diagnosis) | 4,487    |
| % of all hospitalisations  | 2.4      |
| Median age of hospitalisation – years | 57       |
| Annual rate change**    | not reportable |

\(^*\) 2010    ** 2011–12
\(^*i\) 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%.\(^116\)
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).\textsuperscript{119} Of Queensland adults aged 18–69 years with known diabetes, 46% were effectively managing their condition, similar to national (51%) in 2011–12.\textsuperscript{120} Many people with diabetes (61%) were taking medications to manage their disease with about 1 in 5 (21%) using insulin daily.\textsuperscript{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%).\textsuperscript{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.

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 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.
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.

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 Caims 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).
Causes and preventability

Type 1 diabetes is caused by biological interactions and exposures among people genetically predisposed to the disease. 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. 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. 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.

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. 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.

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. 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. 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). Mental health disorders are a leading cause of disability in Australia and in much of the developed world. Mental health was one of the first four national health priorities identified in 1996. Mental disorders were the third largest cause of disease burden in 2007 (14% of total) where 26% was associated with modifiable risks. They were the largest cause of burden for Indigenous Queenslanders overtaking cardiovascular disease in 2007.

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.

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. 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.
- 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.

- Obese adults were twice as likely as those of healthy weight to report poorer health in 2011–12. 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. 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 health, noting that about 1 in 10 (9%) experienced severe bodily pain in the previous four weeks.

Table 11: Mental health indicators, Queensland: summary facts

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

*2011–12 **2011
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 2010.48 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. 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.
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.

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. 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. 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.
- Australia was ranked twelfth lowest among 33 OECD countries for suicide in 2009. 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.

### 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).
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. 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. 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.

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. 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.
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. Injury prevention and control has been a national health priority in Australia since 1996. Injury caused 7% of the total burden of disease in 2007, and 31% was attributed to modifiable risks. The intentional injury burden rate for Indigenous Queenslanders was 3 times the non-Indigenous rate in 2007.

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. 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

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

* Excluding complications of medical and surgical care.

### 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.

#### 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 Queenslander 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 2009.20 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.
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. The risk of injury due to alcohol consumption in the short-term is significant and varies substantially by the amount of alcohol consumed. 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.

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. 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.

Risk factors for falls include age, sex, medication use and predisposing medical conditions such as Parkinson’s disease, stroke, incontinence and vision problems. 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. A fear of falling, which may result in reduced activity levels, can also increase the risk of a fall.

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. The Queensland road safety action plan 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.

Premature deaths from road transport are about 4 times greater in disadvantaged areas and also in remote areas.
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.³⁵ 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.³⁵²

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 200779, where 29% was due to modifiable risks.60

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

<table>
<thead>
<tr>
<th></th>
<th>All respiratory diseases</th>
<th>Asthma</th>
<th>COPD</th>
<th>Influenza and pneumonia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deaths (2010)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
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<td>65</td>
<td>1,064</td>
<td>389</td>
</tr>
<tr>
<td>% of all deaths</td>
<td>8.1</td>
<td>0.2</td>
<td>4.0</td>
<td>1.4</td>
</tr>
<tr>
<td>% of respiratory deaths</td>
<td>100</td>
<td>3</td>
<td>49</td>
<td>18</td>
</tr>
<tr>
<td>% premature</td>
<td>28</td>
<td>55</td>
<td>34</td>
<td>17</td>
</tr>
<tr>
<td>Median age of death – years</td>
<td>82</td>
<td>71</td>
<td>79</td>
<td>87</td>
</tr>
<tr>
<td>Annual rate change†</td>
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<td>No change</td>
<td>-2.4</td>
<td>-8.1</td>
</tr>
<tr>
<td><strong>Hospitalisations (2011–12)</strong></td>
<td></td>
<td></td>
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<tr>
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<td>13,067</td>
<td>15,684</td>
</tr>
<tr>
<td>% of all hospitalisations</td>
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<td>0.4</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>% of respiratory hospitalisations</td>
<td>100</td>
<td>9</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Annual rate change†</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
</tbody>
</table>


- 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.
- 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. 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).
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.

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). 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. Smoking accounted for 70% of the COPD burden in males and 60% in females in 2007. 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%). 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. 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. 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.

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. 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.

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

Premature deaths due to COPD are 3 times higher in disadvantaged areas.
Chapter 3 – Health outcomes

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

- Females
- Males

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

- COPD hospitalisation rate
- COPD death rate

C. Asthma hospitalisations by sociodemographic factors, 2001–02 to 2011–12

- Non-Indigenous
- Indigenous
- Remote/very remote
- Outer regional
- Inner regional
- Major cities
- Disadvantaged
- Advantage
- Quintile 4
- Quintile 3
- Quintile 2

D. COPD deaths by sociodemographic factors 2001–02 to 2011–12

- Non-Indigenous
- Indigenous
- Remote/very remote
- Outer regional
- Inner regional
- Major cities
- Disadvantaged
- Advantage
- Quintile 4
- Quintile 3
- Quintile 2

E. Influenza and pneumonia hospitalisations by sociodemographic factors, 2001–02 to 2011–12

- Queensland
- Males
- Females

F. COPD hospitalisations by HHS, 2009–10 to 2011–12

- “South West”
- “North West”
- “Cape York”
- “Central West”
- “West Moreton”
- “Wide Bay”
- Torres Strait-Northern Peninsula
- “Cairns and Hinterland”
- “Townsville”
- “Central Queensland”
- “Darling Downs”
- “Mackay”
- Queensland
- “Metro North”
- “Metro South”
- “Sunshine Coast”
- “Gold Coast”

** Higher than Qld
* Lower than Qld
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. 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). 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. 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.
- One in 4 Queenslanders aged 15 years and older in 2004–2006 had untreated decay (28%). 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. 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.
Musculoskeletal conditions

Musculoskeletal conditions are common chronic conditions, affecting 27% of the Queensland population. They have been a national health priority since 2002. They are a major cause of disability, with symptoms affecting everyday life. 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). 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.

In 2009–10 in Queensland, 10% of all GP consultations were related to a musculoskeletal condition.

Prevalence

- 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

Prevalence

- 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

Prevalence

- 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).
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.
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. 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. 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. 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.

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. 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. Recognising these caveats, it is the method used in Australia.

- 1.3% or 298,000 Australians were estimated to have dementia—about 49,000 Queenslanders.
- 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.
• 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.

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.\(^{20}\) 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.\(^{66}\)

Figure 27: Prevalence of dementia, Australia, 2011\(^{140}\)

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;65</td>
<td>0</td>
</tr>
<tr>
<td>65-74</td>
<td>3</td>
</tr>
<tr>
<td>75-84</td>
<td>10</td>
</tr>
<tr>
<td>85+</td>
<td>30</td>
</tr>
</tbody>
</table>

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.\(^{190}\) 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 28: Dementia hospitalisations (principal and other diagnoses), by HHS, Queensland, 2009–10 to 2011–12

- Tores Strait-Northern Peninsula
- Cape York
- Central Queensland
- North West
- Central West
- Metro South
- Wide Bay
- Townsville
- Queensland
- Metro North
- West Moreton
- Cairns and Hinterland
- Mackay
- Sunshine Coast
- Darling Downs
- Gold Coast
- South West

*Higher than Qld
*Lower than Qld
Vision disorders and hearing loss

Vision and hearing are primary senses involved in communication, mobility and learning. 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. 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. 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.

In Australia, it is estimated that there were about 550 children (20 per 10,000 live births) born with a congenital hearing impairment. Early detection, particularly in the neonatal period, and access to services can improve long-term outcomes for many of these children. 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.

Vision disorders and diseases of the eye

Prevalence

- 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

Prevalence

- 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.
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*. 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

e. Rotavirus

f. Tuberculosis

g. Salmonellosis

h. Staphylococcus aureus bloodstream infection

i. Dengue

j. Legionellosis

k. Syphilis

l. HIV