Data sources and methods

Many data sources were used to develop this report. The latest available data are presented and sources cited. Selected summary information is included below with further information on sources and methods available in a separate methods report.38

Age standardisation: Rates are standardised to the 2001 Australian population for all death, cancer incidence and hospitalisation data and for selected prevalence comparisons from national and state surveys. Death rates for OECD comparison were standardised to the 2010 OECD population. Other reported prevalence estimates such as daily smoking and obesity are not age standardised. Notification rates are not age standardised.

Deaths: The most recent final-release death data was for 2010 and this has been used for all reporting in this report. Deaths of Queensland residents who died in Queensland are included. Queensland residents who died interstate or overseas are not included, nor are interstate or overseas visitors who died in Queensland. Aggregated years are used to provide more robust estimates for socioeconomic, remoteness and Indigenous status differentials (two years of data) and for HHS reporting (three years of data). All death data is reported according to the underlying cause.416 Deaths were reported by year of registration (reference year) for all state level reporting, remoteness and sociodemographic differentials. For Indigenous Queenslander reporting and all HHS reporting, year of death was used. For median age of death, year of death was used exclusively. The use of median age of death and its limitations was noted on page ii.

Format for reporting years: Financial and hospitalisation data are displayed using the format 2011–12. The same format is used for data collected over two years but not the full period. Data which refers to two full years is displayed in the format 2009–2010.

Hospitalisations: Hospitalisation data (separations or episodes of care) were derived from the Queensland Hospital Admitted Patient Data Collection, including admissions of Queensland residents to private and public hospitals, with certain exclusions which are noted.38 The hospitalisation was coded to the residence of the patient. All disease-specific hospital separations were derived using the primary diagnosis of inpatient episode of care unless otherwise specified.

International Classification of Diseases (ICD) codes: The codesets for all conditions are listed in the methods report.38 Of note, for all state-based reporting of PPHs the nationally defined indicator was used38 and for all sub-state reporting, such as for HHSs, the Queensland specific codeset was used.417 The codes for chronic disease are included (Table 39).

International comparisons: Where available, rates in Queensland and Australia for health conditions and risks are compared with other countries, in particular the OECD and the 187 countries included in the Global Burden of Disease study. The diverse nature of health and healthcare systems across countries adds a level of complexity to international comparisons. Different definitions and data collection methods can produce variation that is not due to an underlying pattern or trend.

Notifications: All notification data comes from Queensland’s notifiable conditions system (NOCS), that is maintained in the register legislated by the Public Health Act 2005.

Prevalence: The prevalence of a disease or condition is assessed by population survey, conducted nationally or by the Queensland Government.

Population: Estimated resident population data at 30 June for each year were used for calculation of all rates, including prevalence data from Queensland Health surveys.

Statistical inference: The reporting of difference between categories is noted only when the difference is statistically significant, based on non-overlap of 95% confidence intervals. Estimates for population subgroups may be based on small numbers and have large relative standard errors and this is noted in relevant tables including suppression of data where relative standard error of an estimate exceeds 50%. Generally, for reporting health outcome data such as deaths, cancer incidence and hospitalisations, rates are based on a minimum of 20 cases, and data not released where there were fewer than five cases.38

Trend: Trends in health outcome reporting were based on linear fit to the log of the annual estimates. For general risk factor reporting, Poisson regression methods were used and cited, as well as linear fit of point prevalence estimates.
Table 39: Disease codes: non-communicable diseases and selected chronic diseases

<table>
<thead>
<tr>
<th>Disease group</th>
<th>Inclusions</th>
<th>ICD10-AM Code – hospitalisations</th>
<th>ICD10 Code – deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non communicable diseases</td>
<td>Malignant neoplasms</td>
<td>C00 – C97</td>
<td>C00 – C97</td>
</tr>
<tr>
<td></td>
<td>Benign and other neoplasms</td>
<td>D00 – D48</td>
<td>D00 – D48</td>
</tr>
<tr>
<td></td>
<td>Diseases of blood and blood forming organs etc</td>
<td>D50 – D89</td>
<td>D50 – D89</td>
</tr>
<tr>
<td></td>
<td>Endocrine, nutritional and metabolic disorders including diabetes</td>
<td>E00 – E89</td>
<td>E00 – E90</td>
</tr>
<tr>
<td></td>
<td>Mental and behavioural disorders</td>
<td>F00 – F99</td>
<td>F00 – F99</td>
</tr>
<tr>
<td></td>
<td>Nervous system and sense organ disorders</td>
<td>G00 – G99</td>
<td>G00 – G99</td>
</tr>
<tr>
<td></td>
<td>Diseases of eye and adnexa</td>
<td>H00 – H59</td>
<td>H00 – H59</td>
</tr>
<tr>
<td></td>
<td>Diseases of ear and mastoid process</td>
<td>H60 – H95</td>
<td>H60 – H95</td>
</tr>
<tr>
<td></td>
<td>Diseases of circulatory system</td>
<td>I00 – I99</td>
<td>I00 – I99</td>
</tr>
<tr>
<td></td>
<td>Diseases of the digestive system</td>
<td>K00 – K93</td>
<td>K00 – K93</td>
</tr>
<tr>
<td></td>
<td>Diseases of skin and subcutaneous tissue</td>
<td>L00 – L99</td>
<td>L00 – L99</td>
</tr>
<tr>
<td></td>
<td>Diseases of musculoskeletal system and connective tissue</td>
<td>M00 – M99</td>
<td>M00 – M99</td>
</tr>
<tr>
<td></td>
<td>Diseases of the genitourinary system</td>
<td>N00 – N99</td>
<td>N00 – N99</td>
</tr>
<tr>
<td></td>
<td>Symptoms, signs and abnormal findings</td>
<td>R00 – R99</td>
<td>R00 – R99</td>
</tr>
<tr>
<td></td>
<td>Factors influencing health status and contact with health services</td>
<td>Z00 – Z99</td>
<td>Z00 – Z99</td>
</tr>
<tr>
<td>Communicable, maternal and neonatal</td>
<td>Infectious and parasitic diseases</td>
<td>A00 – B99</td>
<td>A00 – B99</td>
</tr>
<tr>
<td></td>
<td>Diseases of respiratory system – acute respiratory</td>
<td>J00 – J39</td>
<td>J00 – J39</td>
</tr>
<tr>
<td></td>
<td>Pregnancy, childbirth and puerperium</td>
<td>O00 – O99</td>
<td>O00 – O99</td>
</tr>
<tr>
<td></td>
<td>Conditions originating in perinatal period</td>
<td>P00 – P96</td>
<td>P00 – P96</td>
</tr>
<tr>
<td></td>
<td>Congenital anomalies</td>
<td>Q00 – Q99</td>
<td>Q00 – Q99</td>
</tr>
<tr>
<td>Injury</td>
<td>Injury poisoning and other external causes</td>
<td>U50 – V98</td>
<td>V01 – V98</td>
</tr>
<tr>
<td>Selected chronic conditions</td>
<td>Malignant neoplasms</td>
<td>C00 – C97</td>
<td>C00 – C97</td>
</tr>
<tr>
<td></td>
<td>Endocrine, nutritional and metabolic disorders including diabetes</td>
<td>E00 – E89</td>
<td>E00 – E90</td>
</tr>
<tr>
<td></td>
<td>Mental and behavioural disorders</td>
<td>F00 – F99</td>
<td>F00 – F99</td>
</tr>
<tr>
<td></td>
<td>Nervous system and sense organ disorders</td>
<td>G00 – G99</td>
<td>G00 – G99</td>
</tr>
<tr>
<td></td>
<td>Diseases of circulatory system</td>
<td>I00 – I99</td>
<td>I00 – I99</td>
</tr>
<tr>
<td></td>
<td>Diseases of the digestive system</td>
<td>K00 – K93</td>
<td>K00 – K93</td>
</tr>
<tr>
<td></td>
<td>Diseases of musculoskeletal system and connective tissue</td>
<td>M00 – M99</td>
<td>M00 – M99</td>
</tr>
<tr>
<td></td>
<td>Benign and other neoplasms</td>
<td>D00 – D48</td>
<td>D00 – D48</td>
</tr>
</tbody>
</table>

Terminology, definitions and abbreviations

Aboriginal and Torres Strait Islander populations: referred to as 'Indigenous Queenslanders’ or 'Indigenous Australians' except where there is reference to either population separately

Adults and age groups: adults are persons aged 18 years and older. Unless otherwise specified, all data in this report refer to the whole population, that is, those aged 0–85+ years. Children are defined in relevant sections and where not explicitly stated refer to the age group 5–17 years, consistent with national indicator reporting.

Age-standardisation: the adjustment of rates by relating them to a standard population to facilitate comparisons between various populations with different age structures (or the same population over time).

Anaemia: described as a decrease in either the number of red blood cells in the body or the quantity of haemoglobin within red blood cells. The risk of anaemia is defined using haemoglobin levels: for children aged 12–14 years and for non-pregnant women aged 15 years or older, haemoglobin levels less than 120 g/L are defined as at risk of anaemia. For pregnant women, haemoglobin levels less than 110 g/L are defined as at risk of anaemia. For males aged 15 years or older, haemoglobin levels less than 130 g/L are defined as at risk of anaemia.230

Avoidable deaths: deaths before the age of 75 years considered avoidable at the present time given available knowledge and comprising preventable and treatable deaths.418,419

BMI (body mass index): measure correlated closely with body density and skinfold thickness, calculated as BMI = weight (kg)/height (m) squared.420 For adults, BMI less than 18.5 is underweight, 18.5 to less than 25 is normal, 25 to less than 30 is overweight and 30 or more is obese.421 For children, BMI is compared with age and sex-specific BMI percentile charts.422
Chronic disease: diseases of long duration and generally slow progression.\textsuperscript{423} In this report, chronic disease refers to either all non-communicable disease or selected chronic conditions as defined (Table 39).

CI (confidence interval): in general, a range of values expected to contain the true value 95% of the time (95% CI).

Decay experience: number of decayed, missing or filled teeth termed dmft in primary teeth, and DMFT in permanent teeth.

DALY (disability adjusted life year): measure of overall burden of disease and injury, where the DALY for a disease or condition is the sum of the YLL and YLD.\textsuperscript{59}

Disability: temporary or long-term reduction of a person’s capacity or function.\textsuperscript{420}

Dyslipidaemia: refers to a number of different lipid disorders (that is, conditions where there are too many fats in the blood). In this report, a person was considered to have dyslipidaemia if they had one or more of the following\textsuperscript{225}:

- taking cholesterol-lowering medication
- total cholesterol greater than or equal to 5.5mmol/L
- HDL cholesterol less than 1.0mmol/L for men and less than 1.3mmol/L for women
- LDL cholesterol greater than or equal to 3.5mmol/L
- triglycerides greater than or equal to 2.0mmol/L.

Discretionary foods: as described in the Australian dietary guidelines 2013, discretionary foods are those that are not essential or a necessary part of a healthy dietary pattern. These foods are high in kilojoules, saturated fat, added sugars and/or salt or alcohol.\textsuperscript{226}

Hospitalisations: is the term used for the total number of separations in all hospitals (public and private) that provide acute care services. A separation is an episode of care which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay ending in a change of status (for example from acute care to rehabilitation).\textsuperscript{424} About 98% of admissions comprise only one episode of care. Unless otherwise indicated all hospitalisation data refers to principal diagnosis only.

Hypertension: High blood pressure, often referred to as hypertension, is prolonged elevation of the blood pressure. The three criteria for diagnosis of hypertension or high blood pressure are\textsuperscript{227}:

- systolic blood pressure of 140 mmHg or more or
- diastolic blood pressure of 90 mmHg or more or
- receiving medication for high blood pressure.

ICD (International classification of diseases and health conditions): Standard classification of specific conditions and groups of conditions determined by an internationally representative group of experts\textsuperscript{420} and used for health records.

Incidence: number of new health-related events (for example, illness or disease) in a defined population in a defined period of time.\textsuperscript{420}

Infant mortality rate: number of deaths of children under 1 year of age in one calendar year per 1,000 live births in the same calendar year.\textsuperscript{420}

Long-term condition: a medical condition (illness, injury or disability) which has lasted at least six months, or which the respondent expects to last for six months or more.

Low birth weight: less than 2500gm.

Life expectancy: average number of additional years a person of a given age and sex might expect to live if the age-specific death rates of the given period continued throughout their lifetime.\textsuperscript{69}

Neonatal death: death of any child born alive who died within 28 days of birth.\textsuperscript{425}

Notifications: reports of specified health conditions to government by medical practitioners, pathology laboratories and hospitals. In Queensland, this is legislated by the Public Health Act 2005.

Perinatal mortality rate: is the annual number of perinatal deaths per 1,000 births. Perinatal deaths include all fetal and neonatal deaths of at least 400gm birth weight or at least 20 weeks gestation.\textsuperscript{426}

PPHs (potentially preventable hospitalisations): admissions to hospital that potentially could have been prevented through the provision of appropriate non-hospital health services.\textsuperscript{44}

Premature death: in this report, generally refers to a death that occurs before the age of 75 years

Prevalence: a measure of disease occurrence or disease frequency, often used to refer to the proportion of individuals in a population who have a disease or condition.\textsuperscript{420}

Preventable deaths: premature deaths which are considered avoidable because they are amenable to screening and primary prevention and reflect the effectiveness of the current health activities of the health sector.\textsuperscript{53}

Psychological distress (risk of): is assessed using the Kessler 10 Scale (K10) which is a scale of non-specific psychological distress based on 10 questions about negative emotional states in the four weeks prior to interview.\textsuperscript{427}

Rates: refers to a measure of the frequency of the occurrence of an event or phenomenon in a defined population in a specified period of time.\textsuperscript{420}

Regular dental visiting pattern: for children, where a parent has indicated that their child usually visits a dentist/dental therapist at least once every two years.
Relative difference in rates or prevalence: is expressed as percentage for ratios up to 100%, for example if the prevalence in area A is 40% and in area B it is 60%, area B is described as 50% higher than A. However, ratios of 100% and above are expressed as times or fold. For example, if the rate in area A is 100% higher than area B (for example A is 40% and B is 20%), area A is described as two-fold or double or 2 times area B.

Relative survival rate: a survival rate adjusted for other independent causes of death.

Remoteness: determined using the Accessibility/Remoteness Index of Australia (ARIA+) which is used to create the six-category remoteness areas (RA) classification: major cities, inner regional, outer regional, remote, very remote, and migratory. ARIA scores are based on how far the population must travel to access services.

Significant: a term used in this report to reflect a level of importance as well as statistical difference. In the context of statistical difference, non-significant results are described with terms such as ‘similar’, ‘stable’ or ‘no difference’. In this report statistical significance is based on non-overlap of 95% confidence intervals.

Socioeconomic advantage or disadvantage: refers to populations profiled using the ABS Index of Relative Socioeconomic Advantage and Disadvantage. This index summarises information about the economic and social conditions of people and households within an area and includes characteristics of advantage and disadvantage, with areas categorised into quintiles.

Survival rate: the proportion of persons in a specified group alive at the beginning of the time interval (for example, a five-year period) who survive to the end of the time interval.

TF index (Thylstrup-Fejerskov index): provides a 10-point classification system for recording enamel changes associated with increasing levels of fluoride in water.

Treatable deaths: premature deaths which are considered avoidable because they are amenable to therapeutic interventions, reflecting the safety and quality of the current treatment system.

YLD (years of life lost due to disability): measure of burden of disease and injury, capturing the future loss of healthy years of life from new cases of conditions.

YLL (years of life lost due to premature mortality): measure of burden of disease and injury, calculated as the number of deaths multiplied by the standard life expectancy at the age at which death occurs.
Guidelines

This section describes in brief, changes that have occurred with the release of new NHMRC guidelines for recommended fruit and vegetable consumption and Australian Government physical activity recommendations. It also includes a brief summary of the new analysis undertaken by Queensland Health for more effective reporting against the 2009 alcohol guidelines.

1. Dietary guidelines

The 2013 Australian dietary guidelines are used within this report for monitoring fruit and vegetable consumption and to assess the dietary patterns of the population.\textsuperscript{227} This section includes a brief summary of changes that have occurred since 2003.\textsuperscript{238,239} The 2013 guidelines outline five key nutrition related recommendations for Australians to follow in order to achieve and maintain a varied and balanced diet, according to the most up-to-date knowledge and high quality scientific evidence. They focus on food and eating patterns, rather than single nutrients. The number of recommended serves of fruit and vegetables has changed for many age groups. A serve of fruit is one medium piece or two small pieces, or a cup of diced pieces. For vegetables a serve is half a cup of cooked or one cup of salad vegetables. ‘Extra foods’ are now described as ‘discretionary choices’ reflecting the advice that they should be consumed only sometimes and in small amounts. The recommendations for additional foods for those who are taller or more active, are included below (Table 40). These additional foods could include foods from other the five food groups or discretionary foods.

Changes in recommended daily fruit and vegetables consumption are presented below, noting age group differences (Table 40):

- 2–3 years: for the first time, the 2013 guidelines recommended 1 daily serve of fruit and 2.5 serves of vegetables
- 4–8 years (4–7 year olds in 2003 guidelines): the recommended fruit and vegetable serves increased by 0.5 and 2.5 serves respectively
- 9–11 years: increased by 1 serve of fruit and 2 serves of vegetables
- 12–18 years: decreased by 1 serve of fruit, but increased by 1 to 1.5 serves of vegetables for girls and boys respectively
- For adults, the recommended 2 serves of fruit remained unchanged. While the 2003 guidelines recommended 5 serves of vegetables for adults (19 years and older), the 2013 guidelines made varied recommendations of serves for different age groups for men only.
- For pregnant women, the recommended minimum daily serves of fruit decreased by 2 serves. For breastfeeding women, the recommended daily serves of fruit decreased by 3 serves and for vegetables increased by 0.5 serve.

---

Table 40: Dietary guidelines: comparison of selected recommendations, 2003 and 2013

<table>
<thead>
<tr>
<th>Age group (year)</th>
<th>2003 guidelines (daily serve)*</th>
<th>2013 guidelines (daily serve)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit</td>
<td>Vegetables</td>
<td>‘Extra’ foods</td>
</tr>
<tr>
<td>2–3</td>
<td>No recommendations</td>
<td></td>
</tr>
<tr>
<td>4–7</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8–11</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>12–18</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19–60</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>61+ years</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Pregnant</td>
<td>4</td>
<td>5–6</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

*The daily serves for males and females are the same unless specified otherwise.
2. Physical activity

The 2005 Australian physical activity guidelines are used in the report for monitoring the physical activity in the Queensland population. The recommendations were revised in 2014, and will be used for monitoring in future. This section highlights the main recommendations of the 2014 guidelines, and how they have changed since 2005. One of the key changes is the inclusion of recommendations for reducing sedentary behaviour for adults. The revised guidelines are supported by a rigorous review of the evidence and were subject to stakeholder and expert consultation and consensus.

The 2014 guidelines outline the amount, frequency, intensity and type of physical activity and health outcome indicators, including the risk of chronic disease and obesity. The guidelines are described in greater detail in the associated methods report and in summary include:

- 0–5 years:
  - Birth to 1 year: For healthy development in infants, physical activity, particularly supervised floor-based play in safe environments, should be encouraged from birth.
  - 1–5 years: Toddlers and pre-schoolers should be physically active every day for at least three hours, spread throughout the day.
  - Sedentary behaviour: infants, toddlers and pre-schoolers should not be sedentary, restrained, or kept inactive, for more than one hour at a time, with the exception of sleeping. For children under the age of 2 years, no television or electronic media is recommended, and for children 2–5 years such screen time viewing should be limited to less than one hour per day.

- 5–17 years:
  - The current recommendation of an accumulated minimum of 60 minutes of moderate to vigorous intensity physical activity every day remains unchanged.
  - The revised guidelines recommended including in children’s physical activity a variety of aerobic activities, including some vigorous intensity activity.
  - Children and young people should engage in activities that strengthen muscle and bone on at least three days per week.
  - Sedentary behaviour: to reduce health risks, minimise the time spend being sedentary every day, and break up long periods of siting as often as possible. Limit the use of electronic media for recreational activity to no more than two hours per day.

- 18–64 years:
  - Doing any physical activity is better than doing none. If a person in this age group is currently doing no physical activity, the guidelines recommend for doing some and gradually building up to the recommended level.
  - Be active on most and preferably all days, every week.
  - Accumulate 150 to 300 minutes of moderate intensity physical activity or 75 to 150 minutes of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities each week.
  - Minimise the amount of time spent in prolonged sitting or other sedentary behaviours. Break up long periods of siting as often as possible.

- 65 years and older:
  - Older people should be active every day in as many ways as possible, doing a range of physical activities that incorporate fitness, strength, balance and flexibility.
  - The current recommendation of an accumulated 30 minutes of moderate intensity physical activity on most, preferably all days of a week, remains unchanged.
3. Alcohol

In March 2009, the NHMRC released the Australian guidelines to reduce health risks from drinking alcohol (page 108). Guideline 1 (lifetime risky drinking) and Guideline 2 (single occasion risky drinking) apply to the healthy adult population with a focus on improving health and wellbeing by reducing risks of alcohol related injury and disease. Guidelines 3 and 4 address factors specific to children, adolescents, and pregnant and breastfeeding women. The prevalence of alcohol consumption in Queensland populations adhering to the guidelines is described in Chapter 4. This section highlights an analytical complexity arising from reporting against the guidelines and a solution that is described more fully in associated reports and used within this report to more fully characterise consumption patterns.

For monitoring the prevalence of risky alcohol drinking, Guideline 1 and Guideline 2 are generally reported as independent categories. However, reporting is limited by usual consumption patterns—a large proportion of adults are engaged in both behaviours. As a result, it is difficult to determine changes in drinking pattern and to assess the sociodemographic characteristics of consumers. The overlapping risk groups show that 65% of lifetime risky consumers also drank at weekly single occasion risk levels and conversely 90% of single occasion risky drinkers also consumed alcohol at lifetime risky levels (Figure 70). In effect, prevalence of risky drinking whether for lifetime risk or single occasion risk was primarily attributable to those who were risky drinkers by both guidelines.

To more accurately describe the consumption patterns, mutually exclusive categories were created (Table 41). Consumers were categorised into six groups based on their daily consumption (less than or greater than 14 drinks per week) as well as single occasion consumption (that is, never consuming more than four drinks on a single occasion as well as the frequency of doing so). In 2013, among Queensland adults, the prevalence of these drinking patterns, from the least to the most risky was:

- 17% were abstainers
- 30% were low risk consumers
- 1% were lifetime risky drinkers—only
- 20% were less than monthly single occasion risky drinkers—only
- 13% were monthly single occasion risky drinkers—only
- 2% were less than monthly single occasion risky drinkers and lifetime risky drinkers
- 18% were monthly single occasion risky drinkers and lifetime risky drinkers combined, that is, the riskiest drinkers.

<table>
<thead>
<tr>
<th>Table 41: Alcohol consumption categories, new analysis, and prevalence, adults, Queensland 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Guideline 1, single occasion risk: greater than 4 drinks on any occasion</strong></td>
</tr>
<tr>
<td>Never</td>
</tr>
<tr>
<td>Less than or equal to 14 drinks per week</td>
</tr>
<tr>
<td>Greater than 14 drinks per week</td>
</tr>
</tbody>
</table>

Abstainers made up the remaining 16.8% of adults in 2013.
References


14. Begg S. Health in a post transition Australia: adding life to years or years to life? Australian Health Review 2013; Early online; DOI:10.1071/AH13114.


