In Queensland in 2013–14, public and private hospitals provided:
- 10.5 million occasions of service
- 2.0 million admitted patient episodes of care resulting in 5.7 million patient days.

One in five Queenslanders was admitted to a public or private hospital in 2013–14.

Hospitalisations (public and private) are increasing—
for admitted patient episodes by about 70,000 per year (107,000 patient days per year). Presentations to emergency care are increasing by about 50,000 per year.

Population growth accounted for almost half the annual increase in admitted patient hospitalisations for all causes, with one-third due to increased rates of admission independent of demographic change. Ageing accounted for less than one-tenth and the remainder was due to the interaction between these factors.

The largest causes of hospitalisation were for a wide range of reasons not principally associated with a disease diagnosis—treatments, investigations, specific procedures, symptoms and signs, together accounting for one-third of total hospitalisations and more than one-third of the annual increase in admissions and patient days over the past 11 years.

Chronic conditions of ageing and those with greater disability burden such as musculoskeletal conditions, nervous system diseases, mental disorders (including dementia and substance use disorders), diabetes and sense organ disorders, were the second largest broad category, accounting for more than a quarter of hospitalisations. Increasing admission rates for these conditions, independent of demographic factors, was the dominant cause of the increase, substantially adding to health system pressures.

Serious infectious diseases accounted for about one-twelfth of all hospitalisations—the crude rate increased by 18% over the past decade, with the number of hospitalisations increasing by about 50%, largely driven by population growth.

Lifestyle related chronic conditions were the cause of 4% of hospitalisations. The admission rate for these conditions decreased over the past 11 years, independent of demographic change, demonstrating gains achieved from smoking rate reduction and improved treatment and management of cardiovascular conditions. Gains were evident in all but one HHS (Wide Bay).

At least 1 in 15 hospitalisations could have been treated in a primary healthcare setting rather than in a hospital, based on nationally defined criteria for potentially preventable hospitalisations.

There was substantial variation in hospitalisation rates and their underlying causes in the HHSs. Although three-quarters of the state increase in hospitalisations over the past 12 years occurred in the four most populous HHSs of the south east, the greatest relative increase was in Wide Bay.

West Moreton HHS and Mackay HHS had the smallest increase in hospitalisation rates for all causes and for a number of major disease groups. West Moreton was the only HHS with a decline in rates for children and young people and Mackay the only HHS where rates for age-related chronic conditions declined.
Headline hospital statistics

Public and private hospitals
There were 169 public hospitals (165 acute and 4 psychiatric) and 108 private hospitals (52 free standing day hospitals and 56 others) in Queensland in 2013–14, a total of 277, representing 20% of Australia’s hospitals, consistent with population share.78

Admitted and non-admitted patients
A person presenting to a hospital for care may receive treatment as a non-admitted patient or be admitted:

- Non-admitted patients receive services through emergency departments, outpatient clinics and a range of other services.
- Admission to hospital is a formal process, and follows a decision made by a medical officer that a patient needs to be admitted for appropriate management or treatment of their condition, or for appropriate care or assessment of needs. A ‘separation’ is the technical term used to refer to the episode of admitted patient care. In this report separations are referred to as ‘admissions’ or ‘hospitalisations’.

In 2013–14, in Queensland hospitals there were:

- 10,450,560 occasions of care for non-admitted services79 – 3,090,556 were for outpatient care, a decrease of 3.3% per year since 2009–10, in contrast to a national increase of 2.5% per year. Three-quarters of the occasions of service were for other medical, surgical and diagnostic causes.
  - 1,830,138 were for emergency care. Occasions of service increased by 3.8% per year since 2009–10, higher than the national increase of 2.6% per year.
  - 5,529,866 were for other non-admitted services including pathology, pharmacy, community health and radiology. The number of such services decreased by 1.9% per year since 2009–10, in contrast to a national increase of 3.2% per year.
- 2,071,130 admitted patient episodes of care (Queensland residents and visitors), 52% occurring in public hospitals.80 The number of episodes increased by 4.0% per year since 2009–10, higher than the national increase of 3.3%.

Admissions and patient days
An admission to hospital may be for same day care (about 60%), or involve an overnight or longer stay (about 40%). The number of patient days is a measure of patient admissions and length of stay.

Of the 2.1 million admissions in 2013–14, 842,087 were for overnight episodes and 1,229,043 were for same day episodes.80

In 2013–14, there were 5,591,017 patient days in Queensland, an annual increase of 1.9% per year since 2009–10 and higher than the national increase of 1.4% per year.

The average length of stay in 2013–14 was 2.7 days (2.9 nationally), a decrease from 3.2 days in 2002–03. Excluding same day admissions, the average stay was 5.2 days (5.5 nationally).

Principal diagnosis and other diagnoses
When a patient is admitted to hospital the principal diagnosis associated with their treatment and care is identified in their patient record along with multiple other diagnoses related to the episode. It is common when reporting on causes and trends in hospitalisations to use the principal diagnosis although other diagnoses provide useful information about disease patterns. Principal diagnosis was used in this chapter and in the national assessment of health expenditure based on cause group in Chapter 7.

Classifying diseases
There are a number of ways of classifying and grouping the underlying causes of a hospitalisation. Diagnosis related groups (DRGs) are more commonly used in hospital and system reports. However, the international classification of diseases (ICD) is used in health status reporting because it has a highly detailed hierarchical structure and provides continuity with other data sources such as death registers and expenditure reporting.

There are 21 ‘Chapters’ in the ICD classification system.81 The ICD Chapters and their subcategories are used throughout the Chief Health Officer report.

Emergency department presentations are increasing by 50,000 per year on average and admissions by 70,000.
Major causes for admitted patients

There were 2,008,341 hospitalisations (for 909,124 unique patients) of Queensland residents in Queensland in 2013–14. This includes admissions (acute episodes of care) to public and private hospitals (not for interstate or overseas visitors), but does not include presentations to emergency department or outpatient clinics and services. This section focuses on admitted patient episodes of care, referred to as ‘hospitalisations’ or ‘admissions’. A short summary of emergency department presentations is included (page 36). A visual diagram of hospitalisations by cause is available online (page i for details).

The four largest causes of hospital admission in 2013–14 based on ICD Chapters and together accounting for 50% of hospitalisations and 41% of patient days are listed below:82 (Figure 18):

- Factors influencing health status and contact with health services accounted for 25% of hospitalisations and 20% of patient days in 2013–14. These are admissions not attributed to a primary disease diagnosis, although it is likely a number of diseases may be noted in the record as being associated with the admission. They include hospitalisations for examinations, investigations and observations. The largest single reason was care involving renal dialysis. The Chapter also includes hospitalisations for chemotherapy and rehabilitation (cardiac, alcohol, drug, other).

- Digestive system diseases accounted for 10% of hospitalisations and 7.4% of patient days. The largest cause in this Chapter was dental conditions, followed by hernia, gastro-intestinal reflux and gall stone.

- Symptoms, signs and abnormal findings accounted for 7.6% of hospitalisations and 4.9% of patient days. This is another Chapter where the primary diagnosis was not attributed to a disease. Some of the major causes within this Chapter were pain in throat and chest, abdominal pain, collapse and fainting.

- Injuries accounted for 6.9% of hospitalisations in 2013–14 and 8.6% of patient days. This Chapter including injuries that were intentional (such as self-harm and suicide) as well as unintentional (such road transport accident), and also poisonings and toxic effect. The most common type of injury was fractures of upper and lower limbs and the most common cause was falls.

Leading specific causes for admitted patients

The 10 leading specific causes of hospitalisation (excluding childbirth) in 2013–14 accounted for 29% of hospitalisations and included:

- care involving renal dialysis (11% of total hospitalisations, 228,187 hospitalisations—16% were for Indigenous Queenslanders)
- chemotherapy (4.2% of total or 84,796)
- injuries to upper and lower limbs (2.9% or 57,346)
- cataracts (2.3% of total or 45,256)
- pain in throat and chest (1.9% or 37,461)
- abdominal and pelvic pain (1.6% or 33,125)
- malignant melanomas and neoplasms of skin (1.4% or 27,387)
- injuries to head and neck (1.3% of total or 25,102)
- complications of medical and surgical care (1.2% or 24,180)
- adjustment and management of drug delivery or implanted devices (1.1% or 21,135).

Some of these leading specific causes of hospitalisation are for same day admissions, and as such do not fully reflect overall burden of service delivery. Patient days is a measure which reflects both the number of hospitalisations and the length of stay. There were about 5.6 million patient days in 2013–14. The 10 leading causes in Queensland public and private hospitals, excluding childbirth, were:

- care involving renal dialysis (4.4% of total patient days)
- injuries to upper and lower limbs (3.4%)
- complications of medical and surgical care (2.1%)
- chemotherapy (1.6%)
- COPD (1.3%)
- heart failure (1.3%)
- pneumonia, organism unspecified (1.1%)
- injuries to thorax, abdomen, back, spine and pelvis (1.1%)
- injuries to head and neck (1.1%).
Selected cause groups for admitted patients

To help identify the patterns and trends in hospitalisations a small number of cause groups were created based on aggregations of ICD Chapters and selected conditions.

- **Renal dialysis.** This is the leading cause of hospitalisation, accounting for 11% of all admissions and 4.4% of patient days in 2013–14. Admissions for renal dialysis are typified by a relatively small number of persons admitted frequently—in one year (2013–14) on average, each dialysis patient was admitted 86 times. Admission practice varies within Queensland, limiting sub-state comparisons.

- **Selected lifestyle related chronic conditions.** This group includes six selected chronic conditions, all influenced to some degree by lifestyle related risk factors: coronary heart disease, stroke, COPD, lung cancer, breast cancer and colorectal cancer. Diabetes was excluded from the group, due to coding complexities over the past decade that have limited the reliability of trend reporting. Renal dialysis was not included (although about 30% is due to diabetes), because it has unique care characteristics and is addressed as a separate group (above). The six selected lifestyle related conditions are particularly important because they are leading causes of death and are the focus of population preventive strategies (Figure 12, page 24). In 2013–14, these six conditions accounted for 4% of all hospitalisations and 6% of total patient days.

- **Chronic conditions of ageing and disability.** This group includes the ICD Chapters for musculoskeletal conditions, nervous system disorders, eye conditions, ear conditions and mental disorders. While there are many conditions within these Chapters that affect younger people, most are strongly associated with age. Dementia is classified in the ICD as a mental disorder as substance use disorders. This group of conditions has been identified as an increasingly significant cause of disability burden in Australia and among similarly developed nations (page 14). Chronic conditions of ageing and disability accounted for 17% of hospitalisations in 2013–14 and 19% of patient days.

- **Infectious diseases.** This group includes a wide range of conditions which all have an underlying infectious aetiology and are described as serious infectious diseases, increasingly recognised as important causes of disease burden. In 2013–14, 53% of infectious disease hospitalisations were due to acute respiratory tract infections, enteric symptoms, skin infections and gastrointestinal tract infections. They accounted for 9% of all hospitalisations and 10% of total patient days in 2013–14.

Emergency department presentations

In 2013–14, 1.8 million occasions of emergency service were provided in public hospitals in Queensland. The number of occasions of service has increased by an average of 3.8% per year since 2009–10, higher than the national increase of 2.6% per year. In 2014–15, there were 1.4 million presentations to emergency departments in Queensland, having increased by about 50,000 per year since 2008. If the current upward trend prevails, there will be about 0.6 million more presentations in 2026 than 2014–15, reaching a total of 2 million.

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**Figure 18: Hospitalisations and patient days by ICD Chapter, public and private hospitals, Queensland 2013–14**

<table>
<thead>
<tr>
<th>a. Hospitalisations</th>
<th>Percentage of hospitalisations</th>
</tr>
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<tr>
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<tr>
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<tr>
<td>Injury, poisoning, other external causes</td>
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<tr>
<td>Pregnancy, childbirth and puerperium</td>
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</tr>
<tr>
<td>Diseases of circulatory system</td>
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<tr>
<td>Musculoskeletal, connective tissue</td>
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<td>Infectious and parasitic diseases</td>
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<td>Endocrine, metabolic including diabetes</td>
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<td>Diseases of ear and mastoid process</td>
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<td>Congenital anomalies</td>
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<table>
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<th>Percentage of total patient days</th>
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<td>Digestive diseases</td>
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<tr>
<td>Mental and behavioural disorders</td>
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<tr>
<td>Injury, poisoning, other external causes</td>
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<tr>
<td>Neoplasms (malignant and benign)</td>
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**Chapter Six**

**The changing hospital burden**

**Overall growth**

There were about 750,000 more admissions in Queensland hospitals in 2013–14 than in 2002–03, an average increase of 68,000 each year (Figure 19a). The total number of hospitalisations has increased since 2002–03 by almost 70%, and the number of hospitalisations (episodes of care) per admitted person has increased by 9% in seven years, from 2.1 episodes per person in 2007–08 to 2.5 in 2014–15.

Hospitalisations for older people (75 years and older) have increased dramatically. Eleven years ago, there was one hospitalisation for every older person in Queensland—this has now increased to about 1.5 hospitalisations for every older person (Figure 19b). However, about half the state increase in hospitalisations occurred in the age group 50–74 years (47%), due to increasing rates of hospitalisation and the size and growth of the population (Figure 19c).

Increasing rates of admission accounted for one-third of the average yearly increase in hospitalisations—indeed, they are independent of demographic change.

**Figure 19: All-cause hospitalisation trends by age group, Queensland**

- **Figure 19a:** Total increase
- **Figure 19b:** Crude rate increase by age group
- **Figure 19c:** Age group contribution to change

**Underlying causes**

The three major drivers of the increase in hospitalisations are: population growth, population ageing, and changing rates of admission.

Partitioning the increasing number of hospitalisations according to these factors provides insight into how future change can be managed and modified. The methodology for doing so is based on international methods and described in the methods report (page i for details).186

Of the 750,000 increase in hospitalisations in Queensland in 2013–14 (Figure 20):

- 46% was due to population growth
- 32% was due to higher admission rates
- 8% was due to ageing
- 14% was due to the interaction between these factors.

While demographic factors are important drivers of growing health system pressures, about one-third of the increase is due to higher rates of admission—the most modifiable factor for constraining pressure. Achieving constraint will require a focus on the population groups that are contributing most to change (50–74 year olds) and those for whom admission rates are increasing the most (75 years and older).
**Changing patterns**
The 10 major contributing causes of the average annual increase of about 68,000 hospitalisations per year (107,000 patient days) over the past 11 years, based on ICD Chapters were (Figure 21):
- factors influencing health status including investigations, examinations and tests (28% of total)
- symptoms, signs and abnormal findings (11%)
- injury, poisoning and other external causes (7.4%)
- diseases of the musculoskeletal system (6.0%)
- digestive system diseases (5.9%)
- mental and behavioural disorders (5.0%)
- nervous system and sense organ disorders (4.7%)
- diseases of eye and adnexa (4.6%)
- genitourinary disorders (4.2%).

**Pattern of sociodemographic change**
In 2013–14, of the 2 million admitted patient episodes:
- 47% were for males
- 53% were for females
- 5% were for Indigenous Queenslanders
- 95% were for non-Indigenous Queenslanders

Over the past 11 years, trends in age adjusted hospitalisation rates (Figure 22):
- did not differ by sex
- were greater for older people than younger
- did not differ by area of socioeconomic status
- did not differ by Indigenous status, although crude rate change was about 50% higher for Indigenous Queenslanders
- were higher in major cities than in remote and very remote areas.
The underlying causes and magnitude of change in hospitalisations varied by selected specific cause.

**Renal dialysis**
There were 109,836 more hospitalisations for renal dialysis in 2013–14 than 11 years earlier accounting for 13% of the state increase, where:
- admission rate increase was the major component of change (43%) resulting in 47,558 more hospitalisations
- population growth accounted for 29% of the increase (32,358 more hospitalisations)
- ageing accounted for 8% of the increase (9,218 more hospitalisations)
- the interaction between the factors accounted for 19% of the increase (20,702 hospitalisations).

There were about 110,000 more patient days for renal dialysis in 2013–14 than 11 years earlier, accounting for 8% of the state increase. Changes in admission practice are likely to have contributed to the increase, for example, patients being admitted for treatment rather than treated in an outpatient setting.

**Injuries (excluding self harm and suicide)**
There were 53,568 more hospitalisations for injuries in 2013–14 than 11 years earlier (Figure 18) accounting for 7% of the state increase where:
- population growth accounted for 44% of the increase (23,373 more hospitalisations)
- increasing admission rates accounted for 37% resulting in 20,032 more hospitalisations
- population growth accounted for 44% of the increase (23,373 more hospitalisations)
- increasing admission rates accounted for 37% resulting in 20,032 more hospitalisations
- the interaction between the factors accounted for 16% of the increase.

There were about 132,000 more patient days for injuries in 2013–14 than 11 years earlier, accounting for 10% of the state increase.

**Infectious diseases**
There were 56,982 more hospitalisations for infectious diseases in 2013–14 than 11 years earlier, and 126,473 patient days. Infectious diseases caused 8% of the state increase in hospitalisations where:
- population growth accounted for 56% of the increase (32,185 more hospitalisations)
- admission rate increase accounted for 26% resulting in 15,087 more hospitalisations
- ageing accounted for 6% of the increase (3,606 more hospitalisations)
- the interaction between the factors caused 11%.

The five leading infectious causes, which accounted for 64% of the increase, were skin infections (18%), enteric symptoms (13%), urinary tract infections (12%), acute lower respiratory tract infections (11%) and chronic lower respiratory tract infections (10%). Two-thirds of the increase in patient days was for skin infections (22%), urinary tract infections (14%), post-operative infections (12%), sepsicaemia (10%) and chronic lower respiratory tract infections (9%).
The age profile of hospitalisations for infectious diseases is U-shaped—a peak in young children, and rising again in older age groups. The increase in hospitalisations over the past 11 years was skewed towards the elderly, with 17% of the hospitalisation increase and 22% of the increase in patient days for people aged 80 years and older—a disproportionate share as this age group represented 3% of the population. While there was an increase in infectious disease hospitalisations and patient days between 2002–03 and 2013–14 the average length of stay across all infectious diseases decreased with few exceptions—stays for viral hepatitis increased from 1.7 days to 2.9, and stays for other bacterial infections increased from 5.0 to 6.3 days.

Lifestyle related chronic conditions
There were 10,468 more hospitalisations for six lifestyle related conditions in 2013–14 than 11 years earlier accounting for 1.2% of the state increase where:
- population growth caused an increase of 17,095 hospitalisations
- ageing caused a net increase of 6040 hospitalisations after adjustment for interactions
- admission rates decreased, resulting in 10,666 fewer hospitalisations (7755 fewer for coronary heart disease, 605 fewer for lung cancer, 423 fewer for stroke, 370 fewer for COPD, 177 fewer for breast cancer, 84 fewer for colorectal cancer).

There was a decline in the number of patient days (46,000 fewer in 2013–14 than 2002–03), because the rate of admission decreased and there were shorter stays.

Chronic conditions of ageing and disability
There were 153,910 more hospitalisations for chronic conditions related to ageing and disability in 2013–14 than 11 years earlier accounting for 21% of the state increase where:
- admission rate increase was the major component (45%) resulting in 69,601 more hospitalisations
- population growth accounted for 32% of the increase (49,075 more hospitalisations)
- ageing accounted for 5%, causing an increase of 7754 hospitalisations
- the remaining 18% was due to the interaction between these three factors.

There were about 288,000 more patient days for conditions of ageing in 2013–14 than 11 years earlier, accounting for 22% of the state increase.

Dental conditions
There were 4982 more hospitalisations (net) for dental conditions in 2013–14 than 11 years earlier accounting for 1.3% of the state increase where:
- population growth resulted in 6031 more hospitalisations
- admission rate decrease and changing age structure resulted in 1049 fewer hospitalisations.

There were about 27,300 hospitalisations per year on average for dental conditions over the past three years and one-fifth of these were for dental caries. While 17% of dental conditions are for children aged 0–9 years, for dental caries about 60% are for children in this age group—61% in 2013–14 (about 20% for 0–4 year olds and 40% for 5–9 year olds).

Admission rates for dental caries have declined over the past decade and resulted in about 430 fewer hospitalisations for dental caries in 2013–14 than 11 years earlier, despite the impact of population growth. The introduction of fluoride in water supply systems may have contributed to this change. Access to services may also be a factor.

Hospitalisations associated with preventable causes
Hospitalisations can be prevented by improved lifestyles and/or treatment in a primary healthcare setting.

Hospitalisations associated with lifestyle related risk factors
Many chronic diseases have common lifestyle related risk factors. A healthier population would see a reduction in these risks and reduced pressure on the health system through lower rates of chronic disease. Hospitalisations for leading risk factors are summarised below and also reported in Chapter 8.

- Overweight and obesity (excess body mass) accounted for about 83,500 hospitalisations in 2013–14 (4.0% of total—4.9% for males and 3.2% for females). More than half the hospitalisations were associated with diabetes-related renal dialysis (55%), followed by coronary heart disease, stroke and other cardiovascular diseases (33%) (Figure 49, page 81). When adjusted for the frequency of repeat admission for dialysis, about 2% of patients accounted for 55% of hospitalisations due to excess body mass. The age-adjusted hospitalisation rate for high body mass was steady over the latest five-year period, (2010–11 to 2014–15) while the rate of patient days decreased by 13%. With renal dialysis excluded from the estimation, the proportion of hospitalisations due to excess body mass was 1.8%.
Tobacco smoking accounted for about 34,000 hospitalisations in 2013–14, 1.6% of total. The male burden was higher than the female (2.1% compared with 1.3%). Almost one-third of the hospitalisations were for COPD (30%) followed by coronary heart disease (17%) and lung cancer (10%), although a range of other cardiovascular diseases accounted for 19% (Figure 40b, page 60). The age-adjusted rate for patient days due to smoking-related conditions decreased by 17% over the past five years.

Alcohol was associated with about 37,000 hospitalisations in 2013–14, 1.8% of total (2.4% for males, 1.3% for females). The leading causes of the attributable burden were alcohol dependence and harmful use (38% of hospitalisations due to alcohol), falls (12%) and other unintentional injuries (14%) coronary heart disease (4%) and suicide and self-harm (4%), together accounting for over 70% of the total (Figure 55, page 90). The age-adjusted hospitalisation rate for alcohol related conditions was steady over the past five years as was the rate for patient days.

For tobacco, and overweight and obesity, the number of hospitalisations increased with age and peaked in the age range 60 to 69 years (Figure 23). For alcohol, the hospital burden increased from 15–19 years with about 2000 hospitalisations for each five-year age group up to about 60 years of age. More information on sociodemographic characteristics is reported in Chapter 8.

Figure 23: Hospitalisations due to selected risk factors by age, Queensland, 2013–14

In 2013–14, 6.6% of all hospitalisations (132,000) were potentially preventable based on the national definition that only includes diabetes as a principal cause. Of these, 50% were due to acute conditions, 46% for chronic conditions and 4% for vaccine preventable conditions. The five leading specific causes in 2013–14 were kidney and urinary tract infections (13%), cellulitis (11%), COPD (10%), dental conditions (9%) and congestive heart failure (8%). The Queensland Health definition includes all hospitalisations for diabetes, and in 2013–14 using this definition, 7.7% of all hospitalisations (154,825) were potentially preventable—and the leading causes were diabetes complications (25%), kidney and urinary tract infections (11%), cellulitis (9%), COPD (9%), dental conditions (8%) and congestive heart failure (6%).

Hospitalisations that could have been treated in the primary healthcare sector

Potentially preventable hospitalisations (PPHs) are admissions that were avoidable through preventive care and early disease management, usually delivered in an ambulatory setting—primary health care, GPs or community health centres. They are defined nationally and have been identified as a national healthcare performance indicator.

Characteristics of PPHs (*Queensland definition):

- Trend: the proportion of PPHs has not changed over the past four years in Queensland, nor has the age-standardised rate. In contrast, the all-cause hospitalisation rate increased by 6% in this period.
- Age profile: More than half the PPHs were either for young children (0–9 years, 13%) or older people (65 years and older, 42%) in the two years 2012–13 to 2013–14.
- Socioeconomic differences: PPH rates* in disadvantaged areas were 90% higher than advantaged areas over the past two years.
- Remoteness: PPH rates* were higher outside major cities: 12% higher in regional areas, 17% higher in remote areas and 76% higher in very remote areas.
- Indigenous Queenslanders: PPH rates* were 2.6 times the non-Indigenous rates.
- HHSs: nine of the 16 HHSs had higher PPH rates* than the state average (from about double to 7% higher), and four were lower (5–9% lower). Data is included in the HHS booklet—page i for details.
- National and jurisdictional: rates in Queensland were 14% higher than national in 2013–14 and second highest after Northern Territory.
Selected highlights from the regions

This section includes a selection of patterns and underlying causes of change among the HHSs. It will inform a broader understanding of where there has been success in constraining growth in hospitalisations and where growth has increased pressure on the health system.

Small populations often result in unstable patterns so information for four HHSs should be interpreted with caution (South West and Central West in particular, and also North West and Torres and Cape). There are other data limitations when assessing patterns and change in hospitalisations, as described on page 46. This section includes a ranking of HHSs based on age adjusted rates and crude rates. Crude rates (the number of cases per capita) have been included because they more accurately reflect ‘on the ground’ pressures and patterns and are therefore more useful for healthcare planning. Hospitalisations for the ICD Chapter ‘Factors influencing health status and contact with health services’ was not assessed for HHSs because of variation in admission practices.

Which HHSs have changed the most?

There has been a significant increase in crude and age adjusted hospitalisation rates in 13 of the 15 HHSs over the past 11 years (Figure 24). The greatest relative increase was in Wide Bay, Sunshine Coast and Gold Coast. Excluding Central West and South West (where rates did not change), the smallest relative crude rate change was in West Moreton and Mackay and, after age adjustment, also Darling Downs.

Which HHSs have contributed most to statewide increase?

Increasing hospitalisations in the four most populous HHSs accounted for 65% of the statewide increase of 68,000 hospitalisations per year: Metro South (21%), Metro North (19%), Gold Coast (14%) and Sunshine Coast (11%) (Figure 25).

The increase associated with these four HHSs (65%) was consistent with population share (63%). Wide Bay, however, accounted for more of the state increase in hospitalisations (7.5%) than would be expected based on population (4.1% of total). Local knowledge will help to explain why the increase was greater than expected based on population change.

Has the increase occurred across all age groups?

Hospitalisations are increasing more rapidly for older people than younger across most HHSs, with higher admission rates an important cause.
Children and young people (Figure 26a): hospitalisation rates for 0–29 year olds increased statewide by 5% over 11 years. Four HHSs had a larger increase than the state, while many were unchanged. The decrease in hospitalisation rates in West Moreton was noteworthy—possibly resulting from initiatives to improve the health and wellbeing of children and young people in West Moreton, and/or by providing services outside the hospital system to meet the needs of this population.

Working-age people (Figure 26b): hospitalisation rates for 30–64 year olds increased statewide by 17% in 11 years. Except for two (Central West and Mackay) there was an upward trend in all HHSs, the greatest relative change occurring in Wide Bay, North West, and Torres and Cape. West Moreton had a relatively smaller increase.

Older people (Figure 26c): hospitalisation rates for those aged 65 years and older increased statewide by 30% in 11 years. Except for three HHSs (Central West, North West and South West), there was an upward trend in all HHSs with the greatest relative change occurring in Wide Bay, Sunshine Coast and Gold Coast.

What are the drivers of change?
The underlying drivers of the increase in hospitalisations due to all causes over the past 11 years varied by HHS (Figure 27).

- Population growth was a dominant factor in many HHSs, accounting for more than 50% of the increase in West Moreton, Mackay and Metro North.
- Admission rate increase was dominant in Wide Bay.
- Admission rate increase and population growth were equally important drivers in Gold Coast, Sunshine Coast and Torres and Cape.
- Ageing had greater impact in South West, Darling Downs and Cairns and Hinterland than other HHSs although it had little impact overall.

Unlike demographic factors which are difficult to modify, changes due to admission rates are an opportunity to manage future pressures. The relatively small increase in admission rates in Mackay and West Moreton could be explained in three ways:

- these areas have a healthier population with fewer health needs
- non-hospital health services may have been provided, avoiding the need for hospitalisation
- the admission guidelines or access may differ in these HHSs.

Local knowledge will help to explain these patterns.
Are gains being achieved in lifestyle related chronic conditions?

Statewide, the hospitalisation rate for lifestyle related conditions has decreased due to a reduction in smoking, improved early diagnosis and treatment of cardiovascular disease including better management of metabolic risk factors, and rising levels of physical activity. Although demographic factors (principally population growth and, to a much lesser degree, ageing) have caused the number of hospitalisations to increase in 11 of 15 HHSs, the pressure on hospitals has been substantially reduced by falling admission rates (Figure 28a). Three HHSs had insufficient cases to report statistical difference (Torres and Cape, South West and Central West). Wide Bay HHS reversed the state trend, with the admission rate driving up the hospital burden, combined with a growing, ageing population.

This data would suggest that improved lifestyles have the power to reduce the demand for hospital services and that further gains are possible. It shows that continued effort in Wide Bay would achieve such outcomes. However, in all HHSs the number of hospitalisations for lifestyle related chronic conditions is relatively small and while further gains can be achieved, addressing these conditions alone will not address the broader challenges arising from higher admission rates across all causes and specifically the conditions of ageing and disability.

What is the impact of age and disability related chronic conditions?

Chronic conditions associated with ageing (and an increasing disability burden) were a major contributor to the steady increase in hospitalisations in Queensland over the past 11 years. The following patterns were evident among the HHSs.

- Hospitalisations for these conditions increased in all HHSs with two-thirds of the state increase in the high population HHSs (Metro South, Metro North, Gold Coast and Sunshine Coast) (Figure 28b).
- Increasing admission rates for chronic conditions of ageing were the dominant driver of increase in six HHSs (Metro North, Metro South, Gold Coast, Sunshine Coast, Wide Bay, and Cairns and Hinterland).
- For four HHSs (Darling Downs, West Moreton, Mackay and Central Queensland) population growth was the dominant influence, followed by admission rate increase.
- Mackay was the only HHS with declining admission rates, decreasing the overall burden by 9%, while the increase in hospitalisations was driven largely by population growth.

Figure 28: Underlying causes of change in hospitalisations for chronic conditions between 2002–03 and 2013–14, by HHS, Queensland

The impact of the interaction between the three factors is not displayed (it accounted for about 10–20% of the increase).
**Hospitalisations for symptoms, signs and abnormal findings**

The crude hospitalisation rate for symptoms, signs and abnormal findings increased by 66% between 2002–03 and 2013–14, and by 58% after adjustment for the changing age distribution. Rate increase was evident in all but four HHSs with the greatest relative increase in Wide Bay and Gold Coast (Figure 29a). These two HHSs also had the highest rates of hospitalisation, noting high rates across most HHSs. Changing admission practice may have contributed to rate increase.

**Hospitalisations for infectious diseases**

The crude hospitalisation rate for infectious diseases increased by 18% over the past 11 years (by 14% after adjusting for ageing). Rate change was evident in seven HHSs with the greatest relative increase in Wide Bay, followed by Cairns and Hinterland, Gold Coast, Sunshine Coast, and Metro North (Figure 29b). The highest rates of hospitalisation were, however, in the remote HHSs of Torres and Cape, North West, Central West and South West. The lowest rates were in Mackay and Townsville.

**Hospitalisations for injury (excluding self harm)**

The crude hospitalisation rate for injuries increased by 25% between 2002–03 and 2013–14. Rate change was evident in nine HHSs with the greatest relative increase in Sunshine Coast, followed by Gold Coast, Townsville, Metro South, Metro North and Cairns (Figure 29c). Rate decline was evident in Mackay and Central West.

The highest rates were in the remote HHSs of Central West, South West, and Torres and Cape. Over the past 11 years either rates did not change in these areas or they declined.

**Hospitalisations for dental caries in children aged 0–9 years**

The crude hospitalisation rate for dental caries decreased by 22% between 2002–03 and 2013–14. Rate increase was evident in one HHS—North West increased by 81% (Figure 29d). Rates decreased in five HHSs—West Moreton, Mackay, Metro South, Townsville and Cairns and Hinterland, with no change in the remainder. Seven HHSs had higher hospitalisation rates than the state, from 23% higher in Central Queensland to 3.3 times the state average in North West. Four HHSs had lower rates—Metro North (15% lower), Metro South (34% lower), Townsville (38% lower) and Cairns and Hinterland (46% lower).
National comparisons

Variation in the way data on hospital services is collected may limit the comparability of regional and jurisdictional reporting and comparisons over time. Taking into account these limitations, selected indicators for national and jurisdictional comparison have been compiled (Table 7).

Provision of services in Queensland was generally higher per head of population than nationally:\n• 12% higher for non-admitted services in 2013–14\n• 9% higher for admitted services.

Average length of stay in private hospitals in Queensland was similar to the national average and for public hospitals, shorter than the national average. As a result, patient days per head of population in Queensland was similar to national.\n
Within the OECD, Australia was a middle ranking country for overnight hospitalisation rates: twelfth highest of 28 countries.

Table 7: Hospitalisations, interstate, national and international comparisons\n
<table>
<thead>
<tr>
<th>Indicator (crude rate)</th>
<th>Queensland compared to (2013–14)</th>
<th>Interstate ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasions of service</td>
<td>11% higher</td>
<td>3 highest of 4</td>
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<tr>
<td>Emergency services</td>
<td>42% higher</td>
<td>2 highest of 7</td>
</tr>
<tr>
<td>Outpatient services</td>
<td>7% higher</td>
<td>5 highest of 7</td>
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<tr>
<td>Admitted patients</td>
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<td></td>
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<tr>
<td>Separation rate</td>
<td>9% higher</td>
<td>1 highest of 5</td>
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<tr>
<td>Same day rate</td>
<td>10% higher</td>
<td>2 highest of 5</td>
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<tr>
<td>Overnight rate</td>
<td>7% higher</td>
<td>1 highest of 5</td>
</tr>
<tr>
<td>Patient day rate</td>
<td>4% higher</td>
<td>1 highest of 5</td>
</tr>
<tr>
<td>Average length of stay (acute hospitals)</td>
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<tr>
<td>Public hospitals</td>
<td>0.3 days less</td>
<td>7 highest of 8</td>
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<tr>
<td>Private hospitals</td>
<td>same</td>
<td>2 highest of 5</td>
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<tr>
<td>Patient days</td>
<td>same</td>
<td>3 highest of 5</td>
</tr>
<tr>
<td>Age standardised rates</td>
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<tr>
<td>Potentially preventable hospitalisations</td>
<td>12% higher</td>
<td>2 highest of 8</td>
</tr>
<tr>
<td>Asthma</td>
<td>6% lower</td>
<td>5 highest of 8</td>
</tr>
<tr>
<td>COPD</td>
<td>11% higher</td>
<td>2 highest of 8</td>
</tr>
</tbody>
</table>

Data sources and methods: hospitalisations

In this chapter, hospitalisations were derived from two sources:\n• Queensland Hospital Admitted Patient Data Collection\n• AIHW reports on Australian hospital statistics\n
The terms ‘hospitalisation’ or ‘admission’ have been used to refer to an admitted patient episode of care, also known as a separation.

Although there are national standards for data on hospital services, variation remains; this includes variation in coding and reporting as well as variation in admission and treatment guidelines and procedures. This report does not identify all such caveats although major limitations are noted (for example in relation to diabetes coding). In addition, readers should refer to national reports on hospital statistics for jurisdictional limitations.

Hospitalisations were reported by principal diagnosis, unless noted otherwise. Two definitions were used to report PPHs, the national definition and the Queensland Health definition. Refer to the Methods for reporting health status for information.\n
Data for 2014–15 was generally not used in this report although the data was available at the time. This decision was based on a substantial increase in admissions for certain procedures and treatments, principally chemotherapy and endoscopies, and a similar decrease in outpatient presentations, suggesting a change in admission practice in some Queensland hospitals.

The methodology for partitioning the causes of increase in hospitalisations, that is, demographic factors and rate change, is described in the companion document, Methods for reporting health status.\n
For standardised rates, the reference population was Australia 2001.

This section uses crude and age adjusted rates to rank and compare HHSs —the rationale for doing is documented. Trends were based on statistical significance using Poisson regression methods.\n
Hospitalisations based on socioeconomic quintiles were generated from the 2006 Index of Socioeconomic Advantage/Disadvantage where areas were population weighted. Remoteness was determined using the Accessibility/Remoteness Index of Australia (ARIA+).

For further information:
• The health of Queenslanders, 2014 (and earlier reports in the series)\n• AIHW publications: Australian hospital statistics\n• Statistical tables online (page i)