3.3 Health status and health outcomes

“Although the health status of children and young people in Queensland is relatively high, some key issues remain: significant health differentials, such as the poorer health status of Indigenous children and young people, mental health problems and disorders, abuse and neglect, alcohol, tobacco and other drugs, injuries, suicide, attempted suicide and self-harm, inappropriate nutrition, physical inactivity and obesity.”

Strategic Policy Framework for Children’s and Young People’s Health 2002-2007

Determinants of health are the principal focus of this report. However, an initial overview of the health status and health outcomes for all Queenslanders provides the context for the importance of the health determinants that follow.

The aim of this section is to answer the following questions:

– How healthy are young people in Queensland?
– Is it the same for everyone?
– Where is the most opportunity for improvement from a population health perspective?

These questions are addressed by reporting on indicators of burden of disease, life expectancy, quality of life and wellbeing, disability and deaths, hospital separations and incidence and prevalence of diseases and conditions in National Health Priority Areas.

Actions to address these health needs are described in section 3.5.

3.3.1 Burden of disease

“The leading causes of disease burden for young Australians aged 15 to 24 years are alcohol dependence and misuse, transport related injury, depression, drug dependence and misuse, bipolar affective disorder, suicide and self-harm. Mental health disorders account for more than half of the total disease and injury burden for young people.”

Strategic Policy Framework for Children’s and Young People’s Health 2002-2007

The burden of disease and injury is the sum of the impact to the community of premature mortality, non-fatal outcomes and disability. Aggregating these health status and outcomes measures leads to a more complete understanding of the risks to health than by using mortality and hospital separation statistics alone. The combined burden of fatal and non-fatal health outcomes is represented in a single measure, the Disability-Adjusted Life Year or DALY. The DALY adds together the years of life lost due to premature mortality (YLL) and years of life lost due to disability (YLD). The burden of disease techniques enable us to put health priorities in perspective. Data derived from them can be used to make cost-effectiveness evaluations, rethink service orientation, project infrastructure needs, and guide investment decisions.

In 1996, road traffic accidents, alcohol dependence and harmful use, and anxiety disorders, followed by suicide and self-inflicted injuries, were the main causes of burden of disease among young Australian males aged 15-24 years. Road traffic accidents and suicide involve high mortality, while alcohol dependence and harmful use, and anxiety disorders, involve high disability (Figure 3.1). Young females generally had greater burden of disease related to non-fatal health problems such as depression and anxiety disorders (Figure 3.1).
Figure 3.1: Top ten causes of disease and injury burden (DALYs) for young people aged 15-24, Australia 1996

3.3.2 Quality of life and wellbeing

The majority of Queenslanders rate highly their quality of life, health status and satisfaction with health. For more information on quality of life and wellbeing indicators, see Whole of population chapter.

Quality of life

In 2002, 95.9% of young males aged 18-29 years rated their quality of life as good or very good (Table 3.1). This was significantly higher than males aged 30-64 years (89.7%) and males aged 65 years and older (82.7%). Similarly, 95.3% of young females aged 18-29 years rated their quality of life as good or very good (Table 3.1). This was higher than for females aged 30-64 years (92.2%) and significantly higher than for females aged 65 years and older (87.3%), (Table 3.1).
Self reported health status

In 2002, 86.4% of Queensland adults reported their health as either excellent or good (Table 3.1). Young males aged 18-29 years generally reported better health than older age groups, and reported significantly better health than males aged 65 years and older (Table 3.1). Young females aged 18-29 years reported better health than females aged 65 years and older, although the difference was not significant (Table 3.1). Young males (87.5%) generally reported better health than young females (85.7%), (Table 3.1). People’s perception of their own health has been shown to be a powerful, independent predictor of their survival in several population groups.\(^39-41\) This association of self rated health and objective health stands even after controlling for demographic factors, a range of illnesses, disability, personality and social supports.

<table>
<thead>
<tr>
<th>Table 3.1: Self reported quality of life and self rated health (proportion; 95%CI) by sex and age, Queensland 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons 18+ years</td>
</tr>
<tr>
<td>Very good or good</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>91.5 (90.3 - 92.6)</td>
</tr>
<tr>
<td>Male 18+ years</td>
</tr>
<tr>
<td>Female 18+ years</td>
</tr>
<tr>
<td>Male 18-29 years</td>
</tr>
<tr>
<td>Male 30-64 years</td>
</tr>
<tr>
<td>Male 65+ years</td>
</tr>
<tr>
<td>Female 18-29 years</td>
</tr>
<tr>
<td>Female 30-64 years</td>
</tr>
<tr>
<td>Female 65+ years</td>
</tr>
</tbody>
</table>

Source: QH Social capital survey 2002

Health and life satisfaction

In 2002, the majority of Queenslanders (78.7%) were satisfied with their health (Table 3.1). Young males aged 18-29 years generally were more satisfied with their health than older age groups, however, the differences were not significant. Young females aged 18-29 years were more likely to be satisfied with their health than females aged 65 years and older, however less likely to be satisfied than females aged 30-64 years (Table 3.1).

In Queensland in 2001, the majority of young people aged 15-29 years reported satisfaction with their health, home, neighbourhood, feelings of safety, and life overall (Table 3.2). However, young people were significantly less likely to report overall life satisfaction (64.6%) than adults aged 30-64 years (67.6%) and adults aged 65 years and older (94.4%), (Table 3.2). Young people were significantly less likely than older age groups to be satisfied with their employment opportunities, financial situation, free time, and feeling part of their community (Table 3.2).
Table 3.2: Satisfaction with life by domain (proportion; 95% CI) by age, persons aged 15 years and older, Queensland 2001

<table>
<thead>
<tr>
<th>Domain</th>
<th>15-29 years</th>
<th>30-64 years</th>
<th>65+ years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>64.9 (64.8-65)</td>
<td>60.8 (60.8-60.9)</td>
<td>63.7 (63.3-64.1)</td>
</tr>
<tr>
<td>Home</td>
<td>61.3 (61.2-61.4)</td>
<td>67.1 (67-67.2)</td>
<td>92.3 (92.1-92.5)</td>
</tr>
<tr>
<td>Employment opportunities</td>
<td>46.6 (46.5-46.7)</td>
<td>51.1 (51-51.2)</td>
<td>75.9 (75.6-76.3)</td>
</tr>
<tr>
<td>Financial situation</td>
<td>27.1 (27-27.2)</td>
<td>30.8 (30.7-30.9)</td>
<td>45.9 (45.5-46.3)</td>
</tr>
<tr>
<td>Feelings of safety</td>
<td>72.3 (72.2-72.4)</td>
<td>68.6 (68.5-68.6)</td>
<td>74.2 (73.9-74.6)</td>
</tr>
<tr>
<td>Feeling part of community</td>
<td>32.1 (32-32.2)</td>
<td>41.2 (41-41.3)</td>
<td>55.4 (54.6-55.4)</td>
</tr>
<tr>
<td>Neighbourhood</td>
<td>63 (62.9-63.1)</td>
<td>72.3 (72.2-72.4)</td>
<td>82.8 (82.5-83.1)</td>
</tr>
<tr>
<td>Free time</td>
<td>37.2 (37.3-37.3)</td>
<td>38.2 (38.1-38.2)</td>
<td>80.2 (79.8-80.5)</td>
</tr>
<tr>
<td>Overall life satisfaction</td>
<td>64.6 (64.5-64.8)</td>
<td>67.6 (67.5-67.7)</td>
<td>94.4 (94.2-94.6)</td>
</tr>
</tbody>
</table>

Source: HILDA 2001

3.3.3 Activity limitation

In Queensland in 1998, one in ten (10.0%) young people aged 15-24 years reported they had a disability, while one in five (19.9%) Queenslanders overall reported a similar condition. This included people with profound/severe, moderate or mild core activity restrictions, or schooling or employment restrictions. Considering profound or severe core activity limitations alone, the prevalence in young people was 2.3% (females 1.4%, males 3.1%), compared with 6.6% for the total population (females 6.5%, males 6.8%).

Core activities comprise communication, mobility, self care, and tasks relating to school or employment. The prevalence of disability increases markedly with advancing age (Figure 3.2).

Figure 3.2: Percentage of population reporting a disability and severe or profound core activity limitation by age, Queensland 1998

In 1998, intellectual and other mental disorders were the most commonly reported main disabling condition for young Australians with a disability aged 15-24 years, accounting for 24.8% of all disabling conditions. Young people are regarded as having activity limitations if they have difficulty doing a particular activity, need help from another person or use an aid. The most commonly reported activity restriction in this age group was limitations in the ability to undertake schooling or employment. Young people with a severe disability may have good health, but their disability may cause limitations on family
and social activities. Severe disability can impact on the young person’s ability to take on employment, and hence can impact on their socioeconomic status. A disability can affect a young person’s wellbeing, and can impact on the overall wellbeing of parents and siblings.43

**Hearing and sight impairment**

In Australia in 1998, of all young people aged 15-24 years, just over 0.6% reported having some form of hearing impairment, with 0.09% having a total loss of hearing. Partial loss of vision was reported by 0.5% of young people.43

### 3.3.4 National health priority area conditions

The seven National Health Priority Areas (NHPA) are asthma, cancer control, cardiovascular health, diabetes mellitus, injury prevention and control, mental health, and arthritis and musculoskeletal conditions. The NHPAs were chosen as priorities for Australia because of the:

- importance of the ‘area’ to the community
- high overall burden of disease in terms of mortality, morbidity and disability
- potential for health gain through prevention or lessening of the impact
- measurability of the impact of interventions undertaken in relation to the ‘area’.

Indicators for key NHPA conditions are reported in the *Whole of population* chapter. Further information on NHPA conditions was reported in *Health Indicators Queensland 2001*.7-9 This *Young people* chapter reports on those NHPA conditions of particular importance to young people, and identifies potential significant health gains through modification of the determinants of health.

**Injury and poisoning**

For the purposes of this report, injury and poisoning excludes suicide or self-inflicted harm and complications of medical and surgical care. Suicide and self-inflicted harm are considered under mental health. In 1996, injury and poisoning accounted for 16.6% of the total burden of disease and injury for young people aged 15-24 years in Australia, as measured by DALYs.44

For young males road traffic accidents accounted for 13.0% of burden of disease, while homicide and violence accounted for 1.7%, and other transport accidents and falls each accounted for 1.4%. Sports injuries accounted for only 0.8% of the burden of disease and injury in young males. For young females, road traffic accidents accounted for 4.5% of the total burden of disease and injury.44

In Queensland in 2001, there were 164 deaths due to injury and poisoning among young people aged 15-24 years, of which 79% were male. From 1992 to 2001, mortality rates for males were significantly higher than rates for females (Figure 3.3).

In Queensland in 2001/02, there were 14,774 hospital separations due to injury and poisoning in young people, of which 75% were male. From 1992/93 to 2001/02, the rates of hospital separations were significantly higher for males than females (Figure 3.4).

**Figure 3.3: Injury and poisoning in persons aged 15-24 years, age standardised mortality rate by sex, Queensland 1992-2001**

![Graph showing injury and poisoning mortality rates by sex](image-url)
In young people, injury is responsible for more deaths in Australia than all other causes combined.\textsuperscript{43} Injury is also a leading cause of hospitalisation of young people.\textsuperscript{43} Some groups of young people are more at risk of injuries than others, ie. young males, young people who live in rural and remote areas, those who are socioeconomically disadvantaged, and Indigenous young people.\textsuperscript{43,45} Risk-taking behaviours often lead to injury and are more common in adolescence and early adulthood than in childhood or adulthood. Such behaviours include driving under the influence of drugs or alcohol, not wearing seatbelts or motorbike helmets, and being involved in physical fights.\textsuperscript{43,46}

**Road transport injury**

In 1996, road transport accidents accounted for 9.1\% of the total burden of disease and injury for young people aged 15-24 years in Australia, as measured by DALYs. Road traffic accidents accounted for 13.0\% of the total burden for young males and 4.5\% of the burden in young females.\textsuperscript{44}

In Queensland in 2001, there were 93 deaths due to road transport accidents among young people aged 15-24 years, of which 79.6\% were male. From 1992 to 2001, mortality rates for males were significantly higher than rates for females (Figure 3.5). Between 1992 and 2001, mortality rates for road transport accidents significantly decreased for both males and females in Queensland (-4.1\% and -7.2\% per year respectively; Figure 3.5).

In Queensland in 2001/02, there were 2,565 hospital separations due to road transport accidents in young people, of which 71.7\% were male. From 1992/93 to 2001/02, the rates of hospital separations were significantly higher for males than females (Figure 3.6). Between 1992/93 and 2001/02, hospital separation rates for road transport accidents significantly decreased for both males and females in Queensland (-2.4\% and -2.9\% per year respectively; Figure 3.6).
Homicide and intentional injury by another

In 1996, homicide and intentional injury accounted for 1.2% of the total burden of disease and injury for young people aged 15-24 years in Australia, as measured by as measured by DALYs. The burden in males (1.7%) was about three times the burden in females (0.6%).

Between 1992 and 2001, there were 10.7 deaths per year on average due to homicide in young people in Queensland, where the majority were males (Figure 3.7). During this time, about two thirds (68.2%) of homicides occurred in the 20-24 age group, compared to the 15-19 age group.

In Queensland in 2001/02, there were 1,755 hospital separations due to intentional injury by another in young people, of which 75.1% were male. Between 1992/93 and 2001/02, the rates of hospital separations were significantly higher for males than females (Figure 3.7).
Drowning
Between 1992 and 2001, there were 5.1 deaths per year on average due to drowning in young people aged 15-24 years in Queensland. Between 1993 and 2001, no female deaths due to drowning in this age group were recorded in the state.

Mental health
In 1996, mental disorders accounted for 55.2% of the total burden of disease and injury for young people aged 15-24 years in Australia, as measured by DALYs. Almost the entire burden of disease due to mental disorders relates to years of life lost due to disability, rather than mortality. Of all mental disorders attributed to young people, substance use disorders accounted for 31.6%, affective disorders 28.0%, anxiety disorders 20.6%, and schizophrenia accounted for 8.2% of the burden.44

Mental health is the embodiment of social, emotional and spiritual wellbeing. Mental health provides individuals with the vitality necessary to achieve goals and to interact with one another in ways that are respectful and just.47 There is evidence that having strong social support, being free from discrimination and violence, and having a satisfying job provides protection for mental health and wellbeing.48 Unemployed and socially isolated people have higher prevalence of mental health disorders than do people who are employed and socially connected.46

It is acknowledged that mental illness results from complex causal interactions and is influenced by a number of risk and protective factors, as discussed in Community Capacity section 3.4.3. However, there is not an established standard set of indicators with which to measure and monitor these factors. Work is currently underway at national and state levels to define indicative data, integrate data collection tools and coordinate information systems. This section reports on available indicators of incidence and prevalence of mental disorders and illnesses in Queensland.

Mental disorders have defined diagnostic criteria that must be met for a disorder to be diagnosed, including symptoms that cause clinically significant impairment in ability to function. Mental health problems also affect the individual's ability to function, but are defined at a lower threshold of symptoms than mental disorders.43

Relatively few people die of mental disorders. However, in Queensland in 2001/02, there were 6,982 hospital separations due to mental disorders in young people. From 1992/93 and 2001/02, hospital separation rates were similar for males and females (Figure 3.8).

The age profile of specific mental conditions varies considerably and is reported in the companion document Health Determinants Queensland 2004: Statistical report. Age standardised mental disorders mortality and hospital separation rates for Queensland and 16 smaller geographic areas for 1986-1998 have previously been reported.7-9 Hospital separation rates for mental disorders must be interpreted with caution as variable admission practices and access to services, re-admissions and coding methods substantially affect rates. In addition, hospital separations due to mental disorders represent a very small proportion of the burden of mental disorders in the community.

Figure 3.8: Mental disorders in persons aged 15-24 years, age standardised hospital separations rate by sex, Queensland 1992/93-2001/02


In Australia in 2000, the prevalence of total mental health problems in adolescents aged 13-17 years was about 13% (13.4% in males and 12.8% in females).49 Prevalence was generally higher among adolescents living in low income households or living with parents who were not in paid employment,
step/blended and sole-parent families. The prevalence of depressive disorders was similar in males (4.8%) and females (4.9%). However, the prevalence of conduct disorder was higher in males (3.8%) than females (1.0%), as was the prevalence of Attention-Deficit/Hyperactivity Disorder, (10.0% in males compared to 3.8% in females). The high prevalence of ADHD should be viewed with caution due to methodological issues, however the authors of the study state that it is unlikely that the young people identified with ADHD in the survey were free from problems, and recommend further studies to more accurately address the issue.

In Australia in 1997, 27.1% of young males and 25.9% of young females aged 18-24 years were assessed as having a mental disorder. The subset of mental disorders considered was anxiety disorders, affective disorders, and substance use disorders. Substance use disorders were the most prevalent, affecting about 20% of males and 10% of females. This was followed by anxiety disorders, which affected about 8% of males and 14% of females.

In Australia in 2000/01, the most frequent mental health diagnosis group for young males aged 12-24 years was schizophrenia, accounting for 19% of all hospitalisations for mental and behavioural disorders in this age group. The next most frequent group was depressive episode accounting for 11%. For young females, the most frequent diagnosis group was depressive episode accounting for 17% of all hospitalisations for mental and behavioural disorders in this age group. The next most frequent diagnosis group was eating disorders, accounting for 16% of hospitalisations for all mental and behavioural disorders.

In the context of mental health, risk factors increase the likelihood that a disorder will develop or exacerbate an existing problem. Protective factors reduce the likelihood that a disorder will develop. Risk factors may include those associated with the individual (low birth weight, physical and intellectual disability, chronic illness, low self-esteem); family or social factors (having a teenage mother, absence of father in childhood, family disharmony and violence, neglect in childhood); school context (bullying, inadequate behaviour management); life events (child abuse, family break ups, poverty); and community factors (socioeconomic disadvantage, isolation, neighbourhood violence and crime). Protective factors include supportive caring parents, positive school environment, economic security and a sense of connectedness within the community.

Suicide and intentional self-harm

In 1996, suicide and self-inflicted injury accounted for 5.7% of the total burden of disease and injury for young people aged 15-24 years in Australia, as measured by DALYs. The burden in males (9.0%) was about five times the burden in females (1.9%).

In Queensland in 2001, there were 83 deaths due to suicide among young people aged 15-24 years, of which 84.3% were male. From 1992 to 2001, mortality rates for males were significantly higher than rates for females.

In Queensland in 2001/02, there were 1,499 hospital separations due to intentional self-harm in young people, of which 65.5% were female. From 1992/93 to 2001/02, hospital separation rates were significantly higher for females than males. Between 1992/93 and 2001/02, hospital separation rates for intentional self-harm significantly increased for both males and females in Queensland (5.8% and 8.7% per year respectively; Figure 3.9).

**Figure 3.9: Self-harm injury in persons aged 15-24 years, age standardised hospital separation rate by sex, Queensland 1992/93-2001/02**

Suicide rates are significantly higher in males than females predominantly due to the means chosen. Because male-completed suicides account for the majority of all suicides, the methods chosen by males have a greater influence on the overall pattern than females, with males traditionally using more lethal means. However, females are more likely to intentionally self-harm than males.51

Risk factors for suicide and intentional self-harm are similar to those for mental health problems, although one of the best predictors of completed suicide is a previous attempt.52 Certain biological, family, community or societal characteristics have been shown to be associated with suicidal behaviours, and have a unique ‘attributable’ risk. Male youth suicide rates have been positively correlated with several measures of individualism, including lack of personal freedom and control.52 Protective factors for young men and women include easy temperament; positive attitude; problem solving; trusting care giver-child relationship; supportive parenting; wider supportive network; and a range of educational and leisure opportunities.52

**Asthma**

In 1996, asthma accounted for 2.9% of the total burden of disease and injury for young people aged 15-24 years in Australia, as measured by DALYs.44

Between 1992 and 2001, there were 2.6 deaths per year on average due to asthma in young people in Queensland. In Queensland in 2001/02, there were 717 hospital separations due to asthma in young people, of which 61.5% were female. From 1992/93 to 2001/02, rates for females were significantly higher than rates for males (Figure 3.10).

**Figure 3.10: Asthma in persons aged 15-24 years, age standardised hospital separations rate by sex, Queensland 1992/93-2001/03**

![Asthma rates graph]


In 2000, 10.9% of Queenslanders aged 18 years and older reported a diagnosis of asthma that remained a current problem, as determined by symptoms or treatment for asthma in the previous 12 months. The prevalence of self reported asthma in young females aged 18-29 years was 21.6%, compared to young males (7.6%).53 For more information on asthma in Queensland, please refer to Whole of population chapter.

In Australia in 2003, the prevalence of current asthma was highest between the ages of 5 and 24 years.54 During childhood, prevalence was consistently higher in boys, however from the age of 15 years, females had higher prevalence. In females, prevalence was highest in the age group 15-24 years, whereas prevalence in males was highest in the age group 5-9 years. Overall, prevalence in children aged 0-14 years was 13.3% and in adults 15 years and older 11.5%.54

**Diabetes**

In 1996, diabetes accounted for 0.9% of the total burden of disease and injury for young people aged 15-24 years in Australia, as measured by DALYs.44

In Queensland in 2001/02, there were 498 hospital separations due to diabetes (principle cause) in young people, of which 62.1% were female. From 1992/93 to 1999/00, hospital separation rates for females were significantly higher than for males (Figure 3.11).
The prevalence of type 2 diabetes among young people aged 15 to 24 years is historically low, but currently unknown in Queensland. Given the recent increases in childhood and adolescent obesity (a major risk factor for type 2 diabetes), it is highly likely that type 2 diabetes will emerge as a significant health concern in this age group.

Three quarters of Queensland’s young people aged 18-29 years (79.0%) reported a reasonable or good understanding of the basic symptoms and clinical causes of diabetes. For further information on diabetes please refer to Whole of population chapter.

### 3.3.5 Oral health

In 1996, oral health problems accounted for 1.3% of the total burden of disease and injury for young people aged 15-24 years in Australia, as measured by DALYs.

For further information on oral health please refer to Whole of population chapter.

### 3.3.6 Health behaviour outcomes

The effect of a health determinant on mortality and hospital separation rates is estimated using aetiological (attributable) fractions. An aetiological fraction is the estimated proportion of cases of the disease that would be eliminated in the absence of the risk factor. Aetiological fractions are available only for four health behaviours, that is, risky alcohol consumption, tobacco smoking, illicit drug use and physical inactivity. Due to small numbers in this younger age group, data for physical activity in young people have not been reported. Mortality rates and hospital separation rates for physical inactivity and insufficient physical activity rise with increasing age after 40 years. For further information on health behaviour outcomes please refer to Whole of population chapter.

### Alcohol

In 1999-2001, there were on average 61 deaths per year attributed to hazardous and harmful alcohol consumption in Queenslanders aged 15-24 years, of which 85% were male. Deaths in the age group 15-24 years represented 7.5% of the 812 deaths attributed to hazardous and harmful alcohol consumption in the total population. Of the deaths attributed to risky alcohol consumption in young people aged 15-24 years (Figure 3.12), suicide was the leading cause (43.2%), followed by driver related incidents (driving 34.0%, pedestrian 9.5%) and assault (5.4%). In each of these conditions, male deaths predominated.

In 1999/00-2001/02, there were on average 2,955 hospital separations per year attributed to hazardous and harmful alcohol consumption in Queenslanders aged 15-24 years, of which 69.1% were male. This represented 14.3% of the 20,912 hospitalisations attributed to hazardous and harmful alcohol consumption in the total population. Young males aged 15-24 years were generally more likely than young females to be hospitalised for each alcohol-related condition (Figure 3.13). The exception was attempted suicide, where young females were more likely to be hospitalised.
Tobacco smoking
In 1999-2001, there were on average 3 deaths per year attributed to tobacco smoking among Queenslanders aged 15-24 years, of which 51.5% were male. In 1999/00-2001/02, there were on average 615 hospital separations per year attributed to tobacco smoking in young Queenslanders aged 15-24 years, 77.3% of which were female, largely related to complications of pregnancy. While smoking is an important risk factor for a number of diseases, the effect of smoking on the health of the individual is accumulated over many years with relatively few immediate impacts in youth.

Illicit drugs
In 1999-2001, there were on average 24 deaths per year attributed to illicit drug use among Queenslanders aged 15-24 years, of which 81.1% were male. Deaths due to illicit drug use in young people represented 25.5% of the 94 illicit drug related deaths in Queensland. Of the deaths attributed to illicit drugs in young people aged 15-24 years, accidental poisoning by narcotics and hallucinogens was the leading cause (42.1%), followed by suicide (30.2%). In 1999/00-2001/02, there were on average 1,317 hospital separations per year attributed to illicit drugs among Queenslanders aged 15-24 years, of which 58.6% were male. Of the hospital separations attributed to illicit drugs in young people, mental and behavioural disorders due to drug use was the leading cause (68.2%), followed by intentional self-harm (9.5%).
3.3.7 Communicable diseases

During 1997-2001 in Queensland, 115,014 notifications of more than 50 different communicable diseases were received. This was an average of 23,003 notifications per year (range: 21,201-24,846). Although notified cases do not represent the total cases in the community, they provide an estimate of the burden of disease. The Notifiable Disease Report 1997-2001 \(^{15}\) includes detailed analysis of notifiable conditions in Queensland and national comparisons.

Care needs to be exercised in drawing conclusions from trends in the numbers of notifications. With some conditions, the figures can be highly indicative of temporary or long term changes in incidence but this cannot be applied to all conditions. Factors influencing numbers of notifications differ from condition to condition. Such factors include: the symptomatic to asymptomatic ratio; the proportion of those becoming ill seeking medical advice; the physician’s diagnostic skill; and the seriousness of the condition and its public health implications. The selection and timing of tests, the pathology laboratories’ success in establishing the diagnosis, and even the lack of successful transport media from remote communities in north Queensland can also play a role. Awareness programs directed at the public or physicians, and the development of new and better tests may also have an influence on notification rates.

More information on communicable diseases is available in the Whole of population, Children and Indigenous peoples chapters of this report.

Invasive meningococcal disease

About 100 cases per year of invasive meningococcal disease (IMD) are notified in Queensland, similar to the national rate. Year to year fluctuations in case numbers and deaths are typical of this disease. About three quarters of cases are in people aged less than 25 years, with young children aged less than five years (36%), teenagers (15-19 years, 19%) and young adults (20-24 years, 11%) comprising the largest groups. The rates of IMD in young people are consistently higher than rates in the total population (Table 3.3). Cases occur throughout the year, although winter to early spring is the peak season. Cases are mostly sporadic, as outbreaks or related cases occur infrequently.

### Table 3.3: Notification rates invasive meningococcal disease by age and sex, Queensland 1997-2001

<table>
<thead>
<tr>
<th>Age group</th>
<th>Sex</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19 years</td>
<td>Male</td>
<td>4.7</td>
<td>10.8</td>
<td>3.8</td>
<td>5.2</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>5.8</td>
<td>5.7</td>
<td>9.5</td>
<td>5.5</td>
<td>9.4</td>
</tr>
<tr>
<td>20-24 years</td>
<td>Male</td>
<td>3</td>
<td>0.8</td>
<td>5.4</td>
<td>5.4</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>0.8</td>
<td>4.7</td>
<td>3.2</td>
<td>1.6</td>
<td>5.6</td>
</tr>
<tr>
<td>Total (all ages)</td>
<td></td>
<td>2.1</td>
<td>3.1</td>
<td>2.6</td>
<td>1.9</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Note: Rates per 100,000 population

In Queensland, the two most common types of the bacterium isolates of IMD are serogroup B (about 50% of cases annually) and serogroup C (about 36% of cases annually). Serogroup C is more common in southern states of Australia. \(^{58,59}\) In recent years, serogroup C has been more common in late teen and young adult age groups. The case fatality rate averages about 9%, but varies from year to year. Serogroup C cases have a higher risk of death, as do cases presenting with septicaemia. The risk of death generally increases with the delay in presenting to hospital for treatment.

The risk of infection is higher in individuals exposed to cigarette smoke, both active and passive smoking. \(^{60}\) Close contacts, in particular household contacts of cases, have a small but significant increased risk of infection. \(^{60}\)

In 2004, the National Meningococcal C Vaccination Program was commenced in Queensland. The aim is of the program to protect Australian children and adolescents against meningococcal C disease. All children, adolescents and young adults born on or after January 1984 are being progressively offered free vaccine. \(^{61}\) With good vaccination coverage, this program could be expected to prevent 10 to 15 cases of IMD per year in Queensland. \(^{62}\)
Blood-borne conditions

Between 1997 and 2001, blood-borne conditions such as hepatitis B, C, D and E (not hepatitis A) comprised more than 15% of all notifications in Queensland, with hepatitis C the third most commonly notified condition (12%).57

Between 1997 and 2001, hepatitis C notification rates for young people aged 20-24 years were consistently higher than the rates for the total population (Table 3.4). During 1997-2001, notification rates for hepatitis C in the Queensland total population ranged between 80-94 cases per 100,000 people, with Queensland rates generally below the national rates (which ranged between 84-112 cases per 100,000 people). Fluctuations in rates relate more to changes in screening and detection patterns than a change in the burden of disease. Hepatitis C was more commonly reported in males than females (1.8:1), and 81% of cases in the total population were reported in the age group 20-44 years.

Annual notification rates should not be used to estimate year of acquisition, as it is not possible to differentiate between chronic and acute infections. Within Queensland, rates were highest in the Southern Zone, with rates generally increasing over time.57 Annual notification rates should not be used to estimate trends in incident cases, as information on recency of infection is not collected.

Between 1997 and 2001, hepatitis B notification rates in young people aged 15-24 years were consistently higher than the rates for the total population (Table 3.4). There were 800-930 cases of hepatitis B in the total Queensland population notified annually (3.4% of all notifications) in the reporting period. Males outnumbered females 1.3:1. People aged 15-39 years comprised 63% of all cases. Between 1997 and 2001, annual rates in Queensland varied between 23 and 27 cases per 100,000 people, lower than the national rates (38-45 cases per 100,000). Over the same period, notification rates for acute cases ranged between 1.2 and 1.6 cases per 100,000 people in Queensland, slightly less than national rates of 1.4 to 2.2 cases per 100,000 people. Rates in north Queensland were more than twice the Queensland rate, although there were small numbers overall.57

In 2003, a range of 24% to 59% of Queensland adults could correctly identify potential risk factors for hepatitis C.63 There remains considerable ignorance and confusion regarding risk factors for acquiring blood-borne hepatitis C and hepatitis A (not blood-borne), which is of concern for health policy makers and service providers.

Sexually transmitted conditions

Between 1997 and 2001, chlamydia infections were the most commonly notified sexually transmitted infection (STI) in Queensland (nearly a quarter of all notifications). It is recognised that notifications significantly underestimate burden of disease, as 70% or more of infections in women, and at least 50% of infections in men, are asymptomatic.64 Notifications increased significantly each year during this period in Queensland and throughout Australia. The increases are largely due to improved case ascertainment, resulting from improved testing methods, increased awareness of the disease, and screening programs (particularly the Indigenous Urinary PCR Screening Program).

From 1997-2001, 64% of notified cases of chlamydia in Queensland were aged 15-24 years.57 Highest rates were among 15-19 year old females (Table 3.5), and those living in north Queensland (2.5-3 times higher than the state). Notification rates were highest in areas of higher Indigenous population (up to 25 times more), reflecting at least in part, active screening programs. Safer sex practices (particularly among young people) are required to reduce the incidence of chlamydial infections. Early detection and treatment of cases and their contacts is vital to control this STI.
In 2001, gonococcal infections were the seventh most commonly notified condition accounting for 4.6% of all notifications in Queensland. From 1997-2001, 54% of notified cases of gonorrhoea in Queensland were aged 15-24 years. During this time, notification rates ranged between 27.5 and 32.4 per 100,000 people. National rates were similar at 25.3-33.4 per 100,000. As with chlamydial infections, highest rates were reported in north Queensland, but unlike chlamydia, male to female ratio for gonorrhoea was reversed (1.5:1). Highest rates in males were in the 20-24 age group; while highest rates in females were in the 15-19 age group (Table 3.5). Notification rates were highest in areas of higher Indigenous population (up to 35 times more). Limited enhanced surveillance of gonococcal infections indicates that one risk group for gonococcal infections are men who have sex with men.

In 2002, there were 117 new HIV notifications. The number of cases of people living with HIV/AIDS in Queensland is increasing each year due to better treatment and outcomes for cases. The peak year for notifications of new AIDS diagnoses in Queensland was 1995, with 102 new cases, the highest number since was in 1997 (119 cases). By 2002, new diagnoses had declined to less than half the cases from 1995. Males have predominated in each year comprising more than 90% of new HIV/AIDS diagnoses. More than 40% of new male AIDS cases were aged 30-39 years, and more than 30% aged 40-49 years. Since 1993, there has been a slow but continuous increase in the proportion of AIDS cases who are late presenters. There was an increase in sero-converters in 2002, and this has been most marked in the 20-29 age group. In 2002, the number of cases living with HIV/AIDS who were receiving treatment declined from 42% in 2001 to 30%, most likely reflecting a desire to delay starting treatment as long as possible. In 2002, there was also an increase in the number of people never on treatment.

### Table 3.5: Notification rates of selected sexually transmitted infections by age and sex, Queensland 1997-2001

<table>
<thead>
<tr>
<th>Disease</th>
<th>Age group</th>
<th>Sex</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia - all forms</td>
<td>15-19 years</td>
<td>Male</td>
<td>157.3</td>
<td>208.2</td>
<td>227.2</td>
<td>261.7</td>
<td>287</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>705.5</td>
<td>694.7</td>
<td>793.1</td>
<td>848.8</td>
<td>1,071.20</td>
</tr>
<tr>
<td></td>
<td>20-24 years</td>
<td>Male</td>
<td>304.2</td>
<td>357</td>
<td>386.2</td>
<td>444</td>
<td>444</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>694.7</td>
<td>747.5</td>
<td>781.1</td>
<td>817.6</td>
<td>985.2</td>
</tr>
<tr>
<td></td>
<td>Total (all ages)</td>
<td></td>
<td>103.1</td>
<td>117.9</td>
<td>127.4</td>
<td>138.3</td>
<td>157.9</td>
</tr>
<tr>
<td>Gonorrhoea - all forms</td>
<td>15-19 years</td>
<td>Male</td>
<td>91.2</td>
<td>119.9</td>
<td>132.4</td>
<td>139.4</td>
<td>97.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>121.5</td>
<td>121.1</td>
<td>149.6</td>
<td>96.4</td>
<td>132.3</td>
</tr>
<tr>
<td></td>
<td>20-24 years</td>
<td>Male</td>
<td>117.5</td>
<td>125.1</td>
<td>134.4</td>
<td>138.2</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>81.7</td>
<td>84.6</td>
<td>92.4</td>
<td>92.6</td>
<td>78.2</td>
</tr>
<tr>
<td></td>
<td>Total (all ages)</td>
<td></td>
<td>27.5</td>
<td>32.4</td>
<td>33.7</td>
<td>31.9</td>
<td>30.9</td>
</tr>
</tbody>
</table>

Source: QH Notifiable diseases report 1997-2001  Note: Rates per 100,000 population

### Vaccine preventable conditions

Over the five year period 1997-2001, notifications of measles, mumps, rubella and pertussis in Queensland have decreased, although pertussis peaks were observed in 1997 and 2001 (Table 3.6). These decreases can be attributed to successful vaccination programs, which have resulted in high coverage rates among Queensland children and young people.

### Table 3.6: Notification rates of selected vaccine preventable diseases by age and sex, Queensland 1997-2001

<table>
<thead>
<tr>
<th>Disease</th>
<th>Age group</th>
<th>Sex</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles</td>
<td>15-19 years</td>
<td>Male</td>
<td>11.8</td>
<td>0.8</td>
<td>0</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>19.1</td>
<td>0</td>
<td>2.4</td>
<td>1.6</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>20-24 years</td>
<td>Male</td>
<td>6</td>
<td>0.8</td>
<td>1.5</td>
<td>3.1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>12.4</td>
<td>2.4</td>
<td>2.4</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Total (all ages)</td>
<td></td>
<td>7.9</td>
<td>1.0</td>
<td>0.9</td>
<td>0.8</td>
<td>0.3</td>
</tr>
<tr>
<td>Rubella</td>
<td>15-19 years</td>
<td>Male</td>
<td>77.1</td>
<td>59.9</td>
<td>25.6</td>
<td>1.5</td>
<td>16.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>28.9</td>
<td>25.2</td>
<td>6.4</td>
<td>3.1</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>20-24 years</td>
<td>Male</td>
<td>49.7</td>
<td>41.5</td>
<td>24.7</td>
<td>3.1</td>
<td>34.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>27.2</td>
<td>15.8</td>
<td>8.0</td>
<td>3.2</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td>Total (all ages)</td>
<td></td>
<td>15.8</td>
<td>10.8</td>
<td>4.5</td>
<td>1.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Pertussis</td>
<td>15-19 years</td>
<td>Male</td>
<td>62.1</td>
<td>44.6</td>
<td>36.9</td>
<td>9.6</td>
<td>73.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>69.1</td>
<td>64.2</td>
<td>30.2</td>
<td>25.1</td>
<td>79.9</td>
</tr>
<tr>
<td></td>
<td>20-24 years</td>
<td>Male</td>
<td>21.1</td>
<td>25.3</td>
<td>13.1</td>
<td>6.2</td>
<td>19.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>23.3</td>
<td>22.9</td>
<td>19.9</td>
<td>8.0</td>
<td>26.3</td>
</tr>
<tr>
<td></td>
<td>Total (all ages)</td>
<td></td>
<td>55.9</td>
<td>40.3</td>
<td>27.4</td>
<td>15.0</td>
<td>45.8</td>
</tr>
</tbody>
</table>

Source: QH Notifiable diseases report 1997-2001  Note: Rates per 100,000 population
In the past, rates for measles were highest in the age group 0-4 years. However, rates for all groups have fallen dramatically between 1997 and 2001. A national Measles Control Campaign was implemented in 1998 targeting primary school age children in Australia. During the campaign, about 96% of Australian primary school children were immunised. These children will now be entering adolescence and are at much lower risk of contracting measles. In 2002, young adults aged 18-30 years were also offered free measles/mumps/rubella vaccine.

In the five year reporting period 1997-2001, almost half (49%) of rubella notifications in Queensland occurred in 15-24 year olds. The highest notification rates in 2001 occurred in males aged between 20 and 24 years. Improved immunisation in children and lower rates overall have led to an increase in the median age of rubella infection.

Rubella is more common in males than females because selective vaccination for females preceded universal vaccination. In 1971, a schoolgirl rubella vaccination program was commenced in Australia in order to protect young women entering the childbearing years. Although rubella is generally a mild disease, its effect in pregnant women is not. Maternal rubella infection in the first 8-10 weeks of pregnancy results in fetal damage in up to 90% of affected pregnancies. Combined measles/mumps/rubella vaccination for both sexes replaced the schoolgirl rubella program in 1993.

Vaccination has led to a considerable reduction in rubella and congenital rubella syndrome (CRS) in Australia. In 2002, national notification rates for rubella were the lowest on record and there were no notified cases of CRS between 1997 and 2002. However, two infants with CRS were reported in Queensland in 2003. These cases occurred in young mothers, one who had missed rubella vaccination because of illness and one whose vaccination status was unknown.

The notification of two cases of CRS in Queensland serves as a warning that high coverage with the first dose of MMR vaccine needs to be maintained and improved uptake of the second dose is needed. As rubella transmission is still occurring in young adults, maintenance of programs to detect and vaccinate non-immune females of child-bearing age is critical, through screening of females planning pregnancy and through antenatal/postnatal programs. High quality surveillance data are also required to determine whether immunity is sufficient to prevent further cases of rubella and CRS. If rubella continues to circulate in young adults, consideration may need to be given to adult vaccination programs.

Epidemics of pertussis (whooping cough) occur every three to four years. In recent years among highly immunised populations, many cases of pertussis have occurred in adolescents and young adults whose immunity has waned. These individuals (particularly young parents) then become a reservoir of infection for infants and young children. Immunisation of adolescents, who have a high risk of pertussis infection, and adults in contact with very young infants, would be expected to result in the greatest health benefits. In Queensland, a school based pertussis vaccination program was commenced in early 2004 targeting Year 10 students, and 15-year-olds within general practice.