Health Indicators

SUNSHINE COAST AND COOLOOLA

HEALTH SERVICE DISTRICT

2007

Prepared by

Epidemiology

Central Population Health Services

Population Health Queensland
Suggested citation:


Further information:

Epidemiology
Central Population Health Services
Population Health Queensland
Ph: 07 3624 1111
Email: hsepi_phscahs@health.qld.gov.au
Acknowledgments

These ‘Health Indicators’ documents are a collaborative initiative of Central, Southern and Tropical Population Health Services and the Health Statistics Centre, Queensland Health.

Authors:
Dr Phillip Baker
Dr Tanya Bell
Nell Stetner-Houweling

Contributors:
Debora Andrews  Annette Neill
Morton Bell  Alexandra Raulli
Dr Rod Davison  Christine Smerdon
Michelle Bac Dinh  Elizabeth Smith
Vesna Dunn  Jackie Steele
Dr Lisa Hall  Dr Susan Vlack
Catherine Harper  Angela Wakefield
Ian Hunter  Darren White
Robert Kopf  Dr Margaret Young
Dr Megge Miller
Table of Contents

Executive Summary ............................................................................................................... 7
1. Introduction ..................................................................................................................... 10
2. Population Profile for Sunshine Coast and Cooloola Health Service District .......... 12
   2.1 Geographical Area of Coverage ........................................................................ 12
   2.2 Current Demographics ...................................................................................... 13
   2.3 Projected Demographic Change ....................................................................... 15
3. Maternal and Infant Health ............................................................................................ 17
   3.1 Maternal Age and Fertility ................................................................................ 17
   3.2 Birth Weight and Mortality .............................................................................. 19
   3.3 Maternal Factors ............................................................................................... 22
      3.3.1 Smoking ................................................................................................... 22
      3.3.2 Gestational Diabetes .............................................................................. 24
4. Health Outcomes ............................................................................................................. 25
   4.1 Hospitalisations ................................................................................................. 26
      4.1.1 Hospital Separations from “all causes” and from diseases classified as National Health Priority Areas (NHPAs) ........................................................................ 26
   4.2 Avoidable Hospitalisations .............................................................................. 28
   4.3 Deaths ............................................................................................................... 33
      4.3.1 All Causes ................................................................................................ 33
      4.3.2 Avoidable Deaths ................................................................................... 35
4.4 National Health Priority Areas; Individual Diseases ................................................ 36
   4.4.1 Asthma ....................................................................................................... 36
   4.4.2 Arthritis and Musculoskeletal Conditions ................................................... 36
   4.4.3 Cancer ........................................................................................................ 37
   4.4.4 Cardiovascular Disease ............................................................................ 41
   4.4.5 Diabetes Mellitus ....................................................................................... 41
   4.4.6 Injury ......................................................................................................... 42
   4.4.7 Mental Health ............................................................................................. 43
5. Projections for Hospital Separations ............................................................................... 45
6. Communicable Diseases .................................................................................................. 46
   6.1 Notifiable Conditions ....................................................................................... 47
   6.2 Vaccination Rates ............................................................................................ 48
7. Abbreviations ................................................................................................................... 51
8. Methods ........................................................................................................................ 52
9. Glossary of Terms .......................................................................................................... 56
10. Appendices .................................................................................................................... 60
11. References .................................................................................................................... 61
Table of Figures

Figure 1: Map of Sunshine Coast and Cooloola HSD .................................................. 12
Figure 2: Population for Sunshine Coast and Cooloola HSD and Queensland by age and sex, 2006 (Based on ABS Census 2001) .................................................. 14
Figure 3: Proportion of Aboriginal and Torres Strait Islander peoples in Central Queensland HSD and Queensland. (Historical data: ABS Census 1996, 2001, 2006) ................................................................................................................. 16
Figure 4: Population projection for Sunshine Coast and Cooloola HSD and Queensland by age and sex, 2026 (Based on ABS Census 2001) ......................... 16
Figure 5: Live birth rates per 1 000 women aged 15-44 years for Sunshine Coast and Cooloola HSD and Queensland, 2001-2005 ........................................ 18
Figure 6: Percentage of preterm live births for Sunshine Coast & Cooloola HSD and Queensland, 2001-2005 ................................................................. 20
Figure 7: Gestational diabetes Sunshine Coast and Cooloola HSD, 2001-2005 .. 24
Figure 8: Comparison of indirect age standardised hospital separations (95% CI) for all causes and NHPAs, Sunshine Coast and Cooloola HSD and Queensland, 2002-2005 ................................................................. 27
Figure 9: Comparison of indirect age standardised mortality (95% CI) for NHPAs and all causes, Sunshine Coast and Cooloola HSD and Queensland, 2002-2005 ................................................................................................................. 34
Figure 10: Comparison of indirect age standardised cancer incidence (95% CI), Sunshine Coast and Cooloola HSD and Queensland 2002-2004 ...................... 39
Figure 11: Cancer incidence (95% CI) for females, Sunshine Coast and Cooloola HSD and Queensland, 2002-2004 ................................................................. 40
Figure 12: Cancer incidence (95% CI) for males, Sunshine Coast and Cooloola HSD and Queensland, 2002-2004 ................................................................. 40
Figure 13: Projected increase in hospital separations for the Sunshine Coast and Cooloola HSD, 2006-2007 – 2021-2022 ................................................................. 45
Figure 14: Vaccination rates for ‘fully’ and MMR immunised in Sunshine Coast and Cooloola HSD ................................................................................................................. 50
Tables

Table 1: Key summary demographic variables for Sunshine Coast and Cooloola HSD and Queensland ................................................................. 14
Table 2: Projected growth in age cohorts for Sunshine Coast & Cooloola HSD and Queensland 2006-2026 ................................................................. 15
Table 3: Number of births by maternal age at birth for Sunshine Coast and Cooloola HSD and Queensland ................................................................. 18
Table 4: Fertility rates (births per 1 000 females) by maternal age for Sunshine Coast and Cooloola HSD and Queensland, 2001-2005 ...................................... 19
Table 5: Number of births per year and percentage of births (five year Average) by birth weight and gestational age for Sunshine Coast & Cooloola HSD and Queensland, 2001-2005 ................................................................. 20
Table 6: Maternal, perinatal and infant mortality rates for Sunshine Coast and Cooloola HSD and Queensland, 2001-2005 ................................................................. 21
Table 7: Smoking in pregnancy, by Aboriginal and Torres Strait Islander status in Sunshine Coast and Cooloola HSD and Queensland 2005-2006 ................................................................. 23
Table 8: Average number of cigarettes smoked after 20 weeks gestation by mothers who smoked at any time during pregnancy, by Aboriginal and Torres Strait Islander Status, in Sunshine Coast and Cooloola HSD and Queensland, 2005-2006 ................................................................. 23
Table 9: Hospital separations per 100 000 population for NHPAs, Sunshine Coast and Cooloola HSD and Queensland by sex, 2002-2005 ................................................................. 29
Table 10: Avoidable hospital separations by chronic conditions for Sunshine Coast and Cooloola HSD and Queensland, 2005-2006 ................................................................. 31
Table 11: Avoidable hospital separations by acute conditions for Sunshine Coast and Cooloola HSD and Queensland, 2005-2006 ................................................................. 32
Table 12: Mortality per 100,000 population for NHPAs, Sunshine Coast and Cooloola HSD and Queensland by sex, 2002-2005 ................................................................. 33
Table 13: Age-standardised mortality rates (95% CI) per 100 000 population, by mortality type, persons aged 0-74 years, 2003-2005 ................................................................. 35
Table 14: Selected notifiable conditions for Sunshine Coast and Cooloola HSD and Queensland 2006 and average notification rates for Central Queensland, 2002-2006 ................................................................. 48
Executive Summary

This report examines current and projected demographics, selected statistics and trends for maternal and perinatal outcomes, hospital separations and mortality, and selected incidence rates for cancer, immunisations and notifiable diseases for the period 2001 to 2005 for the people who live in the Sunshine Coast and Cooloola area and compares these with Queensland overall. It identifies several outstanding and emerging health issues for the Sunshine Coast and Cooloola Health Service District (HSD).

The Sunshine Coast and Cooloola HSD has a population with a higher proportion of persons aged 45 years and over and generally lower proportions of persons aged less than 45 years when compared to the Queensland population overall. From projections, by 2026 this difference will become even more pronounced with anticipated large increases in the proportions of over 65 year old persons.

Maternal and infant health outcomes serve as key markers for the health status of a population. In 2005, there were a lower proportion of teenage mothers in the Sunshine Coast and Cooloola HSD (4.8%) than Queensland (5.6%). The preterm and low birth weight rates were lower than Queensland, as was the birth rate. Maternal smoking, a significant risk factor for ill health, was high in Sunshine Coast and Cooloola HSD, as it was for Queensland. Smoking rates were approximately double for Aboriginal and Torres Strait Islander mothers than non-Aboriginal and Torres Strait Islander. These data indicate that there is an opportunity to invest in effective interventions for maternal smoking cessation and for young women more broadly. Determination of high risk groups for teenage and preterm/low birth weight pregnancies, such as smokers, could enable effective targeting of interventions.

Hospitalisation and mortality data and key interpretations are presented in three ways:

1. Hospitalisations from all causes and from diseases classified as National Health Priority Areas (NHPAs)
2. Avoidable hospitalisations due to ambulatory care sensitive conditions (ACSC)
3. Mortality from all causes and diseases classified as NHPAs
The rates of hospitalisations for “all causes” in Sunshine Coast and Cooloola HSD were found to be lower for both males and females than Queensland. This is reflected in lower rates for all individually reported conditions with the exception of coronary heart disease which was higher for both males and females and intentional self harm which was notably higher in females.

Conditions classified as avoidable due to them being ambulatory care sensitive conditions (ASCC) are divided into chronic and acute conditions. Diabetes complications, angina, COPD and congestive cardiac failure account for more than 80 per cent of the avoidable chronic disease burden. Dental conditions account for around 25 per cent of the avoidable acute disease burden.

Rates for “total chronic” ACSC were higher for males and females in Sunshine Coast and Cooloola HSD than Queensland. This was entirely attributable to higher rates of diabetes complications for both men and women as all other conditions were similar or lower than Queensland rates overall.

Rates for “total acute” ACSC were lower in both males and females and all individually reported conditions having lower or similar rates to Queensland with the exception of “other vaccine preventable conditions” which were statistically significantly higher in males.

Diabetes mellitus statistics when viewed together for hospitalisation and mortality data are apparently contradictory as markedly higher rates of ACSC for diabetes complications are contrasted with lower hospital separation and mortality rates. The underlying causes of this difference may need to be investigated further.

With regard to mortality from all causes and diseases classified as National Health Priority Areas (NHPA’s), Sunshine Coast and Cooloola HSD had slightly lower mortality rates for all causes, in both males and females. All individually reported conditions were lower or similar to Queensland with the exception of mental and behavioural disorders which were significantly higher. These observations are generally in line with observed rates for hospitalisations. Total avoidable mortality (consisting of deaths amenable and non-amenable to health care) was lower in the HSD than Queensland.
The incidence of melanoma cancer was higher in Sunshine Coast and Cooloola HSD than Queensland. Rates for trachea, bronchus and lung were slightly lower than Queensland. Breast and prostate cancers were the most common form of cancers in Sunshine Coast and Cooloola HSD as they were in Queensland.

Under the assumptions of the models used, hospital separation demand is projected to grow strongly towards 2022.

The Sunshine Coast and Cooloola HSD shows levels of immunisation which are consistently lower than Queensland.

Review and discussion of this report can identify strengths and opportunities for improvement across the Central Queensland HSD, and priorities for further more detailed analysis and interpretation. This report will further inform the identification of priorities for disease prevention.

**Key note on interpretation:**
A recently published Queensland Health (Begg S et al, Queensland Health 2008) found that the differences between rates of illness in Health Service Districts were largely explained by the disparities in rates of illness between Aboriginal and Torres Strait Islander and Non-Aboriginal and Torres Strait Islander Australians.

This finding should be considered when interpreting the broad health indicators contained in this report.
1. Introduction

*Health Indicators Sunshine Coast and Cooloola Health Service District 2007* is part of a suite of reports profiling the health status of the population and current and future burden of disease for each Queensland Health Service District.

This report examines current and projected demographics, selected statistics and trends for maternal and perinatal outcomes, hospital separations and mortality, and selected incidence rates for cancer, immunisations and notifiable diseases for the period 2001 to 2005 for the people who live in the Sunshine Coast and Cooloola area and compares these with Queensland overall.

The purpose of the report is to provide the HSD executive, service planners, health service managers and practitioners with specific information about the health of the people that live in their district. This information can be used to inform health service planning; priorities for future investments in prevention, early intervention, and management; and service improvement initiatives which will continue to improve health outcomes for Queenslanders. It is also envisaged that this report will support and stimulate collaborative partnerships to address the highlighted areas of need within each HSD.

A key focus for this report is preventable disease, within the context of hospital separations, compared to Queensland overall. It is necessary to identify and analyse excess burden of disease and injury, and the key contributing risk factors, so that the issues associated with these excesses can be addressed. It is also important to identify the major causes of preventable hospital admissions, as addressing these health issues can free up resources and improve the health of the population. With prevention and early intervention strategies, many chronic conditions can be prevented or their onset and progression delayed. The affect of changing demographics on disease burden, such as an ageing population must also be considered.

The indicators presented in this report include new data and build upon and complement previous Queensland Health reports, particularly *The Health of Queenslanders 2006.*
(QH 2006), *Health Determinants Queensland 2004* (QH 2004a), *The State of Health of the Queensland Population 2004* (QH 2004b) and *Health Indicators for Queensland 2001* (QH 2001). All these reports are available on Queensland Health’s website and should be consulted to inform service planning and priority setting. They can also assist in interpreting information included in this report.

“As the population's burden of disease places greater pressure on health services...we recognise the importance of prevention and a positive view of health in determining the future of health service orientation”.

*Dr Linda Selvey*  
*(Senior Director, Population Health Queensland)*
2. Population Profile for Sunshine Coast and Cooloola Health Service District

2.1 Geographical Area of Coverage

The Sunshine Coast and Cooloola HSD encompasses an area of approximately 6 093 square kilometres, which comprises approximately 1 per cent of the total area of central area\(^1\). The area encompasses the Local Government Areas of Sunshine Coast Regional and Gympie Regional and incorporates the townships of Nambour, Maleny, Caloundra and Gympie. The area includes the Nambour General Hospital, Caloundra Health Service, the Maleny Soldiers' Memorial Hospital, Gympie Hospital and Noosa Private Hospital. The area incorporates the former health service districts of Sunshine Coast and Gympie.

---

\(^1\) The former central area included six health service districts: Northside HSD, Sunshine Coast and Cooloola HSD, Fraser Coast HSD, Wide Bay HSD, Central Queensland HSD and Central West HSD. These HSDs are no longer referred to collectively as the Central Area Health Service (CAHS).
2.2 Current Demographics

Key demographic factors such as age structure, sex distribution, proportion of Aboriginal and Torres Strait Islander people and socioeconomic profile are all predictors of the health status of a population. The current age profile and composition, in association with the projected growth of Sunshine Coast and Cooloola population, contribute to the knowledge regarding the current delivery of health services and can indicate the capacity required to meet projected future populations.

The estimated residential population for the Sunshine Coast and Cooloola HSD in 2006 was 327 513, which accounts for 8.1 per cent of the total population of Queensland. The Aboriginal and Torres Strait Islander population accounts for 1.3 per cent of the total population of the Sunshine Coast and Cooloola HSD. Key demographic predictors of health were described for the Sunshine Coast and Cooloola HSD utilising data from the 2001 and 2006 Census of Population and Housing, and population projections where available (Table 1).

As can be seen in Table 1 and Figure 2, in comparison to Queensland, Sunshine Coast and Cooloola HSD has:

- similar proportions of males and females
- higher proportions of adults aged 65+ years
- a lower proportion of children aged 0-14 years
- a lower proportion of young people aged 15-40 years
- a lower proportion of Aboriginal and Torres Strait Islander people
- similar proportions of persons who were born in Australia
- a lower proportion of persons speaking a language other than English at home.
Table 1: Key summary demographic variables for Sunshine Coast and Cooloola HSD and Queensland

<table>
<thead>
<tr>
<th></th>
<th>Sunshine Coast and Cooloola HSD</th>
<th>Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total population 2006</strong></td>
<td>327,513</td>
<td>4,042,035</td>
</tr>
<tr>
<td>Percentage of Queensland population</td>
<td>8.1</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>161,277</td>
<td>2,019,171</td>
</tr>
<tr>
<td>% Males</td>
<td>49.2</td>
<td>50.0</td>
</tr>
<tr>
<td>Females</td>
<td>166,236</td>
<td>2,022,863</td>
</tr>
<tr>
<td>%Females</td>
<td>50.8</td>
<td>50.0</td>
</tr>
<tr>
<td><strong>Age distribution 2006</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% aged 0-14 years (children)</td>
<td>18.7</td>
<td>20.1</td>
</tr>
<tr>
<td>% aged 15-24 years (young people)</td>
<td>11.6</td>
<td>14.1</td>
</tr>
<tr>
<td>% aged 25-64 years (adults)</td>
<td>53.0</td>
<td>53.4</td>
</tr>
<tr>
<td>% aged 65+ (older people)</td>
<td>16.7</td>
<td>12.4</td>
</tr>
<tr>
<td>% Aboriginal and Torres Strait Islander</td>
<td>1.3</td>
<td>3.3</td>
</tr>
<tr>
<td>% Australian born</td>
<td>76.6</td>
<td>75.2</td>
</tr>
<tr>
<td>% speaks a language other than English at home</td>
<td>3.4</td>
<td>7.1</td>
</tr>
</tbody>
</table>


Figure 2: Population for Sunshine Coast and Cooloola HSD and Queensland by age and sex, 2006 (Based on ABS Census 2001)
2.3 Projected Demographic Change

In general, population projections are generated based on assumptions on the future levels of fertility, mortality and migration (both overseas and interstate). These assumptions are based on historical data and other available evidence.

The Sunshine Coast and Cooloola HSD was the fastest growing HSD in the decade from 1996-2006 and is expected to grow at a much higher rate than Queensland overall for the next two decades (Table 2) adding about ten thousand persons a year to the population. In comparison to Queensland there are significant changes projected for the demographic composition, with the older population projected to increase at a higher rate than any other age cohort (Figure 4). The high proportions of over 65’s and lower proportions of working age adults 20-65’s compared to Queensland will present challenges for the provision and delivery of health services. The proportion of Aboriginal and Torres Strait Islander peoples is lower than Queensland overall but has increased at a rate above the underlying HSD population growth in the last ten years (Figure 3).

Table 2: Projected growth in age cohorts for Sunshine Coast & Cooloola HSD and Queensland, 2006-2026

<table>
<thead>
<tr>
<th>Age Cohort</th>
<th>Sunshine Coast &amp; Cooloola HSD</th>
<th>Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># Persons 2006 (000's)</td>
<td>Additional persons 2026 (000's)</td>
</tr>
<tr>
<td>0-14 years (children)</td>
<td>61.4</td>
<td>18.9</td>
</tr>
<tr>
<td>15-24 years (young adults)</td>
<td>38.0</td>
<td>7.5</td>
</tr>
<tr>
<td>25-64 years (adults)</td>
<td>173.5</td>
<td>81.1</td>
</tr>
<tr>
<td>65+ years (older adults)</td>
<td>54.7</td>
<td>88.3</td>
</tr>
<tr>
<td>Total</td>
<td>327.5</td>
<td>195.9</td>
</tr>
</tbody>
</table>

Source: Population Projections by Health Districts, Sex and Age Groups (Based on Census 2001 counts).
Figure 3: Proportion of Aboriginal and Torres Strait Islander peoples in Sunshine Coast & Cooloola HSD and Queensland (Historical data: ABS Census years 1996, 2001, 2006)

Figure 4: Population projection for Sunshine Coast and Cooloola HSD and Queensland by age and sex, 2026 (Based on ABS Census 2001)
3. Maternal and Infant Health

Infant mortality rate is an important indicator of the general health and wellbeing of the population and greatly influences the life expectancy of a population. Infant mortality rates in Australia declined dramatically over the 20th century, mainly due to improved living conditions, the decline of infectious diseases, along with growing preventive health measures and public health programs at the population level. Perinatal data is presented in this document for the Sunshine Coast and Cooloola HSD with comparisons to Queensland data as an indication of the status of health for this area.

3.1 Maternal Age and Fertility

Maternal age is an important predictor of perinatal outcome with adverse outcomes more likely to occur in both younger and older mothers. In 2005, the total number of births in Sunshine Coast and Cooloola HSD accounted for approximately 6.8 per cent of all births in Queensland. Of these births 180 were to teenage mothers (up to 19 years of age), representing 4.8 per cent of all births in the HSD, which is lower than the 5.6 per cent of births to teenage mothers in Queensland overall (Table 3). Risks to the baby and to the teenage mother are well documented and should be considered in health service planning. Over the period from 2001 to 2005, the Sunshine Coast and Cooloola HSD had a lower birth rate compared to Queensland (Figure 5).
### Table 3: Number of births by maternal age at birth for Sunshine Coast and Cooloola HSD and Queensland

<table>
<thead>
<tr>
<th>Year</th>
<th>Place of Usual Residence</th>
<th>Maternal Age (years)</th>
<th>&lt;15</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-44</th>
<th>45+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>0</td>
<td>167</td>
<td>1 520</td>
<td>1 445</td>
<td>84</td>
<td>7</td>
<td>3 223</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>29</td>
<td>3 115</td>
<td>24 067</td>
<td>20 878</td>
<td>1 113</td>
<td>52</td>
<td>49 254</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>0</td>
<td>175</td>
<td>1 558</td>
<td>1 432</td>
<td>110</td>
<td>4</td>
<td>3 279</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>18</td>
<td>3 057</td>
<td>23 068</td>
<td>21 331</td>
<td>1 209</td>
<td>45</td>
<td>48 728</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>1</td>
<td>199</td>
<td>1 439</td>
<td>1 653</td>
<td>125</td>
<td>2</td>
<td>3 419</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>22</td>
<td>3 021</td>
<td>22 909</td>
<td>22 529</td>
<td>1 336</td>
<td>51</td>
<td>49 868</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>1</td>
<td>175</td>
<td>1 483</td>
<td>1 597</td>
<td>129</td>
<td>5</td>
<td>3 390</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>22</td>
<td>3 021</td>
<td>22 909</td>
<td>22 529</td>
<td>1 336</td>
<td>51</td>
<td>49 868</td>
<td></td>
</tr>
<tr>
<td>2005p</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>2</td>
<td>175</td>
<td>1 593</td>
<td>1 816</td>
<td>137</td>
<td>3</td>
<td>3 729</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>24</td>
<td>3 031</td>
<td>24 688</td>
<td>25 318</td>
<td>1 508</td>
<td>63</td>
<td>54 632</td>
<td></td>
</tr>
</tbody>
</table>

Source: Perinatal Data Collection, Queensland Health (Extracted Mar 22, 2007 mv)
Prepared by: Client Services, Health Information Centre, Queensland Health (Mar 20, 2007)
p Preliminary, subject to change

### Figure 5: Live birth rates per 1 000 women aged 15-44 years for Sunshine Coast and Cooloola HSD and Queensland, 2001-2005

![Live birth rates graph](image)
Table 4: Fertility rates (births per 1 000 females) by maternal age for Sunshine Coast and Cooloola HSD and Queensland, 2001-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Place of Usual Residence</th>
<th>Maternal Age (years)</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-44</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>15-19</td>
<td>18.4</td>
<td>105.2</td>
<td>72.9</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>2001</td>
<td>24.2</td>
<td>94.2</td>
<td>75.6</td>
<td>8.0</td>
</tr>
<tr>
<td>2002</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>15-19</td>
<td>18.8</td>
<td>105.3</td>
<td>70.8</td>
<td>9.3</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>2002</td>
<td>23.4</td>
<td>89.2</td>
<td>75.9</td>
<td>8.4</td>
</tr>
<tr>
<td>2003</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>15-19</td>
<td>20.8</td>
<td>94.4</td>
<td>79.8</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>2003</td>
<td>23.0</td>
<td>87.8</td>
<td>79.3</td>
<td>9.1</td>
</tr>
<tr>
<td>2004</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>15-19</td>
<td>17.8</td>
<td>94.7</td>
<td>75.5</td>
<td>10.3</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>2004</td>
<td>22.4</td>
<td>86.6</td>
<td>80.2</td>
<td>9.2</td>
</tr>
<tr>
<td>2005</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>15-19</td>
<td>17.8</td>
<td>99.7</td>
<td>85.0</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>2005</td>
<td>22.1</td>
<td>91.7</td>
<td>87.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Source: Perinatal Data Collection, Queensland Health (Extracted Mar 22, 2007 mv)
Prepared by: Client Services, Health Information Centre, Queensland Health (Mar 20, 2007)
p Preliminary, subject to change
mv Materialised view

3.2 Birth Weight and Mortality

Many factors contribute to birth weight including socioeconomic status, age of mother, number of babies previously born, maternal nutritional status, smoking and alcohol intake, and illness during pregnancy. A baby’s birth weight is a key indicator of health status. Low birth weight babies (<2 500 grams) have an increased risk of poor health and dying, require a longer period of hospitalisation after birth, and are more likely to develop significant disabilities (DOC 2006). A baby may be small due to being born preterm (<36 weeks gestation), or may be small for its gestational age (intrauterine growth retardation).

In 2001, the Sunshine Coast and Cooloola HSD had lower proportions of both preterm and low birth weight babies compared to Queensland, with preterm babies accounting for 5.5 per cent and 6.5 per cent of births respectively and low birth weight babies accounting for 4.5 per cent and 5.2 per cent respectively (Table 5, Figure 6). In 2005, the proportions of preterm and low birth weight babies born in Sunshine Coast and Cooloola HSD were also lower than Queensland, with preterm babies accounting for 5.8 per cent and 6.9 per cent of babies respectively and low birth weight babies accounting for 4.5 per cent and 5.4 per cent of babies respectively (Table 5).
Figure 6: Percentage of preterm live births for Sunshine Coast & Cooloola HSD and Queensland, years 2001-2005

Table 5: Number of births per year and percentage of births (5yr Average) by birth weight and gestational age for Sunshine Coast & Cooloola HSD and Queensland, 2001-2005

<table>
<thead>
<tr>
<th>Birth weight (grams)</th>
<th>Place of Usual Residence</th>
<th>Year(s)</th>
<th>Gestational Age (weeks)</th>
<th>&lt;2500</th>
<th>2500-3999</th>
<th>4000+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunshine Coast &amp; Cooloola HSD</td>
<td>2001</td>
<td>&lt;28</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28-36</td>
<td>79</td>
<td>77</td>
<td>3</td>
<td>159</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;36</td>
<td>47</td>
<td>2 410</td>
<td>493</td>
<td>2 951</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>&lt;28</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28-36</td>
<td>95</td>
<td>96</td>
<td>1</td>
<td>193</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;36</td>
<td>59</td>
<td>2 440</td>
<td>456</td>
<td>2 956</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>&lt;28</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28-36</td>
<td>80</td>
<td>90</td>
<td>1</td>
<td>171</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;36</td>
<td>46</td>
<td>2 543</td>
<td>490</td>
<td>3 080</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2004</td>
<td>&lt;28</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28-36</td>
<td>104</td>
<td>92</td>
<td></td>
<td>196</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;36</td>
<td>48</td>
<td>2 505</td>
<td>470</td>
<td>3 024</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>&lt;28</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28-36</td>
<td>83</td>
<td>104</td>
<td></td>
<td>187</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;36</td>
<td>60</td>
<td>2 813</td>
<td>529</td>
<td>3 402</td>
<td></td>
</tr>
<tr>
<td>Percentage of Live Births (5yr Average)</td>
<td>Sunshine Coast &amp; Cooloola HSD</td>
<td>2001-2005p</td>
<td>&lt;28</td>
<td>0.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28-36</td>
<td>2.7</td>
<td>2.8</td>
<td>0.0</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;36</td>
<td>1.6</td>
<td>77.5</td>
<td>14.9</td>
<td>93.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total %</td>
<td>4.8</td>
<td>80.3</td>
<td>14.9</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queensland</td>
<td>2001-2005p</td>
<td>&lt;28</td>
<td>0.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>28-36</td>
<td>3.1</td>
<td>2.9</td>
<td>0.0</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;36</td>
<td>1.6</td>
<td>78.7</td>
<td>13.0</td>
<td>93.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total %</td>
<td>5.3</td>
<td>81.6</td>
<td>13.1</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Perinatal Data Collection, Queensland Health (Extracted Mar 22, 2007 mv)
Prepared by: Client Services, Health Information Centre, Queensland Health Ph: 3234 1240 (Mar 20, 2007)

p Preliminary, subject to change
Mortality rates are an important indicator of maternal health, quality of access to medical care, socioeconomic conditions and public health practice. Maternal mortality is low, with one maternal death in Sunshine Coast and Cooloola HSD in 2001 and another in 2004. Perinatal mortality rates in Sunshine Coast and Cooloola HSD have been similar to, or lower than Queensland. Infant mortality rates in Sunshine Coast and Cooloola HSD have been lower than Queensland (Table 6).

Table 6: Maternal, perinatal and infant mortality rates for Sunshine Coast and Cooloola HSD and Queensland, 2001-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Place of Usual Residence</th>
<th>Mortality Rates/1 000</th>
<th>Maternal (1)</th>
<th>Perinatal (2)</th>
<th>Infant (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>Maternal (1)</td>
<td>0.32</td>
<td>9.6</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>Perinatal (2)</td>
<td>0.06</td>
<td>10.2</td>
<td>5.7</td>
</tr>
<tr>
<td>2002</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>Maternal (1)</td>
<td>0.00</td>
<td>8.5</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>Perinatal (2)</td>
<td>0.10</td>
<td>9.3</td>
<td>5.7</td>
</tr>
<tr>
<td>2003</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>Maternal (1)</td>
<td>0.00</td>
<td>8.8</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>Perinatal (2)</td>
<td>0.02</td>
<td>8.8</td>
<td>4.6</td>
</tr>
<tr>
<td>2004</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>Maternal (1)</td>
<td>0.30</td>
<td>10.3</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>Perinatal (2)</td>
<td>0.10</td>
<td>10.2</td>
<td>5.1</td>
</tr>
<tr>
<td>2005p</td>
<td>Sunshine Coast and Cooloola HSD</td>
<td>Maternal (1)</td>
<td>0.00</td>
<td>5.9</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Queensland</td>
<td>Perinatal (2)</td>
<td>0.09</td>
<td>6.9</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) Maternal mortality rate = (Mothers with 'died' discharge status / total mothers) x 1000; (2) Perinatal mortality rate = (Perinatal deaths / total births) x 1000 and (3) Infant mortality rate = (Deaths for ages <1yr / live births) x 1000.

Source: Perinatal Data Collection, Queensland Health (Extracted Mar 22, 2007 mv)
Prepared by: Client Services, Health Information Centre, Queensland Health (Mar 20, 2007)

p Preliminary, subject to change
- Data unavailable
mv Materialised view
3.3 Maternal Factors

There is strong evidence that maternal behaviours and health, such as maternal smoking, alcohol and drug misuse, poor nutrition and maternal disease, can negatively impact on foetal development and health and future adult health and wellbeing (DOC 2006).

3.3.1 Smoking

Maternal smoking is associated with poorer perinatal outcomes and is a risk factor for pregnancy complications. Smoking during pregnancy has been shown to be strongly associated with poor perinatal outcomes such as low birth weight, preterm birth, birth anomalies and perinatal death. Some studies suggest a link between maternal smoking and childhood mental health, including anxiety/depression and behavioural problems. Younger women aged less than 25 years were more likely to smoke during pregnancy (AIHW 2005).

Smoking cessation interventions during pregnancy, offer a significant opportunity to improve perinatal outcomes as well as long term health of mothers.

In the Sunshine Coast and Cooloola HSD, the percentage of mothers who smoked during their pregnancy was similar to Queensland (Table 7). Half of all Aboriginal and Torres Strait Islander women smoked during pregnancy, although 7.7 per cent quit during pregnancy (Table 8). The overall quit rate for these mothers is not known as the information on the smoking patterns of these mothers before they became pregnant is not available. There is further opportunity to reduce smoking rates through the appropriate application of effective interventions, both during and prior to pregnancy.
### Table 7: Smoking in pregnancy, by Aboriginal and Torres Strait Islander status in Sunshine Coast and Cooloola HSD and Queensland, 2005-2006

<table>
<thead>
<tr>
<th>Area</th>
<th>Aboriginal and Torres Strait Islander status</th>
<th>Number of Mothers Smoking in Pregnancy</th>
<th>Percentage of Mothers Smoking in Pregnancy (95% CI)</th>
<th>Total Number of Mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunshine Coast and Cooloola HSD</td>
<td>Not Aboriginal and Torres Strait Islander</td>
<td>691</td>
<td>19.0 (17.8-20.3)</td>
<td>3 633</td>
</tr>
<tr>
<td></td>
<td>Aboriginal and Torres Strait Islander</td>
<td>26</td>
<td>49.1 (35.1-63.2)</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>717</td>
<td>19.5 (18.2-20.8)</td>
<td>3 686</td>
</tr>
<tr>
<td>Queensland</td>
<td>Not Aboriginal and Torres Strait Islander</td>
<td>9 585</td>
<td>18.9 (18.5-19.2)</td>
<td>50 821</td>
</tr>
<tr>
<td></td>
<td>Aboriginal and Torres Strait Islander</td>
<td>1 557</td>
<td>54.2 (52.4-56.1)</td>
<td>2 871</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>11 142</td>
<td>20.8 (20.4-21.1)</td>
<td>53 692</td>
</tr>
</tbody>
</table>

Source: Perinatal Data Collection, Queensland Health (Extracted June 12, 2007)

Preliminary data, subject to change

Note: This data item only collected from 1 July 2005

### Table 8: Average number of cigarettes smoked after 20 weeks gestation by mothers who smoked at any time during pregnancy, by Aboriginal and Torres Strait Islander status, in Sunshine Coast and Cooloola HSD and Queensland, 2005-2006

<table>
<thead>
<tr>
<th>Area</th>
<th>Aboriginal and Torres Strait Islander Status</th>
<th>None</th>
<th>&lt;=10 per day</th>
<th>&gt;10 per day</th>
<th>Unknown number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunshine Coast and Cooloola HSD</td>
<td>Not Aboriginal and Torres Strait Islander</td>
<td>60</td>
<td>345</td>
<td>280</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Aboriginal and Torres Strait Islander</td>
<td>8.7%</td>
<td>49.9%</td>
<td>40.5%</td>
<td>0.9%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7.7%</td>
<td>30.8%</td>
<td>3.8%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Queensland</td>
<td>Not Aboriginal and Torres Strait Islander</td>
<td>665</td>
<td>4 741</td>
<td>3 981</td>
<td>198</td>
</tr>
<tr>
<td></td>
<td>Aboriginal and Torres Strait Islander</td>
<td>6.9%</td>
<td>710</td>
<td>670</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>715</td>
<td>5 451</td>
<td>4 711</td>
<td>265</td>
</tr>
</tbody>
</table>

Source: Perinatal Data Collection, Queensland Health (Extracted June 12, 2007)

Preliminary data, subject to change

Note: This data item only collected from 1 July 2005
3.3.2 Gestational Diabetes

Gestational diabetes can have a particularly detrimental impact on foetal growth and development and birth outcomes. Aboriginal and Torres Strait Islander women are significantly more likely to develop gestational diabetes than non-Aboriginal and Torres Strait Islander women. Pregnancy and birth complications associated with gestational diabetes include:

- high maternal blood pressure - if maternal blood pressure becomes too high, the baby will need to be delivered prematurely
- maternal infections such as bladder infections
- increased risk of miscarriage or still birth with poorly controlled blood sugar
- larger than average babies at delivery
- increased risk of the mother developing Type 2 diabetes later in life
- increased risk of the baby developing weight problems and Type 2 diabetes as an adult (DOC 2006)

Sunshine Coast/Coolum and Queensland had an increasing trend of gestational diabetes from 2001 to 2005 although Sunshine Coast and Cooloolah HSD had rates slightly lower than Queensland year on year (Figure 5).

Figure 7: Gestational diabetes Sunshine Coast and Cooloolah HSD, years 2001-2005
4. Health Outcomes

This section outlines key morbidity (hospital separation) and mortality data, with a particular focus on the seven National Health Priority Areas previously agreed to by the Commonwealth Government, and ambulatory care sensitive conditions. In addition, selected communicable disease indicators are included.

Surveillance of disease outcomes and health determinants (the latter covered in other reports highlighted in the introduction) plays an important role in objectively monitoring the health of the population. Health outcomes depend on a variety of factors or determinants that influence individuals, families and communities. Personal health behaviours as well as social and economic factors and the physical environment, all have a major impact on health outcomes.

Analysis of hospitalisation and mortality data, although imperfect with respect to understanding prevention, provides valuable insight into the health of the population. Hospitalisation and mortality data is interpreted and presented in the following ways:

1. Hospital separations from “all causes” and from diseases classified as National Health Priority Areas (NHPAs) – section 4.1.

2. Hospital separations from conditions classified as avoidable or Ambulatory Care Sensitive Conditions (ASCC). These are divided into chronic and acute conditions – section 4.2.

3. Deaths from all causes and diseases classified as National Health Priority Areas (NHPAs). Mortality from avoidable and non-avoidable causes is presented – section 4.3.

A final section, 4.4, provides further information on each of the individual NHPAs.
4.1 Hospitalisations

Hospital separations are a measure of hospital activity. They are episodes of hospital care – from admission to discharge, transfer or death.

Hospital separation rates, adjusted for the age of the population, are often used to compare levels of illness in communities, though they need to be interpreted with caution. Hospital separations also reflect access to hospitals, need for repeated admission, and current medical practice of treating an illness or injury in hospital, all of which can vary over time and in some cases between geographic areas. Importantly these data record separations based on usual place of residence not hospital facility. If specialised out of HSD care is required, separations are attributed back to the HSD of origin (i.e. person’s usual place of residence).

4.1.1 Hospital separations from “all causes” and from diseases classified as National Health Priority Areas (NHPAs)

All Causes

All hospital separation data were derived from the Queensland Hospital Admitted Patient Data Collection. Hospital separations in both private and public hospitals were reported for the financial year 2004-2005. Hospital separations in psychiatric hospitals were not included in this report, and geographic classification is by usual place of residence. All disease specific hospital separations were derived using the principal diagnosis of inpatient episodes of care. The causes of separation were coded using the International Classification of Diseases Version 10 Clinical Modification (ICD-10-CM).

Figure 8 shows that Sunshine Coast and Cooloola HSD had a lower rate of hospitalisation for ‘all causes’ than Queensland. Table 9 shows that the rate was lower for both males and females.
National Health Priority Areas

The seven National Health Priority Areas identified by the Australian Government are cancer, cardiovascular health, diabetes mellitus, mental health, asthma, injury and musculoskeletal conditions.

These health priorities can be significantly improved through prevention and management. By targeting specific areas that impose high social and financial costs on society, collaborative action can achieve significant and cost-effective advances in improving the health of Queenslanders.

Rates for NHPAs were statistically significantly lower or similar to Queensland (Figure 8 and Table 9) with the two exceptions: coronary heart disease (both males and females) and intentional self harm (females only) were statistically significantly higher.
Figure 8: Comparison of indirect age standardised hospital separations* (95% CI) for all causes and NHPAs, Sunshine Coast and Cooloola HSD and Queensland, 2002-2005

* Ratio of the actual number of separations to the expected number of separations in the HSD population, if the HSD experienced the same age-specific rates as the standard population, (Queensland 2002 - 2005), expressed as a percentage.
## Table 9: Hospital separations per 100,000 population for NHPAs, Sunshine Coast and Cooloola HSD and Queensland by sex, 2002-2005

<table>
<thead>
<tr>
<th>Condition Description</th>
<th>Sunshine Coast and Cooloola HSD</th>
<th>Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td></td>
<td>Directly Standardised Rate * per 100,000 population (95% CI)</td>
<td></td>
</tr>
<tr>
<td><strong>All Causes</strong></td>
<td>31,601.4 ↓ (31,465.7-31,737.4)</td>
<td>32,994.0 ↓ (32,856.1-33,132.3)</td>
</tr>
<tr>
<td>Injury and poisoning, excl. self inflicted harm and complications of medical and surgical care</td>
<td>2,780.2 ↓ (2,737.5-2,823.3)</td>
<td>1,703.6 ↓ (1,673.1-1,734.6)</td>
</tr>
<tr>
<td>All cancers excluding non melanocytic skin cancer</td>
<td>1,655.8 (1,625.7-1,686.3)</td>
<td>1,052.6 ↓ (1,029.5-1,076.1)</td>
</tr>
<tr>
<td>Diseases of the musculoskeletal system and connective tissues</td>
<td>1,690.8 (1,659.3-1,722.7)</td>
<td>1,369.7 ↓ (1,342.9-1,396.9)</td>
</tr>
<tr>
<td>Mental and behavioural disorders</td>
<td>958.4 ↓ (933.7-983.6)</td>
<td>1,068.8 ↓ (1,043.2-1,094.9)</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>1,191.3 ↑ (1,166.1-1,217.0)</td>
<td>576.3 ↑ (559.8-593.2)</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>297.2 ↓ (284.4-310.4)</td>
<td>197.1 ↓ (187.1-207.5)</td>
</tr>
<tr>
<td>Stroke</td>
<td>266.6 ↓ (254.4-279.3)</td>
<td>194.1 ↓ (184.6-204.0)</td>
</tr>
<tr>
<td>Asthma</td>
<td>140.5 ↓ (131.0-150.5)</td>
<td>150.9 ↓ (141.2-161.1)</td>
</tr>
<tr>
<td>Intentional self harm</td>
<td>127.7 (118.5-137.5)</td>
<td>226.6 ↑ (214.3-239.4)</td>
</tr>
</tbody>
</table>

* Directly Standardised Rate: Rate experienced by the standard population if the age-specific rates of the HSD applied to the standard population, (The Australian Standard Population (Persons) 2001).

↑ Statistically significantly higher
↓ Statistically significantly lower
4.2 Avoidable hospitalisations (ACSCs)

A substantial number of hospital separations are avoidable. Ambulatory Care Sensitive Conditions (ACSC) are those for which hospitalisation is thought to be avoidable with application of preventive care and early disease management, usually delivered in the ambulatory setting (eg. general practice and community health centres). In theory, timely and effective ambulatory care can reduce the risks of hospitalisation either by:

- preventing the onset of an illness or condition
- controlling an acute episode of illness or condition
- managing a chronic disease or condition.

Avoidable hospitalisation rates measure the effectiveness, timeliness and adequacy of non-hospital care, and do not measure all hospitalisations due to preventable conditions. To be included in the standard avoidable hospitalisation measure, there has to be an association with a specific process of care in an ambulatory setting that has been shown to be successful in reducing hospitalisation rates for the condition. The conditions classified as ACSCs using national criteria, include diabetes complications, angina and dental conditions.

In Queensland in 2004-2005, as a whole, nine per cent of public and private hospital separations were potentially avoidable. This nine percent figure does not include some major preventable illnesses such as coronary heart disease, stroke, and lung cancer, intentional and unintentional injury. If these were included, the real percentage of hospital separations that were avoidable in Queensland would be much higher, as high as 30 percent (QH 2006).

A comparison of avoidable hospitalisations for chronic conditions and identification of those that were in excess compared to Queensland as a whole are shown in Table 10. A similar comparison of avoidable hospitalisations for acute conditions and identification of those that were in excess of Queensland are shown in Table 11.
Rates for total chronic conditions for males and females were higher in Sunshine Coast and Cooloola HSD than Queensland (Table 10). This elevated rate was attributable solely to higher rates of diabetes complications in this district as all other conditions were similar or lower than Queensland rates overall. Rates for the total acute conditions were lower for males and females in Sunshine Coast and Cooloola HSD than Queensland (Table 11) with the exception of ‘other vaccine preventable conditions’ which were higher in Sunshine Coast and Cooloola HSD males than Queensland males (refer to section 6.2 Vaccination rates).

**Table 10: Avoidable hospital separations by chronic conditions for Sunshine Coast and Cooloola HSD and Queensland, 2005-2006**

<table>
<thead>
<tr>
<th>Condition Description</th>
<th>Sunshine Coast and Cooloola Males</th>
<th>Sunshine Coast and Cooloola Females</th>
<th>Queensland Males</th>
<th>Queensland Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Chronic</td>
<td>2 210.5↑ (2 144.5-2 278.1)</td>
<td>912.8↑ (871.5-955.7)</td>
<td>1 201.1</td>
<td>713.6</td>
</tr>
<tr>
<td>Diabetes complications</td>
<td>2 210.5↑ (2 144.5-2 278.1)</td>
<td>912.8↑ (871.5-955.7)</td>
<td>1 201.1</td>
<td>713.6</td>
</tr>
<tr>
<td>COPD</td>
<td>298.5↓ (274.1-324.5)</td>
<td>193.3↓ (175.1-212.9)</td>
<td>343.4</td>
<td>232.6</td>
</tr>
<tr>
<td>Angina</td>
<td>272.3</td>
<td>203.7</td>
<td>303.8</td>
<td>199.1</td>
</tr>
<tr>
<td>Congestive cardiac failure</td>
<td>221.3-268.8</td>
<td>180.6</td>
<td>225.7</td>
<td>165.3</td>
</tr>
<tr>
<td>Convulsions and epilepsy</td>
<td>150.4</td>
<td>131.4</td>
<td>170.9</td>
<td>127.9</td>
</tr>
<tr>
<td>Asthma</td>
<td>115.2↓ (98.6-133.8)</td>
<td>143.5↓ (125.4-163.4)</td>
<td>145.8</td>
<td>177.0</td>
</tr>
<tr>
<td>Iron deficiency anaemia</td>
<td>43.9</td>
<td>78.8↓ (66.7-92.5)</td>
<td>69.9</td>
<td>106.9</td>
</tr>
<tr>
<td>Pelvic inflammatory disease</td>
<td>0.0</td>
<td>48.9 (38.5-61.3)</td>
<td>0.0</td>
<td>58.6 (55.2-62.0)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>17.6↓ (12.1-24.7)</td>
<td>28.0↓ (21.3-36.1)</td>
<td>27.3</td>
<td>43.0</td>
</tr>
<tr>
<td>Rheumatic heart disease</td>
<td>18.1</td>
<td>21.6</td>
<td>14.4</td>
<td>19.0</td>
</tr>
<tr>
<td>Nutritional deficiencies</td>
<td>0.0</td>
<td>0.0</td>
<td>0.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

*Statistically significantly higher | Statistically significantly lower
**Conditions categories are not mutually exclusive for contributing diseases therefore * Total Chronic* is not the sum of individual conditions rates.

*Directly Standardised Rate: Rate experienced by the standard population if the age-specific rates of the HSD applied to the standard population, (The Australian Standard Population (Persons) 2001).
### Table 11: Avoidable hospital separations by acute conditions for Sunshine Coast and Cooloola HSD and Queensland, 2005-2006

<table>
<thead>
<tr>
<th>Condition Description</th>
<th>Sunshine Coast and Cooloola</th>
<th>Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Directly Standardised Rate *per 100 000 population (95% CI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Acute</strong></td>
<td>1,042.1 ↓ (992.6-1,093.4)</td>
<td>1,121.3 ↓ (1,071.1-1,173.2)</td>
</tr>
<tr>
<td>Dental conditions</td>
<td>246.7</td>
<td>269.8</td>
</tr>
<tr>
<td>Dehydration and gastroenteritis</td>
<td>177.4</td>
<td>229.5 ↓ (208.1-252.6)</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>154.2 ↓ (135.5-174.8)</td>
<td>90.6 ↓ (77.4-106.4)</td>
</tr>
<tr>
<td>Ear, nose and throat infections</td>
<td>135.5 ↓ (117.2-155.8)</td>
<td>115.2 ↓ (96.5-133.9)</td>
</tr>
<tr>
<td>Pyelonephritis</td>
<td>116.8 ↓ (101.4-133.9)</td>
<td>201.3 ↓ (181.3-223.0)</td>
</tr>
<tr>
<td>Total vaccine-preventable</td>
<td>74.4 (62.2-88.2)</td>
<td>34.1 ↓ (26.0-43.8)</td>
</tr>
<tr>
<td>Influenza and pneumonia</td>
<td>46.9 (37.1-58.5)</td>
<td>28.0 ↓ (20.8-37.0)</td>
</tr>
<tr>
<td>Perforated/bleeding ulcer</td>
<td>21.4 (15.3-29.2)</td>
<td>10.5 (6.7-15.8)</td>
</tr>
<tr>
<td>Gangrene</td>
<td>21.2 (14.9-29.2)</td>
<td>13.8 (8.9-20.4)</td>
</tr>
<tr>
<td>Other vaccine-preventable</td>
<td>27.5 ↑ (20.6-35.9)</td>
<td>6.0 (2.9-11.1)</td>
</tr>
<tr>
<td>Appendicitis with generalised peritonitis</td>
<td>19.1 (12.9-27.3)</td>
<td>10.3 (5.9-16.7)</td>
</tr>
</tbody>
</table>

*Statistically significantly higher
↓ Statistically significantly lower

*Conditions categories are not mutually exclusive for contributing diseases therefore “Total Acute” is not the sum of individual conditions rates.

---

* Directly Standardised Rate: Rate experienced by the standard population if the age-specific rates of the HSD applied to the standard population, (The Australian Standard Population (Persons) 2001).
4.3 Deaths

Mortality data are a key source of information on the health status of Australians. Death rates due to all causes have been steadily declining for both males and females over the past 20 years, with greater decline in male rates than female rates.

4.3.1 All Causes

Sunshine Coast and Cooloola HSD had slightly lower rates for ‘all causes’ mortality than Queensland as shown in Figure 9. Table 12 shows that these rates were lower for both males and females.

Table 12: Mortality per 100,000 population for NHPAs, Sunshine Coast and Cooloola HSD and Queensland by sex, 2002-2005

<table>
<thead>
<tr>
<th>Condition Description</th>
<th>Sunshine Coast and Cooloola HSD</th>
<th>Queensland</th>
<th>Sunshine Coast and Cooloola HSD</th>
<th>Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td></td>
<td>Directly Standardised Rate * per 100,000 population (95% CI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Causes</td>
<td>722.3 ↓ (701.4-743.6)</td>
<td>482.4 ↓ (467.5-497.6)</td>
<td>774.1 (767.3-780.9)</td>
<td>519.6 (514.8-524.4)</td>
</tr>
<tr>
<td>All cancers excluding non melanocytic skin cancer</td>
<td>222.8 (211.7-234.3)</td>
<td>135.6 (127.6-143.9)</td>
<td>229.3 (225.7-232.9)</td>
<td>141.6 (139.1-144.2)</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>147.6 ↓ (138.2-157.5)</td>
<td>85.6 ↓ (79.5-92.0)</td>
<td>162.9 (159.7-166.1)</td>
<td>100.4 (98.3-102.5)</td>
</tr>
<tr>
<td>Stroke</td>
<td>64.2 (57.9-71.0)</td>
<td>55.2 (50.4-60.4)</td>
<td>60.8 (58.9-62.9)</td>
<td>59.6 (58.0-61.2)</td>
</tr>
<tr>
<td>Injury and poisoning, excl. self inflicted harm and complications of medical and surgical care</td>
<td>37.7 (32.8-43.0)</td>
<td>18.0 (15.1-21.4)</td>
<td>38.8 (37.3-40.2)</td>
<td>17.5 (16.6-18.4)</td>
</tr>
<tr>
<td>Suicide</td>
<td>20.8 (17.2-24.9)</td>
<td>5.4 (3.7-7.6)</td>
<td>20.3 (19.2-21.3)</td>
<td>4.9 (4.4-5.4)</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>13.9 ↓ (11.1-17.1)</td>
<td>9.7 ↓ (7.7-12.0)</td>
<td>18.9 (17.8-20.0)</td>
<td>13.1 (12.4-13.9)</td>
</tr>
<tr>
<td>Mental and behavioural disorders</td>
<td>19.5 ↑ (16.2-23.5)</td>
<td>18.0 ↑ (15.3-21.1)</td>
<td>14.0 (13.1-15.0)</td>
<td>12.7 (12.0-13.4)</td>
</tr>
<tr>
<td>Diseases of the musculoskeletal system and connective tissues</td>
<td>3.8 (2.4-5.7)</td>
<td>5.7 (4.2-7.5)</td>
<td>3.8 (3.3-4.3)</td>
<td>5.8 (5.3-6.3)</td>
</tr>
<tr>
<td>Asthma</td>
<td>2.5 (1.4-4.2)</td>
<td>1.2 (0.6-2.3)</td>
<td>1.4 (1.1-1.7)</td>
<td>1.6 (1.4-1.9)</td>
</tr>
</tbody>
</table>

↑ Statistically significantly higher  
↓ Statistically significantly lower

# Directly Standardised Rate: Rate experienced by the standard population if the age-specific rates of the HSD applied to the standard population, (The Australian Standard Population (Persons) 2001).
Figure 9: Comparison of indirect age standardised mortality* (95% CI) for NHPAs and all causes, Sunshine Coast and Cooloola HSD and Queensland, 2002-2005

* Ratio of the actual number of separations to the expected number of separations in the HSD population, if the HSD experienced the same age-specific rates as the standard population, (Queensland 2002 - 2005), expressed as a percentage.
4.3.2 Avoidable Deaths

Avoidable deaths were defined in *The Health of Queenslanders 2006* as:

a. preventable conditions – such as lung cancer, intentional and unintentional injury, chronic obstructive pulmonary disease, alcohol and illicit drug disorders, hepatitis and HIV/AIDS

b. treatable or health care amenable conditions – such as most cancers, asthma, and maternal and infant causes

c. preventable and treatable conditions – coronary heart disease, stroke and diabetes.

Sunshine Coast and Cooloola HSD had lower rates for all deaths, non avoidable mortality and total avoidable mortality (mortality amenable to health care and mortality non-amenable to health care) than Queensland (see Table 13).

<table>
<thead>
<tr>
<th>Mortality type</th>
<th>Sunshine Coast and Cooloola HSD</th>
<th>Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td>All deaths</td>
<td>221.0 ↓ (212.0-230.2)</td>
<td>256.7      (253.7-259.7)</td>
</tr>
<tr>
<td>Non avoidable</td>
<td>Mortality</td>
<td></td>
</tr>
<tr>
<td>Non avoidable</td>
<td>Mortality</td>
<td></td>
</tr>
<tr>
<td>Mortality amenable to health care (b,c)</td>
<td>60.1 ↓ (55.5-65.0)</td>
<td>71.6</td>
</tr>
<tr>
<td>Mortality non-amenable to health care (a)</td>
<td>91.6 ↓ (85.8-97.7)</td>
<td>105.0</td>
</tr>
</tbody>
</table>

↑ Statistically significantly higher
↓ Statistically significantly lower

*Except for COPD (aged 45-74 years) and Asthma(aged 0-44 years)
Prepared by: Epidemiology Services Unit
Last Modified: 4 July 2007
4.4 National Health Priority Areas (NHPAs); individual diseases

4.4.1 Asthma

Asthma affects all age groups and ranges in severity from intermittent mild symptoms to a severe, incapacitating and sometimes life-threatening disease (AIHW 2007).

Asthma is the leading cause of disease burden in Queensland children. About one in seven children and young people aged 0-17 years in Australia, in 2001, had asthma (14 per cent). These rates were high by international standards. While the cause of asthma is unknown, there are factors that may increase the risk of developing the condition, including environmental exposures such as tobacco smoke, specific allergens including dust mites and mould spores, lack of physical activity and stressful life events (QH 2006).

Figure 8 and Table 9 show that for both sexes hospitalisation rates for asthma in the Sunshine Coast and Cooloola HSD were lower than Queensland. Figure 9 and Table 12 show that mortality rates for asthma in the Sunshine Coast and Cooloola HSD were similar to Queensland.

4.4.2 Arthritis and Musculoskeletal Conditions

There are more than 100 forms of arthritis and musculoskeletal conditions, which include fractures, other injuries due to trauma and various forms of arthritis, including osteoarthritis and rheumatoid arthritis, and osteoporosis (AIHW 2007).

In 2004-2005, 16 per cent of Queenslanders reported that they currently had arthritis (14 per cent of males and 18 per cent of females). This represents about 614 000 people with this condition in Queensland. Of those with arthritis, about 60 per cent had either rheumatoid arthritis or osteoarthritis. The proportion of people with arthritis increased with age and was more prevalent in those with a lower socioeconomic status, those who were unemployed and those with no educational qualifications (QH 2006).
Three per cent of Queenslanders had osteoporosis in 2004-2005, a proportion similar to the proportions in Australia overall. As with arthritis, the proportion of people with osteoporosis increased with age, from less than one per cent in people aged under 25 years to 14 per cent in people aged 65 years and older (QH 2006).

Figure 8 shows that hospitalisation rates for diseases of the musculoskeletal system and connective tissues in the Sunshine Coast and Cooloola HSD were lower than for Queensland. This may be explained by the lower rate of hospitalisations for females (Table 9). Figure 9 and Table 12 show that mortality rates for diseases of the musculoskeletal system and connective tissues in the Sunshine Coast and Cooloola HSD were similar to Queensland rates.

4.4.3 Cancer

Cancer incidence is defined as the occurrence of new cancers in a defined population during a specified time period. For the purpose of this report, 2005 incidence for example, is based on those cancers notified to the registry which were first diagnosed between 1 January 2005 and 31 December 2005 for residents of Queensland (QH 2006).

Changes in cancer incidence rates (rate of newly diagnosed cancers) need to be interpreted with care as they may reflect changes in screening practices and public awareness, rather than changes in the actual rate of new cases. However, it seems that the incidence rate of all cancers in females increased in the early 2000s and has since decreased. The incidence of cancer among males has decreased since 1993, mainly due to decreases in lung and stomach cancer. Melanoma and non-Hodgkin’s lymphoma continue to increase in males (QH 2006).

Cancer mortality is based on those deaths notified to the registry for persons who died from cancer during a specified time period and who usually resided in Queensland at the time of diagnosis of cancer. This means that mortality information is not directly similar with death data released from the Australian Bureau of Statistics, which is based on the State where the death was registered (QH 2006).
Death rates for all cancers have decreased since the mid-1990s. Lung cancer was the second most common cause of premature death in males, while for females, breast cancer and lung cancer were among the leading causes. Queensland has the highest rates of melanoma incidence and death of any Australian state, with Australian rates among the highest in the world (QH 2006).

Screening for breast and cervical cancers is key to improved outcomes for these cancers. Participation in BreastScreen Queensland by women in the central area aged 50-69 during the period 1 January 2005 to 31 December 2006 was 58.8 per cent in the central area\(^3\). There was little variation in participation, with participation in the HSDs ranging from a low of 56.4 per cent in the Northside HSD to a high of 61.7 per cent in the Wide Bay HSD. Five of the six HSDs had participation rates above the State average of 57.9 per cent, with only Northside having a participation rate below the State average. The remaining districts had participation rates between 59.9 per cent and 61.7 per cent. Sunshine Coast and Cooloola HSD had a participation rate of 61.6 per cent.

Across the central area, participation in cervical screening during the period 1 January 2005 to 31 December 2006 was 59.2 per cent however there was significant variation in participation, with participation in the HSDs ranging from a low of 50.9 per cent in the Fraser Coast HSD to a high of 63 per cent in the Sunshine Coast and Cooloola HSD. There were only two HSDs within the central area, which had participation rates over 60 per cent and only two HSDs, Northside and Sunshine Coast and Cooloola, had participation rates above the State average of 57.9 per cent.

Figure 10 shows the incidence for most types of cancer considered to be NHPAs in the Sunshine Coast and Cooloola HSD compared to Queensland. Rates for melanoma were higher than Queensland. Rates for trachea, bronchus and lung were slightly lower than Queensland. The rates of other cancers were similar to Queensland. Figures 11 and 12 show that as in Queensland, breast cancer (113.9 per 100,000 population) and prostate cancer (153.6 per 100,000 population) were the most common forms of cancer in Sunshine Coast and Cooloola HSD.

---

\(^3\) The former central area included six health service districts: Northside HSD, Sunshine Coast and Cooloola HSD, Fraser Coast HSD, Wide Bay HSD, Central Queensland HSD and Central West HSD. These HSDs are no longer referred to collectively as the Central Area Health Service (CAHS).
Figure 10: Comparison of indirect age standardised cancer incidence (95% CI)*, Sunshine Coast and Cooloola HSD and Queensland, 2002-2004

* Ratio of the actual cancer incidence to the expected cancer incidence in the HSD population, if the HSD experienced the same age-specific rates as the standard population, (Queensland 2002 - 2005) expressed as a percentage.
Figure 11: Cancer incidence (95% CI) for females, Sunshine Coast and Cooloola HSD and Queensland, 2002-2004

![Cancer incidence graph for females](image)

Figure 12: Cancer incidence (95% CI) for males, Sunshine Coast and Cooloola HSD and Queensland, 2002-2004

![Cancer incidence graph for males](image)
4.4.4 Cardiovascular Disease

Cardiovascular health relates to the health of the heart and blood vessels. It also relates to the health of organs that are critically dependent on a strong blood supply.

Major cardiovascular diseases are coronary heart disease, stroke, heart failure and peripheral vascular disease (AIHW 2007).

Coronary heart disease led to, on average, 4,853 deaths per year in Queensland in 2003-04. Rates of death were higher in males than in females; in all areas with greater than one per cent Aboriginal and Torres Strait Islander peoples; and in disadvantaged areas compared with advantaged areas (QH 2006).

Figure 8 shows that the hospitalisation rate for coronary heart disease in the Sunshine Coast and Cooloola HSD were higher than Queensland. Figure 9 and Table 12 show that the mortality rates for coronary heart disease in the Sunshine Coast and Cooloola HSD were lower than Queensland.

Figure 8 and Table 9 show that hospitalisation rates for stroke in the Sunshine Coast and Cooloola HSD were lower than Queensland. Figure 9 and Table 12 show that the mortality rates for stroke in the Sunshine Coast and Cooloola HSD were similar to Queensland.

4.4.5 Diabetes Mellitus

Diabetes is one of the few conditions for which prevalence and death rates are increasing. Type 1 diabetes typically begins in childhood and is managed through insulin injections. It is increasing at a small but significant rate. Type 2 diabetes usually begins in later life. It is associated with a range of lifestyle factors especially overweight and obesity and is increasing rapidly. Also becoming more common is the incidence of Metabolic Syndrome, a predictor of both diabetes and cardiovascular disease. This syndrome is characterised by impaired glucose tolerance, high blood pressure, obesity, and other health risks. Both types of diabetes can have serious complications for the circulatory system, eyes and nervous system, kidneys and limbs (QH 2006).
In 2003, about 156,000 Queenslanders (65 per cent were males) were estimated to have Type 2 diabetes, with about 17,000 new cases diagnosed each year, or about 50 per day (QH 2006). Prevalence of diabetes increases markedly for both males and females over 30 years of age. However in 2003, a small number of children as young as 10-14 years of age had Type 2 diabetes (QH 2006).

There were on average 572 deaths per year due to diabetes in Queensland in 2003-04. Males accounted for 53 per cent of these deaths. Diabetes is more common in remote and very remote areas, in areas with a higher proportion of Aboriginal and Torres Strait Islander peoples and in people living in areas of disadvantage (QH 2006).

Figure 8 and Table 9 show that the hospitalisation rates for diabetes in the Sunshine Coast and Cooloola HSD were lower than Queensland. Figure 9 and Table 12 show that the mortality rates for diabetes in the Sunshine Coast and Cooloola HSD were lower than Queensland. In contrast avoidable hospital separations (Table 10) for diabetes complications were much higher in males and higher in females for this HSD compared to Queensland.

### 4.4.6 Injury

Injury is the principal cause of death in people under 45 years of age, a leading cause of mortality, morbidity and permanent disability in Australia, and a major source of health care costs. Injury causes a range of physical, cognitive and psychological disabilities that seriously affect the quality of life of individuals, people and their families. However as injury is preventable, there are significant opportunities for reducing the burden of injury by implementing effective prevention strategies. While deaths from injury have declined, rates of hospitalisation for many injuries have increased over the past decade, in particular, fire, burns and scald injury in young children and fall related injuries in older people. Other examples of preventable injury include falls in children, drowning and near-drowning, and poisoning in children (AIHW 2007).
Figure 8 and Table 9 show that rates of hospitalisation for injury and poisoning in the Sunshine Coast and Cooloola HSD were lower than Queensland rates. Figure 9 and Table 12 show that mortality rates for injury and poisoning in the Sunshine Coast and Cooloola HSD were similar to Queensland.

### 4.4.7 Mental Health

Mental health problems and mental disorders refer to the spectrum of cognitive, emotional and behavioural disorders that interfere with the lives and productivity of people (QH 2006).

A mental disorder is a diagnosable illness and differs from mental health problems in duration and severity. Some mental disorders of public health concern are depression, anxiety and substance use disorders. Mental disorders represent an immense psychological, social and economic burden to society, and also increase the risk of physical illness (QH 2006).

The prevalence of depression and anxiety, and suicide and self-inflicted injuries, will be considered here as indicators of mental health. In 2003, about 349,000 Queenslanders were estimated to be suffering from anxiety or depression (63 per cent were female) (QH 2006).

Alcohol and illicit drugs contribute in roughly equal proportions to the risk of mental health problems. Overall, about three per cent of the population are estimated to have severe mental health disorders, where 0.6 per cent has high support needs. Another five per cent of the adult population have moderate to severe mental health disorders, and another 10 per cent mild to moderate disorders (QH 2006).

A person of any age is at more risk of suicide if they have a mental disorder. Depression is the largest single risk factor for suicide and suicidal behaviour. Males are at greatest risk of suicide. In 2003-2004, there were on average 485 suicides each year in Queensland, with 81 per cent males. In the age group 15-24 years, there were on average 67 suicides per year in this period, and 80 per cent of these were males. In 2000-2002, suicide rates were higher in males; in areas of highest socioeconomic
disadvantage; remote areas; and areas with greater than 10 per cent Aboriginal and Torres Strait Islander population. Male suicide rates in Queensland were third highest of the states and territories, and about 20 per cent higher than the national male rate (QH 2006).

Figure 8 and Table 9 show that hospitalisation rates for mental and behavioural disorders in the Sunshine Coast and Cooloola HSD were lower than those of Queensland. Figure 9 and Table 12 show that mortality rates for mental health in the Sunshine Coast and Cooloola HSD were higher than Queensland.

Figure 8 shows that hospitalisation rates for intentional self harm in the Sunshine Coast and Cooloola HSD were higher than Queensland. This is explained by a statistically significantly higher rate for females (Table 9). Figure 9 and Table 12 show that mortality rates for suicide in the Sunshine Coast and Cooloola HSD were similar to Queensland.
5. Projections for Hospital Separations

The Hardes Acute Inpatient Modelling (AIM) for projecting demand and supply of acute inpatients was used to generate projections for hospital separations until 2017, in the Sunshine Coast and Cooloola HSD. The projected separation rates are based on linear regression of the most recent seven years of state-wide separation data. The assumptions used to calculate these projections have been reviewed by teams of clinicians and, where necessary, altered. Data shown below shows projected separations for the population of Sunshine Coast and Cooloola HSD and includes separations from both public and private sectors. There is a steady increase of day and overnight hospital separations from 2006-2007 to 2021-2022 projected for the Sunshine Coast and Cooloola HSD (Figure 13).

Figure 13: Projected increase in hospital separations for the Sunshine Coast and Cooloola HSD, 2006-2007 – 2021-2022
The projections shown in the document were drawn from a 2004-2005 Queensland Health Admitted Patient Data Collection and modelled using projections based on 2006 Estimated Resident Populations (May 2006), rather than on 2006 Census results. Since that time, there have been some changes to the assumptions used in the model. The sub-State population projections distributed by the Office of Economic and Statistical Research (Queensland Treasury) will not be updated until 2008.

These projections show that there is a trend to more day only services, probably due to technical innovation. The ageing of the population absorb the overnight spaces freed up by improvements in technology. This is further complicated in high growth areas, with the increase in demand driven by population growth, such as in Sunshine Coast and Cooloola.
6. Communicable Diseases

6.1 Notifiable Conditions

Notification rates for Barmah Forest virus and Pertussis were higher for Sunshine Coast and Cooloola HSD than for Queensland (Table 14). Laboratory confirmed Influenza rates were lower (both 2006 and 5 year average rates) when compared to Queensland rates for 2006.

The mosquito borne illnesses are not transmissible from person to person, and control measures largely are the responsibility of Local Government Authorities. Measures include spraying programs, runneling and draining programs to control mosquito vectors. There are no vaccines and no chemoprophylactic measures available for Ross River virus or Barmah Forest virus.

The rates of notification of Sexually Transmitted Infections have been increasing throughout Australia. Of particular concern is the increased rate of Chlamydia, complications of which include pelvic inflammatory disease and infertility.

Among the vaccine preventable diseases, there have been reductions in Invasive Pneumococcal Disease and in Invasive Meningococcal Disease, both of which have been subject to expanded vaccination programs in recent years. Influenza rates vary from year to year, and pertussis rates continue to remain high. Pertussis immunity wanes after 8–10 years, and it is apparent that this results in a large cohort of susceptible individuals, especially among young adults. These infected adults then pose a serious risk to infants who have not yet been completely vaccinated.

Among the blood borne viruses, Hepatitis B can be prevented by vaccination, but there is no vaccine for Hepatitis C. Control measures for Hepatitis C include needle exchange programs.

Food-borne illnesses remain common. Population Health control measures for foodborne illnesses include setting up Outbreak Control Teams to control outbreaks in facilities or related to specific functions, and general environmental health and educational measures to ensure food hygiene in the community.
### Table 14: Selected notifiable conditions for Sunshine Coast and Cooloola HSD and Queensland 2006 and average notification rates for Central Queensland, 2002-2006

<table>
<thead>
<tr>
<th>Category</th>
<th>Sunshine Coast/ Cooloola</th>
<th>Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual incidence (5yr Avg)</td>
<td>Notification rates per 100 000 population (5 yr Avge)</td>
</tr>
<tr>
<td>Mosquito Borne</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barmah Forest Virus</td>
<td>117.6</td>
<td>35.9</td>
</tr>
<tr>
<td>Ross River Virus</td>
<td>220.8</td>
<td>67.4</td>
</tr>
<tr>
<td>STIs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlamydia (all forms)</td>
<td>365.4</td>
<td>111.6</td>
</tr>
<tr>
<td>Gonorrhoea (all forms)</td>
<td>26.2</td>
<td>8.0</td>
</tr>
<tr>
<td>Syphilis (all forms)</td>
<td>14.6</td>
<td>4.5</td>
</tr>
<tr>
<td>Vaccine preventable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pertussis</td>
<td>116.6</td>
<td>35.6</td>
</tr>
<tr>
<td>Pneumococcal (invasive)</td>
<td>21.8</td>
<td>6.7</td>
</tr>
<tr>
<td>Influenza (lab confirmed)</td>
<td>44</td>
<td>13.4</td>
</tr>
<tr>
<td>Meningococcal Infection (all forms)</td>
<td>7.8</td>
<td>2.4</td>
</tr>
<tr>
<td>Blood Borne Viruses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>210</td>
<td>64.1</td>
</tr>
<tr>
<td>Hepatitis B*</td>
<td>3.8</td>
<td>1.2</td>
</tr>
<tr>
<td>Food Borne</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmonella</td>
<td>186.8</td>
<td>57.0</td>
</tr>
<tr>
<td>Hepatitis A*</td>
<td>2.8</td>
<td>0.9</td>
</tr>
<tr>
<td>EHEC</td>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>Campylobacter Enteritis</td>
<td>348.2</td>
<td>106.3</td>
</tr>
</tbody>
</table>

Notification Rates are based on Estimated Resident Population (ERP), 2002-2005. Notification rates are per 100 000 population. These figures were extracted from the Queensland Health Notifiable Conditions System on 25 June 2007.

*Also vaccine preventable

### 6.2 Vaccination rates

There are a number of diseases that are largely controlled through vaccination, and control hinges on achievement of vaccination rates of above 90 per cent in children. Australia, like most developed countries, has low rates of these diseases. Vaccination rates are usually high for young children up to two years of age. Coverage rates for older persons are much lower, poorly monitored, and of concern, particularly in vulnerable groups such as older people and Aboriginal and Torres Strait Islander peoples.

Some vaccine preventable diseases such as measles, rubella, hepatitis B and Haemophilus influenza type b (Hib) decreased significantly between 1998-2001 and
2002-2005. These successes are due to high vaccination rates, enhanced surveillance and public health intervention, which have helped break the cycle of transmission for these diseases (QH 2006). Infections such as measles are becoming re-established in some countries in association with falling local vaccination rates. Imported cases still have potential to affect non-immune groups in the Australian community including young infants and those affected by conscientious objection to vaccination. Public health management of each notified case continues to be essential.

Pertussis immunity tends to wane in late childhood and adulthood. Those infected at that stage in life often suffer only minor illness, however they also constitute a reservoir of infection for young infants, in whom the infection can be severe or fatal. Promotion of parental vaccination through maternity hospitals, child health services and general practice is important in this regard.

Figure 14 shows the quarterly immunisation rates for ‘fully immunised’ and measles, mumps and rubella (MMR) immunised, from the last quarter 2002 to the second quarter 2007, for the age groups 12-15, 24-27 and 72-75 months (QH 2007a).

Figure 14 shows that both ‘fully immunised’ and MMR vaccination rates for Sunshine Coast and Cooloola HSD were consistently lower than for Queensland rates. This indicates a need for research into the underlying reasons for these lower rates and the implementation of appropriate interventions in the Sunshine Coast and Cooloola HSD.
Figure 14: Vaccination rates for ‘fully’ and MMR immunised in Sunshine Coast and Cooloola HSD

Further information:

Epidemiology
Central Population Health Services
Queensland Population Health
Ph: 07 3624 1111
Email: hsepi_phscahs@health.qld.gov.au
### 7. Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>ACIR</td>
<td>Australian Childhood Immunisation Register</td>
</tr>
<tr>
<td>ACSC</td>
<td>Ambulatory Care Sensitive Conditions</td>
</tr>
<tr>
<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
</tr>
<tr>
<td>CAHS</td>
<td>Central Area Health Service</td>
</tr>
<tr>
<td>CDU</td>
<td>Communicable Diseases Unit</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence Intervals</td>
</tr>
<tr>
<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>ERP</td>
<td>Estimated Resident Population</td>
</tr>
<tr>
<td>HSD</td>
<td>Health Service District</td>
</tr>
<tr>
<td>ICD</td>
<td>International Classification of Diseases</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Area</td>
</tr>
<tr>
<td>NHPA</td>
<td>National Health Priority Areas</td>
</tr>
<tr>
<td>NOCS</td>
<td>Notifiable Conditions System</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>QH</td>
<td>Queensland Health</td>
</tr>
<tr>
<td>SLA</td>
<td>Statistical Local Area</td>
</tr>
<tr>
<td>SMR</td>
<td>Standardised Mortality Ratio</td>
</tr>
<tr>
<td>SSR</td>
<td>Standardised Separation Ratio</td>
</tr>
</tbody>
</table>
8. Methods

Unless otherwise indicated all data refer to the total population (0-85+ years). Australian Bureau of Statistics (ABS) data is used with permission from the ABS. Copyright in ABS data rests with the Commonwealth of Australia.

Health indicators were primarily derived from the relevant National Health Priority Area reports (AIHW 2007); Australian Institute of Health and Welfare reports (AIHW 2007); and from the Chief Health Officer’s report (QH 2006).

Socio-demographics

Age and sex distributions, Aboriginal and Torres Strait Islander status and percentage population change were derived from the 2001 Census as the 2006 results for the Health Service Districts was not yet available.

All maps in this report were generated using MapInfo (Version 8.1).

Deaths

Death data were derived from the Queensland Registrar of Births, Deaths and Marriages, where cause of death and usual residential address were recorded on death certificates. All disease specific death data in this report were derived using the principal cause of death and refer to deaths registered in Queensland to Queensland residents. Data were coded by the ABS using the International Classification of Diseases, Version 10 (ICD-10), with code sets for specific conditions consistent with Queensland Health guidelines and aligned with national reporting. Deaths were reported by year of registration and analysed by calendar years 2002 to 2005.

Hospitalisations

Hospital separation data were derived from the Queensland Hospital Admitted Patient Data Collection, including private and public hospitals. All disease specific hospital separations were derived using the principal diagnosis of inpatient episodes of care. The external cause(s) of injury and poisoning were reported. All separations were coded using the International Statistical Classification of Diseases and Related Health

Avoidable Deaths and Hospitalisation Separations
Avoidable deaths and hospital separation data was derived from the Queensland Registrar of Births, Deaths and Marriages and the Queensland Hospital Admitted Patient Data Collection using ICD codes developed by the Australian Institute of Health and Welfare (AIHW 2007).

Cancer Incidence
Cancer incidence data was derived from the Queensland Cancer Registry. Notifications are received for all persons with notifiable cancer admitted to public and private hospitals, nursing homes and from pathology laboratories. Non-melanocytic skin cancers (except for lip squamous cell cancers) are not registered. The majority of data reported are by primary cancer site, classified according to the International Classification of Diseases for Oncology (ICD-O-3). Childhood cancer classifications are based on morphology codes. Cancer incidence data was analysed for calendar years 2002 to 2004.

Notifiable conditions
Notifiable condition data were derived from the Queensland Health Notifiable Conditions System (NOCS). Crude notification rates were calculated using estimated resident populations. Identification of Aboriginal and Torres Strait Islander status remains poorly completed within NOCS. Notifiable conditions were analysed for calendar years 2002 to 2006.

Immunisations
Immunisation details for children were obtained from the Australian Childhood Immunisation Register, which is maintained by Medicare Australia. Immunisation rates for Queensland Health Service Districts were derived by the Communicable Diseases
Unit (CDU) within Queensland Health. Quarterly immunisation data from last quarter 2002 to second quarter 2007 was available for this report.

**Analysis**

Denominator populations for rates and ratios were calculated using estimated resident population figures derived from the 2001 Census. Rates for all diseases and conditions were reported as age standardised rates. Adjustment of rates for age allows comparisons between populations that have different age structures, for example between youthful and older communities. The direct standardisation method was used in this report, where age specific rates were multiplied against a standard reference population. The 2001 Australian population (persons) was used as the standard population. The 95 per cent confidence intervals for rates were estimated by assuming Normal approximations to the Poisson distribution.

Throughout this report the term ‘significant’ is used to indicate ‘statistical significance’ rather than clinical or public health importance. Determination of statistically significant differences between health service districts or area health service and Queensland, are reported as statistically significant from Queensland if the 95 per cent confidence intervals for the health service district or area health service do not overlap. In the case of standardised mortality ratios (SMRs) and standardised separation ratios (SSRs), statistically significant difference was determined if the confidence intervals did not include 100.

All rates and ratios were reported to limited decimal points therefore statistical significance for some differences may not be apparent from the reported data.

Due to the small population numbers in some HSDs, numbers for some specific causes of death, hospital separations or cancer incidence were very small or zero in a single year. Therefore caution must be used in the interpretation of individual or small numbers of data points.
Limitations of the data

Recorded cause of death and cause of hospital separation are known to suffer from significant error throughout the world.

Information from the Queensland Registrar of Births, Deaths and Marriages indicates that decreases in death registered in 2005 for the State were partly due to delays in processing death registrations for 2005. It is expected that as the backlog in registrations is processed, the number of deaths registered in subsequent periods will increase. Preliminary death figures for Queensland March quarter 2006 show an increase 14.2 per cent compared to the number of deaths registered in the March quarter 2005 (ABS 2007).

Hospital separation statistics reflect events of separation rather than individuals, thus readmissions were included in the statistics. In addition, hospitalisations were coded based on episodes of care and approximately five per cent of hospital stays consist of more than one episode of care. A further limitation in interpretation and comparison of hospital separation rates in residents of different areas of Queensland is that admission and clinical practices may vary significantly between hospitals throughout the State. Different practices include multiple admissions because of transfers and/or repeat procedures and lower thresholds for admission for observation. Therefore geographic variations in hospital separation rates cannot be necessarily ascribed to local differences in prevalence or severity of disease.

A variable proportion of the death certification and hospital separation data does not include any Aboriginal or Torres Strait Islander identification. Due to problems with both the case number and population, accurate rates in Aboriginal and Torres Strait Islander people cannot be calculated. The calculation of median age of death does not require complete enumeration of Aboriginal and Torres Strait Islander people, via a census or other means, thus should be a reliable representation of the true median age of death.
9. Glossary of Terms

Aboriginal – Unless otherwise specified, an Aboriginal person is a person of Aboriginal or Torres Strait Islander descent who identifies him or herself as an Aboriginal and is accepted as such by the community in which he or she lives.

Acute – Initiating sharply and often brief, intense and severe.

Ambulatory care sensitive conditions – ACSCs are those for which hospitalisation is thought to be avoidable with the application of public health interventions and early disease management, usually delivered in ambulatory setting such as primary care. High rates of hospital admissions for ACSCs may provide indirect evidence of problems with patient access to primary healthcare, inadequate skills and resources, or disconnection with specialist services.

Cancer incidence rate – The rate at which new cancer cases occur within a population. The numerator is the number of new cases occurring in a specified population, the denominator is the estimated population at mid year. It is expressed as the number of cancers per 100 000 mid-year population per annum.

Chronic – Marked by long duration, by frequent recurrence over a long time, and often by slowly progressing seriousness.

Communicable diseases (infectious diseases) – Diseases or illnesses due to infectious organisms or their toxic products. Communication may occur directly or indirectly via contact with other humans, animals or other environments that harbour the organism.

Confidence interval – The computed interval with a given probability, eg. 95 per cent, that the true value of a variable such as mean, proportion or rate, is contained within the interval.

Fertility rate – The number of live births per year per 1 000 women aged 15-44 years.

Foetal death (stillbirth) rate – The number of foetal deaths as a proportion of the total number of births.
**Gestational diabetes** – Diabetes which is first diagnosed during pregnancy (gestation). It may disappear after pregnancy but signals a high risk of diabetes occurring later on.

**Hospital separation rate** – The total number of separations in all hospitals (public and private) providing acute care services per 100 000 estimated resident population at 31 December of the reference year. A separation is an episode of care which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay ending in a change of status (for example from acute care to rehabilitation). Hospitals providing acute care services are those in which the treatments typically require short durations of stay. Rates and case numbers were reported using financial years.

**Health Service District** – An administrative entity for the provision of health services in Queensland. HSD boundaries are aggregations of Statistical Local Areas.

**Incidence** – The number of new cases (of an illness or event, and so forth) occurring during a given period of time.

**Indigenous person** – Unless otherwise specified, an Indigenous person is a person of Aboriginal or Torres Strait Islander descent who identifies him or herself as an Aboriginal or Torres Strait Islander and is accepted as such by the community in which he or she lives.

**Infant mortality rate** – The number of deaths of children under one year of age per 1 000 live births.

**Live birth** – The delivery of a child weighing at least 500 grams at delivery (or, when birth weight is unavailable, of at least 22 weeks gestation) who after being born, breathed or showed any other evidence of life such as a heart beat.

**Materialised view** – A method of obtaining data from a database that involves extracting the data at midnight, to provide the most up to date information at a given point in time.

**Morbidity** – Refers to ill health in an individual and to levels of ill health in a population or group.

**Mortality** – Death.
**Neonatal death** – Death of any child weighing at least 500 grams at delivery (or, when birth weight is unavailable, of at least 22 weeks gestation) who was born alive (as defined under live birth) and who died within 28 days of birth.

**Notifiable conditions** – Under section 32(1) of the *Health Act 1937* any disease or disability may be declared notifiable. The list of notifiable conditions appears in the schedule of the Health Regulations 1996. Medical practitioners and laboratories are required to notify the Chief Health Officer of Queensland Health of any person suffering from a notifiable condition.

**Perinatal** – Pertaining to or occurring in the period shortly before or after birth (usually up to 28 days after).

**Perinatal mortality rate** – The annual number of combined foetal and neonatal deaths per 1,000 live births.

**Prevalence** – The number or proportion (of cases, instances, and so forth) present in a population at a given time.

**Rate** – A measure of the frequency of an event, in a given population over a specified period of time.

**Statistical Local Area** – The SLA is a general purpose spatial unit developed by the Australian Bureau of Statistics and documented in the Australian Standard Geographical Classification. SLAs are based on the boundaries of incorporated bodies of local government where these exist. These bodies are the Local Government Councils and the geographical areas which they administer are known as Local Government Areas (LGAs). In aggregate, SLAs cover the whole of Australia without gaps or overlaps. They consist of a four digit code. Central area is made up of 158 SLAs.

**Standardisation of rates** – Is a method used to compare populations which have different age and sex structures, thereby precluding the comparison of unadjusted outcome rates. Two methods are available: direct and indirect standardisation. The direct rate is the rate experienced by a standard population, if the age specific rates of the population in the geographical area of interest are applied to the standard population. The indirect rate is the ratio of the total number of people observed (actual number) having an attribute, compared to the total number of people expected (expected number)
to have an attribute (disease or condition, cause of death) in the geographical area of interest. The expected number is calculated based upon the assumption that the population in the geographical area of interest experienced the same age specific rates as the standard population. The standard population used in this report varies according to the years of data that are being considered for the population of interest. Typically, the standard population is the estimated resident population for Australia 2001.

**Torres Strait Islander** - Unless otherwise specified, a Torres Strait Islander is a person of Torres Strait Islander descent who identifies him or herself as an Aboriginal Torres Strait Islander and is accepted as such by the community in which he or she lives.
## 10. Appendices

**Appendix 1: ICD Codes used for mortality and hospital separation data extraction**

<table>
<thead>
<tr>
<th>Disease/Condition</th>
<th>ICD-10-AM Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Causes</td>
<td>A00-Z99</td>
</tr>
<tr>
<td>Arthropathies &amp; systemic connective tissue disorders</td>
<td>M00-M36</td>
</tr>
<tr>
<td>Asthma</td>
<td>J45-J46</td>
</tr>
<tr>
<td>Cancer</td>
<td></td>
</tr>
<tr>
<td>All cancers excluding non melanocytic skin cancer</td>
<td>C00-C43, C45-C97</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td></td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>I20-I25</td>
</tr>
<tr>
<td>Stroke</td>
<td>G45-G46, I60-I69</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>E10-E14</td>
</tr>
<tr>
<td>Mental and behavioural disorders</td>
<td></td>
</tr>
<tr>
<td>All Mental and behavioural disorders</td>
<td>F00-F99</td>
</tr>
<tr>
<td>Intentional self harm</td>
<td>X60-X84, Y870-Y870</td>
</tr>
</tbody>
</table>
11. References


Australian Childhood Immunisation Register, Medicare Australia, extracted July 2007.


Department of Communities. Partnerships Queensland: Future directions framework for Aboriginal and Torres Strait Islander policy in Queensland 2005–2010, published by Department of Communities, Office for Aboriginal and Torres Strait Islander Partnerships 2006.


Queensland Health. Communicable Diseases Unit, date of processing 30 June, 2007a.


