



### PATTERNS OF HOSPITAL USAGE IN QUEENSLAND

#### I N S I D E

<b>Summary</b>	<b>1</b>
<b>Patterns of hospital usage by sex and age</b>	<b>1</b>
<b>Patterns of hospital usage by sex and disease classifications</b>	<b>1</b>
<b>Regional comparisons of hospital usage</b>	<b>2</b>
<b>Patterns of hospital usage in Aboriginal and Torres Strait Islander people</b>	<b>2</b>
<b>Socioeconomic comparisons of hospital usage</b>	<b>2</b>
<b>Urban/rural comparisons of hospital usage</b>	<b>3</b>
<b>Appendix</b>	<b>3</b>
<b>Standardisation</b>	<b>3</b>
<b>Rural and remote areas classification</b>	<b>4</b>
<b>Graphs</b>	<b>5</b>

#### Summary

- ◆ Overall, females were greater users of the hospital system than men
- ◆ When pregnancy-related conditions were excluded, males had slightly higher rates of hospital usage
- ◆ Rural people had much higher hospital usage rates than urban dwellers
- ◆ Aboriginal and Torres Strait Islanders were hospitalised at a higher rate than total Queenslanders for 16 of 23 selected causes, especially hypertension, cervical conditions, diabetes and alcoholism
- ◆ Social disadvantage affected the rate of hospitalisation with the most disadvantaged group having rates 35% higher than the Queensland average

This circular provides information about hospital usage in Queensland for 1993/94. Hospital usage is measured by in-patient and day-patient separations which are defined as hospital discharges plus transfers and deaths.

#### Patterns of hospital usage by sex and age

Females accounted for more total hospital separations than males (291 and 250 separations per 1000 population, respectively) (Figure 1).

In the zero to four year age group, males had higher total separations than females (293 and 225 separations per 1000 population, respectively). Between the ages of 15 and 54 years, females accounted for the majority of total separations, peaking at 379 separations per 1000 population in the 25 to 29 year age group, almost twice the number of male separations for that age group (159 separations per 1000 population). After age 54, separation rates increased with increasing age in both males and females. However, rates were markedly higher among males, the difference being greatest in the 75 to 79 year age group with male rates almost 50% higher than females (884 and 598 separations per 1000 population, respectively).

Excluding pregnancy from the analysis, male hospital separation rates were marginally higher than females (250 and 244 separations per 1000 population, respectively) (Figure 2). Females still experienced higher rates between 15 to 54 years of age, but the difference was not as pronounced as when all disease classifications were included.

#### Patterns of hospital usage by sex and disease classifications

Diseases of the digestive system accounted for the largest number of separations, followed by separations due to injuries (accidents, poisoning and violence) and complications of pregnancy, childbirth and puerperium (Figure 3).

The highest separation rate for males was for diseases of the digestive system (32.4 per 1000 population), followed by injuries (29.1 per 1000 population).

For females, separations due to complications of pregnancy, childbirth and puerperium were the highest (47.8 per 1000 population) followed by diseases of the digestive system (31.0 per 1000 population) and diseases of the genito-urinary system (26.6 per 1000 population).

### **Regional comparisons of hospital usage**

Regional comparisons were based on the usual residence of the person.

For in-patients and day-patients combined, there were clear regional differences in total separation ratios (Figure 4). For separations from public and private hospitals combined, separation rates were higher than the State average in Regions which have a more dispersed population (Peninsula, Northern, Central West, South West, Mackay, Central, Wide Bay). Overall, South Coast and Brisbane South had lower than average hospital separation rates.

Public hospital separation rates for Peninsula, Central West and South West were much higher than the State average for public hospitals, while for private hospitals in Northern, Mackay, Central, the Darling Downs and South Coast, the separation rates were higher than the State average for private hospitals.

For day-only separations, all hospitals combined, rates were higher than the Queensland average in Peninsula, Northern, Mackay and Brisbane North (Figure 5). Apart from Northern and Brisbane North, these higher rates occurred in the public hospitals.

### **Patterns of hospital usage in Aboriginal and Torres Strait Islander people**

Total and day-only separation rates in public hospitals have been examined for people who identify as Aboriginal or Torres Strait Islander living in six

selected Regions (Peninsula, Northern, Central West, South West, Central, Wide Bay). The higher likelihood of accurate identification of Aboriginal or Torres Strait Islander ethnicity was the reason these six Regions were selected. These data clearly present the magnitude of the difference in hospital morbidity rates between Aborigines and Torres Strait Islanders and the total Queensland population.

Total public hospital separation rates for Aborigines and Torres Strait Islanders were higher than the average for total Queensland (public and private) for 16 out of the 23 selected causes (Figure 6). Rates were highest for hypertension (12 times the total Queensland rates) followed by conditions of the cervix (11 times); diabetes (eight times); accidental drowning and alcoholism (both seven times the Queensland expected); pneumonia (six times); and cirrhosis of the liver, bronchitis, emphysema and asthma, suicide, and accidents excluding motor vehicles (all four times the total Queensland rates).

Day-only public hospital separation rates for Aborigines and Torres Strait Islanders were higher than average for total Queensland (public and private) for 13 out of the 23 selected causes (Figure 6). The highest was for hypertension which occurred at 33 times the Queensland average rate. Rates for pneumonia, ischaemic heart disease, and diabetes were approximately eight times that for Queensland.

### **Socioeconomic comparisons of hospital usage**

The Australian Bureau of Statistics (ABS) has derived five summary indexes from the 1991 Population Census to measure different aspects of socioeconomic conditions by geographic areas. Together, these indexes make up the Socioeconomic Index for Areas (SEIFA). The Index of Relative Socioeconomic Disadvantage is used in this publication. It is a general socioeconomic index, and summarises variables related to the economic resources of households, education and occupation, with a focus on attributes such as low income, low educational

attainment and high unemployment. Combining public and private hospitals, separation ratios increased steadily as socioeconomic disadvantage increased ie. the socioeconomically disadvantaged were more likely to be hospitalised (Figure 7). This gradient was more pronounced for public hospital separations with the least disadvantaged hospitalised 26% less than the Queensland average and the most disadvantaged hospitalised 35% more than the average for Queensland.

For private hospitals, the least disadvantaged group had higher separations than the most disadvantaged.

An examination of the major condition and disease groups requiring admission to hospital showed that for all conditions except cancer, the pattern of increasing hospitalisation with social disadvantage was similar. While the trend for the most disadvantaged group to have higher rates of hospitalisation for cancer was the same, the least disadvantaged had slightly higher hospital separations than the middle group (data not presented).

### Urban/rural comparisons of hospital usage

The Department of Human Services and Health has developed a Rural and Remote Areas (RaRA) classification system for classifying Statistical Local Areas (SLA) across Australia to urban/rural/remote areas (see appendix).

Combining information from both public and private hospitals, hospital separations for city and urban dwellers were below the Queensland average (Figure 8). Remote populations had higher than average separations, and these were primarily accounted for in public hospitals where separations were 70% higher than the Queensland average.

Similar to the pattern described for socioeconomic disadvantage previously, an examination of the major condition and disease groups requiring admission to

hospital showed that for all conditions except cancer, the pattern of increasing hospitalisation with increasing remoteness was the same. The most remote areas had higher hospitalisation rates for cancer, but the other areas showed no obvious trends (data not presented).

For day-only separations, all hospitals combined, in comparison to cities there were lower rates in rural and remote areas, with the exception of remote major (Mt Isa) (Figure 9). These lower rates were more marked in private hospitals, whereas, for public hospitals, separations in city/urban and remote areas exceeded those in rural areas.

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## Appendix

### Standardisation

**Age and sex are usually powerful determinants of morbidity. Two populations (however defined) may have different levels of morbidity simply because they have different age-sex structures. Age-sex standardisation eliminates differences between groups due to varying population proportions in each age-sex band so that any variation in morbidity observed after standardisation may be attributed to other causes.**

**The direct and indirectly standardised rate for a given population are weighted sums of the age-sex specific rates for that population. Direct and indirect standardisation differ in the way that the weights are calculated.**

**For direct standardisation, age-sex specific rates for each group are multiplied by the corresponding age-sex specific populations of a standard or reference population and summed, yielding an expected count for the reference population. This count is the expected number of cases in the reference population**

if the age-sex specific rates of morbidity or mortality observed in a given population are applied to the population profile of the reference. This expected count is divided by the total reference population to give the directly standardised rate.

For indirect standardisation, age-sex specific rates from a reference population are multiplied by the corresponding age-sex specific populations for each group and summed, yielding an expected count for each group. For a particular population group, the calculated count is the number of cases that can be expected if the age-sex specific rates of morbidity or mortality in the reference population applied to the population profile of the group. The observed number of cases for each group is divided by the expected number and multiplied by 100 to give a standardised ratio. Two groups with the same standardised ratio experience the same morbidity rates relative to the reference.

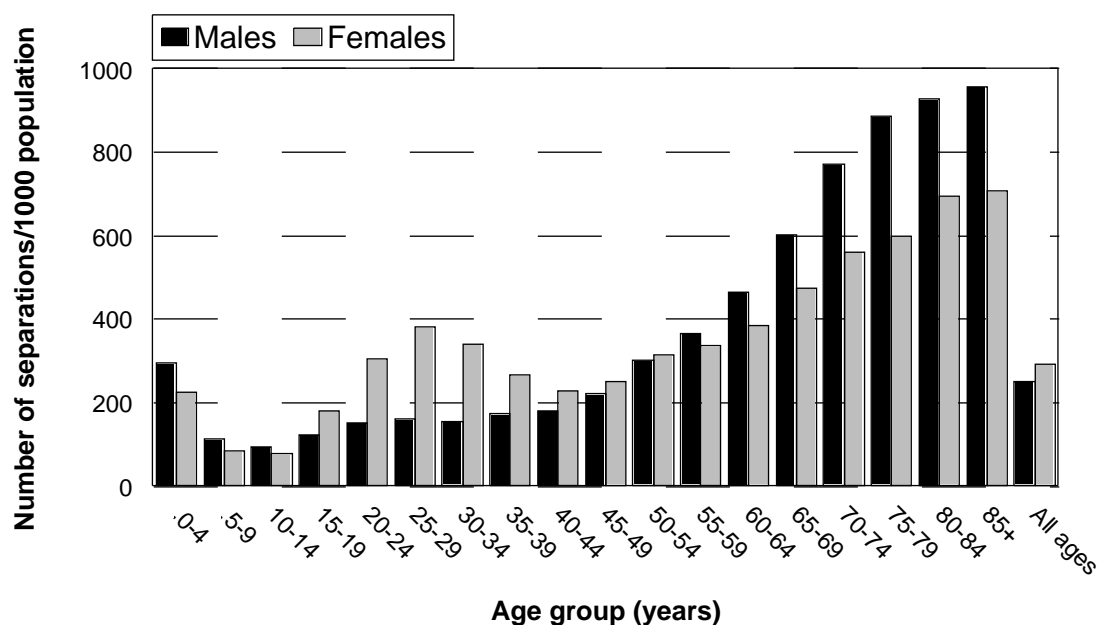
Indirect standardisation can only be used where age-sex specific rates are available for the reference population while direct standardisation requires only a reference population with an arbitrary age-sex structure.

#### **Rural and Remote Areas Classification**

This classification allocates SLAs to one of seven groups: (i) Capital City (all SLAs in Brisbane SD); (ii) Other Major Urban (SLAs which form part of a non-capital city urban area with a combined population exceeding approximately 80,000 eg. Townsville); (iii) Rural Major (SLAs within a few hundred kilometres of a capital city or major urban centre are 'Rural' and the criteria for 'Major' are primarily population size and secondly a population density of 30 persons per square kilometre); (iv) Rural Other ('Rural' SLAs with smaller population and lower population density than for 'Rural Major'); (v) Remote Major (SLAs that are not within a Capital City Statistical Division or Major

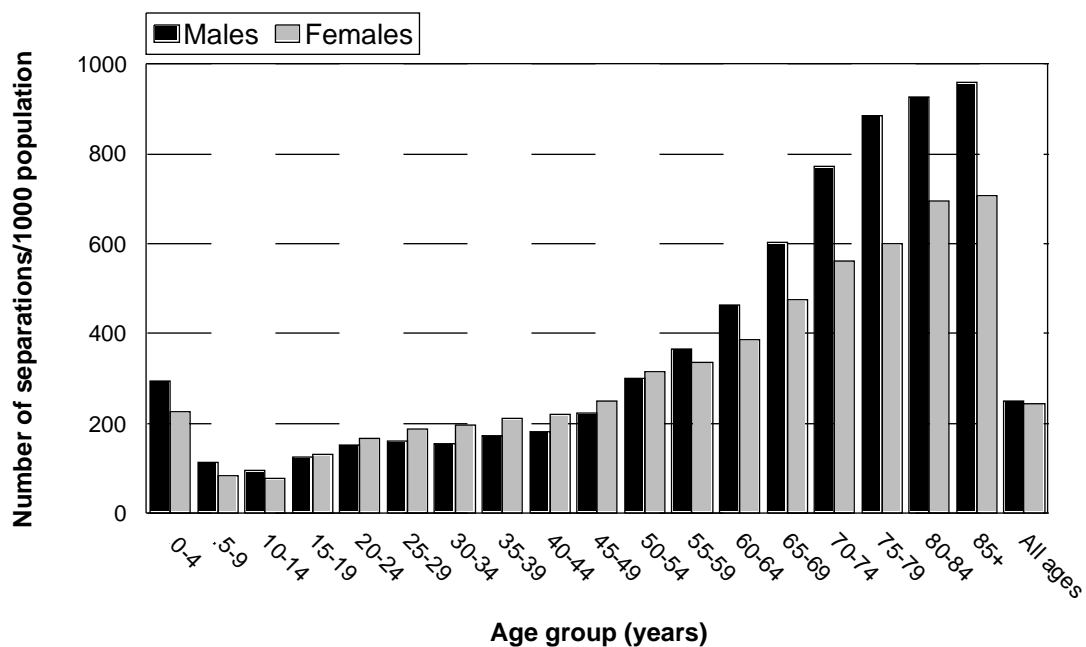
Urban area, or within 'reasonable' proximity of one are 'Remote' and population size and density are the criteria for 'Major'); (vi) Remote Other ('Remote' SLAs with smaller population and lower population density than for 'Remote Major'); (vii) Other Offshore Areas (the SLA (code 9779) 'Offshore areas and migratory' has been allocated to this special category).

Figure 1: Number of separations per 1000 population, 1993/94 by 5 year age groups



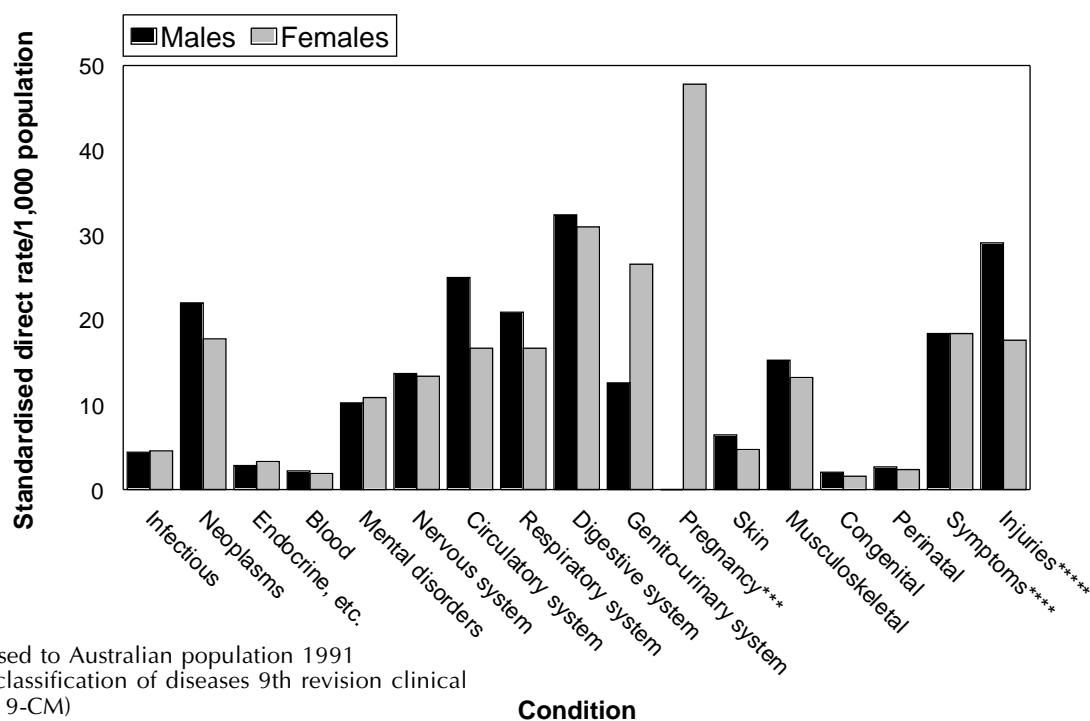
Source: Epidemiology and Health Information Branch

Figure 2: Number of separations per 1000 population, 1993/94 by 5 year age groups  
All conditions except complications of pregnancy, childbirth and puerperium



Source: Epidemiology and Health Information Branch

Figure 3: Separation rates\*, by ICD chapters\*\*, all ages combined, 1993/94

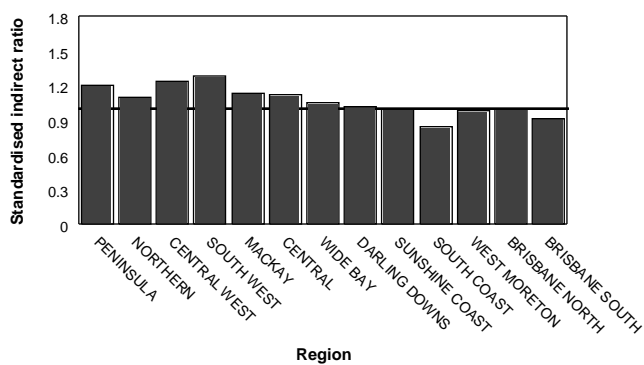


- \* Directly standardised to Australian population 1991
- \*\* The international classification of diseases 9th revision clinical modification (ICD 9-CM)
- \*\*\* Pregnancy, childbirth and puerperium
- \*\*\*\* Symptoms, signs and ill-defined conditions
- \*\*\*\*\* Injuries, accidents, poisoning and violence

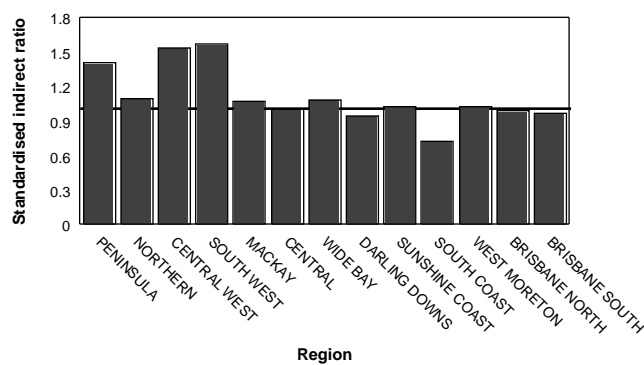
Source: Epidemiology and Health Information Branch

Figure 4: Separation ratios\*, by Region, all ages combined, 1993/94

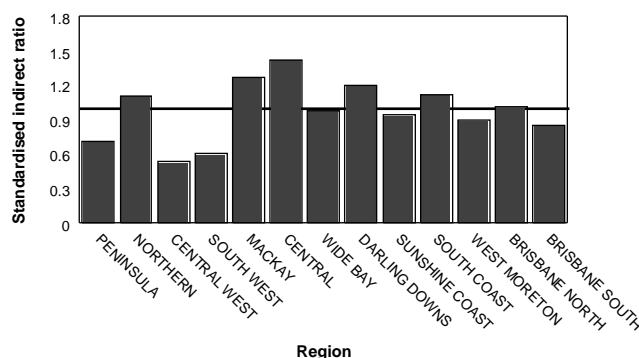
All hospitals



Public hospitals



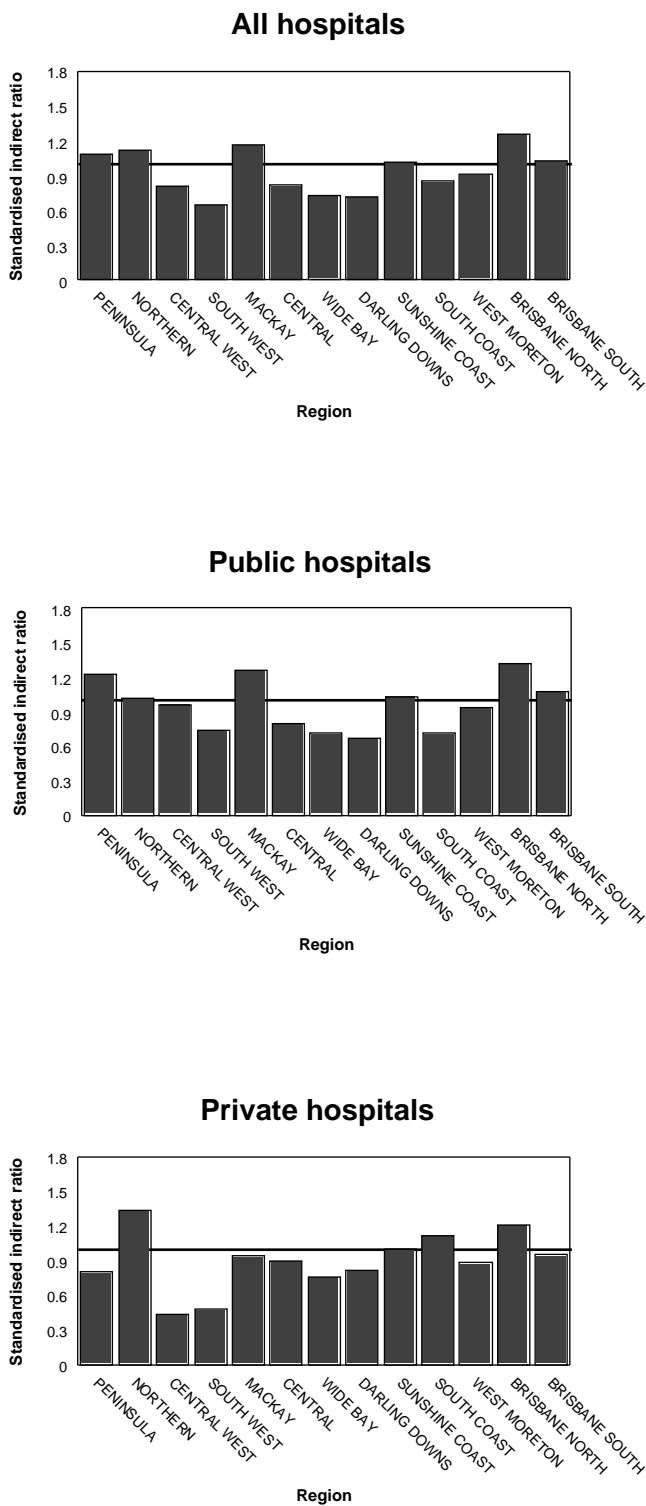
Private hospitals



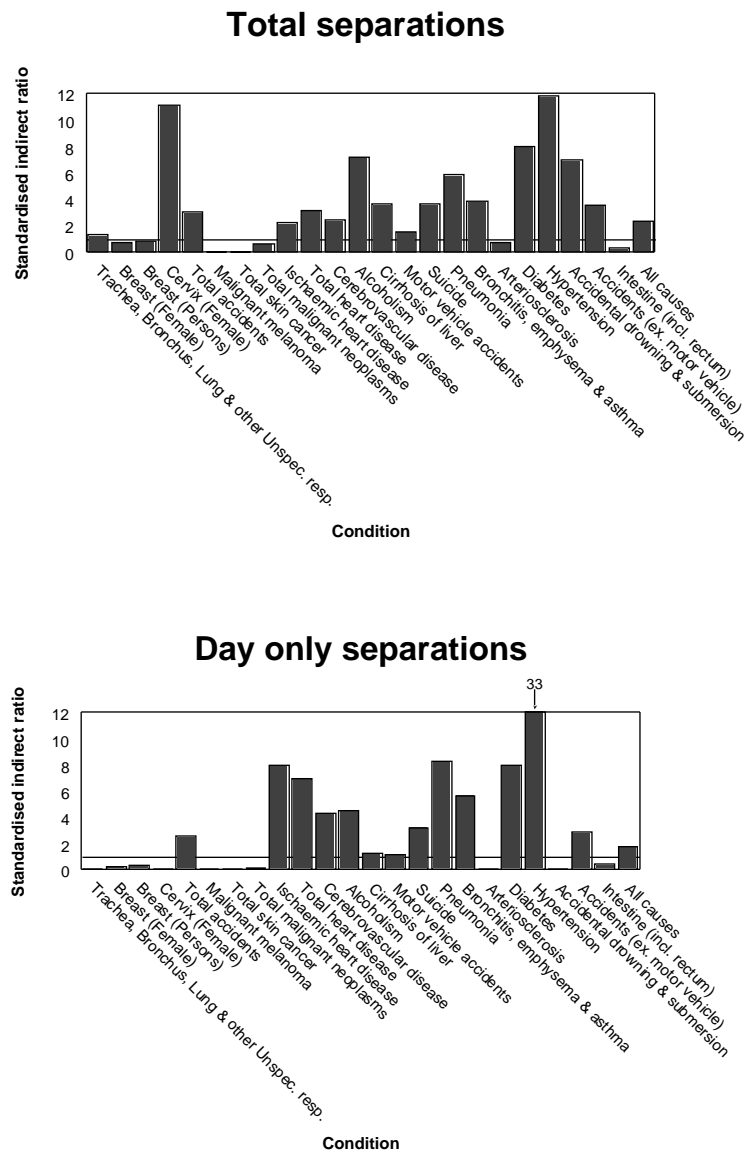
\* Indirectly standardised to Queensland population 1993/94

Source: Epidemiology and Health Information Branch

**Figure 5: Day only separation ratios\*, by Region, all ages combined, 1993/94**



**Figure 6: Separation ratios\*, for Aboriginal and Torres Strait Islander people resident in Peninsula, Northern, Central West, South West, Central and Wide Bay Regions, for 23 selected conditions, all ages combined, 1993/94**



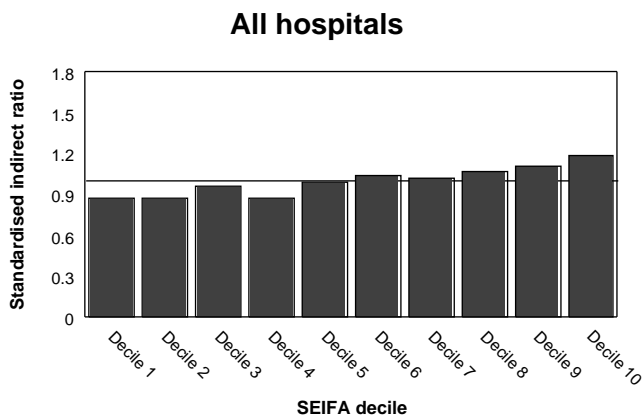
\* Indirectly standardised to Queensland population 1993/94

Source: Epidemiology and Health Information Branch

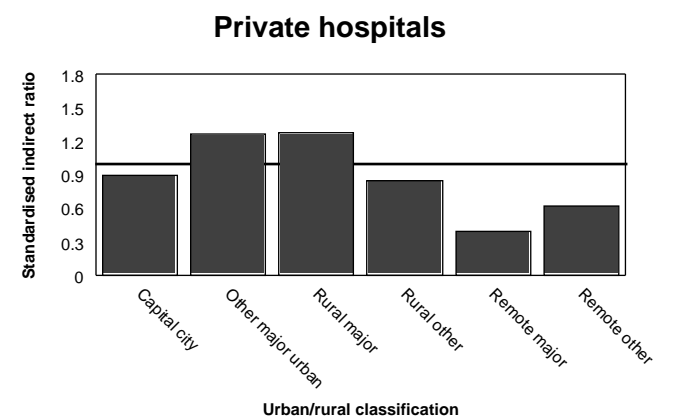
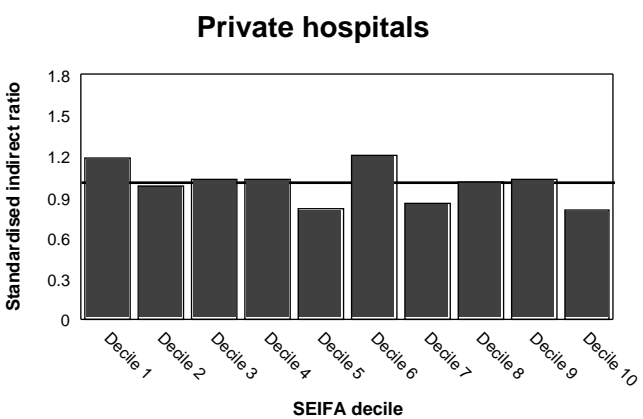
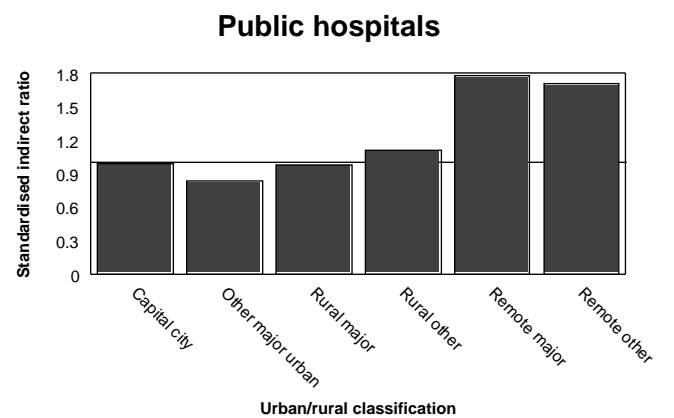
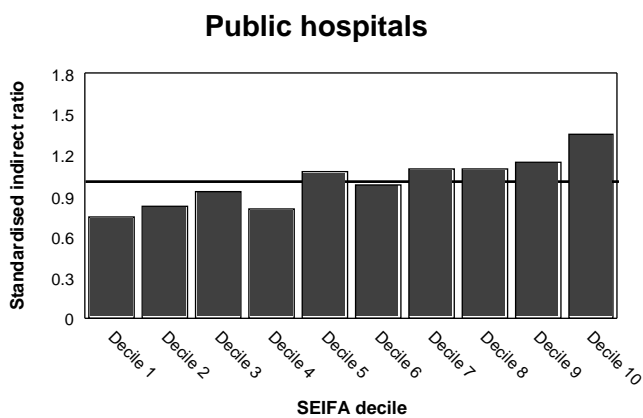
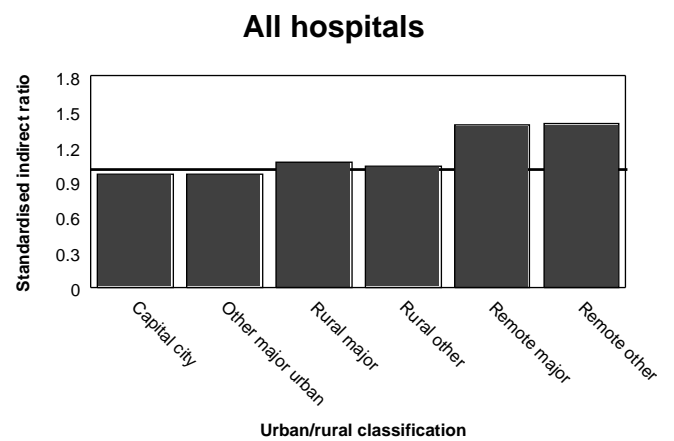
\* Indirectly standardised to Queensland population 1993/94

Source: Epidemiology and Health Information Branch

**Figure 7: Separation ratios\*, by SEIFA socioeconomic disadvantage decile #\*\*, all ages combined, 1993/94**



**Figure 8: Separation ratios\*, by urban/rural classification\*\*, all ages combined, 1993/94**



\* Indirectly standardised to Queensland population 1993/94  
 # Socio-economic indexes for areas - information paper, ABS cat no.2912 0  
 \*\* Decile 1 = least disadvantaged, decile 10 = most disadvantaged

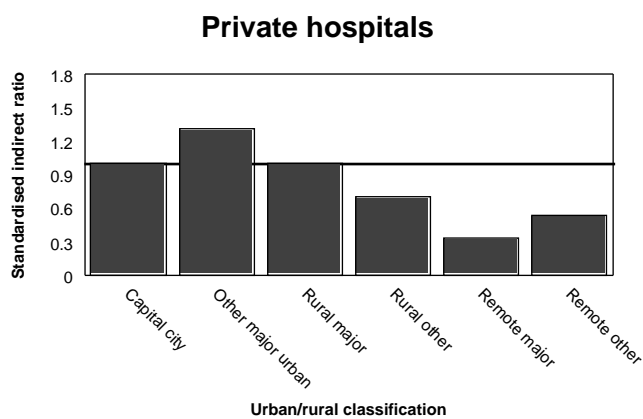
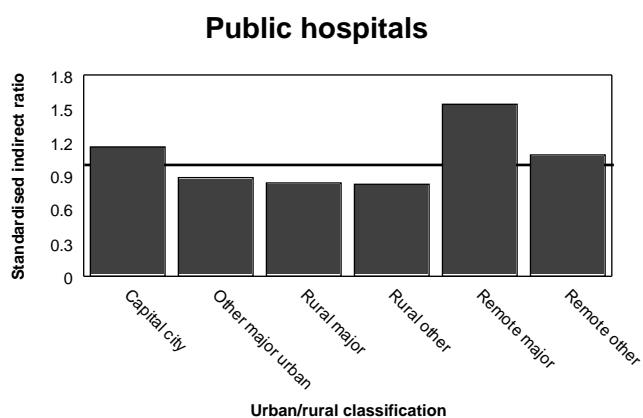
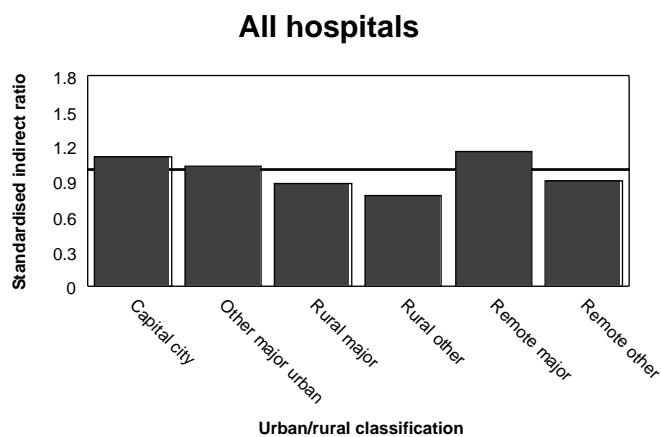
\*\* Department of Human Services and Health, rural/remote areas classification.

Source: Epidemiology and Health Information Branch

Source: Epidemiology and Health Information Branch



**Figure 9: Day only separation ratios\*, by urban/rural classification\*\*, all ages combined, 1993/94**



\* Indirectly standardised to Queensland population 1993/94

\*\* Department of Human Services and Health, rural/remote areas classification.

Source: Epidemiology and Health Information Branch