



THE CONTRIBUTION OF HAZARDOUS AND HARMFUL ALCOHOL CONSUMPTION TO MORTALITY AND HOSPITAL MORBIDITY IN QUEENSLAND

I N S I D E

INTRODUCTION	1
KEY FINDINGS	1
DEATHS	2
HOSPITAL SEPARATIONS	4
CONCLUSION	6
REFERENCES	6
APPENDIX	7

INTRODUCTION

Hazardous and harmful alcohol consumption continues to have an enormous impact on the well-being of Australian individuals and the wider society (Tai et al., 1998: 6).

This circular examines the contribution of hazardous and harmful alcohol consumption to mortality and hospital morbidity in Queensland. Hazardous and harmful drinking as defined by the National Health and Medical Research Council (NHMRC), refers to quantities of alcohol consumed of more than 2 standard drinks per day for females and more than 4 standard drinks per day for males (English et al., 1995:61).

The analysis undertaken uses aetiological fractions to quantify the effects of hazardous and harmful alcohol consumption on the mortality and hospital morbidity of Queensland residents (see Appendix for definition and application of aetiological fractions). It has been acknowledged that alcohol consumption has a protective effect at low exposure

levels, while it has a harmful effect at high exposure levels (English et al., 1995: 57). Therefore these aetiological fractions were based on a comparison of risk due to hazardous and harmful levels of alcohol consumption relative to low alcohol consumption levels.

In this report hospital morbidity is measured using hospital separation data (see Appendix for definition). The terms alcohol-related deaths or hospital separations are used to denote deaths or hospital separations that were estimated to be directly attributable to hazardous and harmful alcohol consumption.

KEY FINDINGS

- Of the 103,133 deaths of Queenslanders from 1992 to 1996, it was estimated that 3%, or 3,225 deaths were alcohol-related.
- Fifty-one per cent of the estimated alcohol-related deaths in Queensland were from stroke, alcoholic liver cirrhosis, and road injuries.
- It is estimated that in Queensland each year from 1992 to 1996, there was an average of 11,677 potential years life lost to the age of 70 years which were directly attributable to hazardous and harmful alcohol consumption.
- Of the 1,937,467 hospital separations of Queenslanders for the 1995/96 and 1996/97 financial years, it was estimated that 2%, or 41,245 separations were alcohol-related.
- The estimated proportions of alcohol-related hospital separations were higher for males compared with females for all age-groups, with the exception of age groups over 70 years.
- Alcohol-related death and separation rates were found to increase with increasing levels of socioeconomic disadvantage, for both males and females.

DEATHS

Number of deaths estimated to be directly attributable to hazardous and harmful alcohol consumption

- Of the 103,133 deaths of Queenslanders from 1992 to 1996, it was estimated that 3%, or 3,225 deaths were alcohol-related.
- Males accounted for 67% of all estimated alcohol-related deaths.

Age standardised death rates per 100,000 population

- In Queensland, the average annual age-standardised death rate for all conditions estimated to be directly attributable to hazardous and harmful alcohol consumption between 1992 and 1996 was 20 per 100,000. The rate for males (28 per 100,000) was more than twice that for females (12 per 100,000) (see Appendix for definition of age-standardised rates).

Comparisons between Queensland and Australia

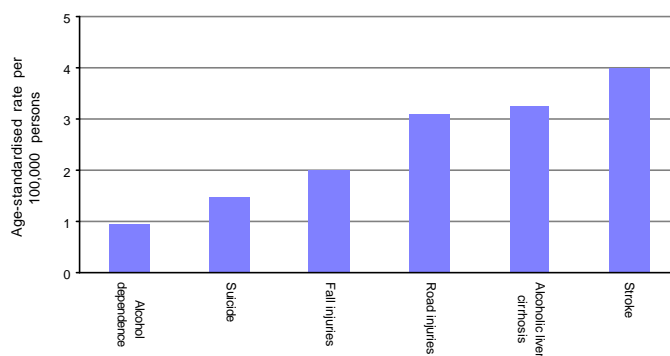
A report by the Health Department of Western Australia has estimated the number of deaths due to hazardous and harmful alcohol consumption in Australia. The results showed that:

- Alcohol consumption was responsible for an estimated 22,163 deaths in Australia from 1991 to 1996. This is 3% of the total number of deaths in Australia (744,862) during this period. It was also estimated for Queensland that 3% of deaths (from 1992 to 1996) were alcohol-related.
- For both Queensland and Australia, the alcohol-related death rate for males was between 2 and 3 times greater than for females.
- In Australia, the age-standardised alcohol-related death rate was 20 per 100,000 persons in 1996, and 22 per 100,000 persons in 1991. This is comparable to the Queensland figure of 20 per 100,000 between 1992 and 1996.

Estimated mortality attributable to hazardous or harmful alcohol consumption, by condition

- Of the estimated alcohol-related deaths registered in Queensland from 1992 to 1996, 51%, or 1,648 deaths were from stroke, alcoholic liver cirrhosis, and road injuries. The average annual age-standardised alcohol-related death rates for these conditions for persons were 4.0 per 100,000, 3.2 per 100,000, and 3.1 per 100,000, respectively (Figure 1).

Figure 1: Average annual age-standardised death rates per 100,000 persons directly attributable to hazardous and harmful alcohol consumption, by condition, Queensland, 1992 - 1996



Source: Queensland Health, Health Information Centre, 1999

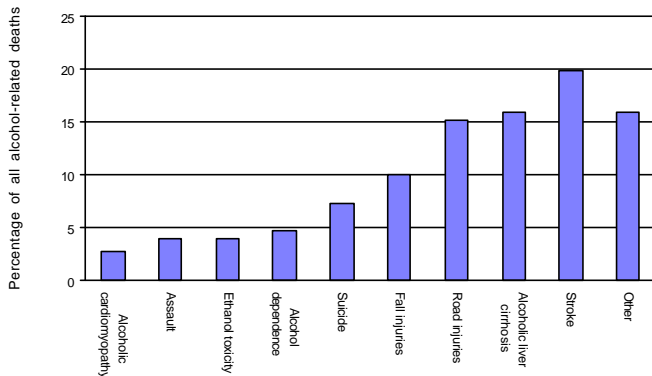
Stroke

- Of the 10,183 deaths from stroke registered in Queensland from 1992 to 1996, it was estimated that 6%, or 641 deaths were alcohol-related.
- Females accounted for 61% of the total estimated number of alcohol-related deaths from stroke.
- Stroke was estimated to account for 20% of alcohol-related deaths among Queenslanders during this time period (Figure 2).

Alcoholic liver cirrhosis

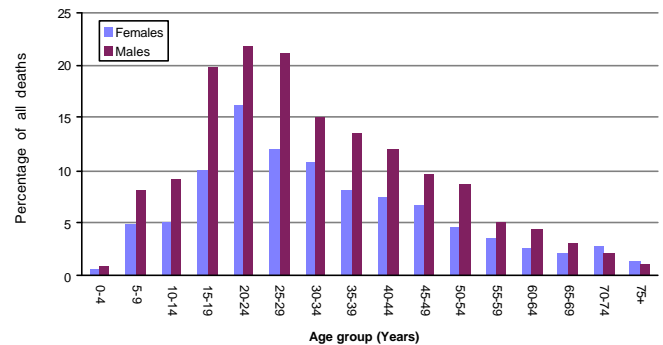
- All of the 516 deaths from alcoholic liver cirrhosis registered in Queensland from 1992 to 1996 were estimated to be alcohol-related.
- Males accounted for over three-quarters (77%) of these deaths.
- Alcoholic liver cirrhosis was estimated to account for 16% of all alcohol-related deaths among Queenslanders during this time period (Figure 2).

Figure 2: Alcohol-related deaths: proportions due to various causes, Queensland, 1992-1996



Source: Queensland Health, Health Information Centre, 1999

Figure 3: Deaths due to hazardous and harmful alcohol consumption as a percentage of all deaths, by age group and sex, Queensland, 1992 - 1996



Source: Queensland Health, Health Information Centre, 1999

Road injuries

- In Queensland from 1992 to 1996 there were 1,933 registered deaths due to road injuries. Of these it was estimated that 25%, or 491 deaths, were alcohol-related.
- Males accounted for 84% of all road injury deaths estimated to be directly attributable to hazardous and harmful alcohol consumption in Queensland.
- Road injuries were estimated to account for 15% of all alcohol-related deaths among Queenslanders during this time period (Figure 2)

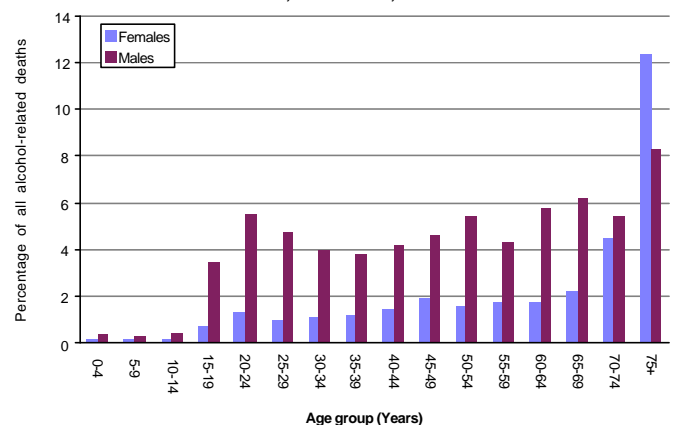
Alcohol-related deaths as a proportion of all deaths, by age and sex

- Figure 3 shows alcohol-related deaths as a percentage of all deaths between 1992 and 1996 by age group and sex. This shows that deaths from hazardous and harmful alcohol consumption were particularly marked for males, and peaked in the 15-19 to 25-29 year age groups. The proportion of all deaths that were related to alcohol then declined gradually with increasing age, for both males and females.
- The estimated proportions of alcohol-related deaths were higher for males compared with females for all age-groups, with the exception of age groups over 70 years.
- Alcohol also contributed to deaths among children under 14 years of age. It is estimated that 7% of all deaths of children aged between 5 and 14 years were alcohol-related. These deaths were mainly due to road injuries, and a small number were due to assault.

Percentage of alcohol-related deaths by age and sex

- When alcohol-related deaths between 1992 and 1996 were broken down by age group and sex, they were found to be relatively evenly distributed between the age groups 15-69 years for females, and 15-74 years for males (Figure 4).
- For all age groups, with the exception of those aged 75 years and over, the percentage of alcohol-related deaths was higher for males than females.
- The percentage of deaths from hazardous and harmful alcohol consumption in this older age group was markedly higher than for age groups less than 75 years.

Figure 4: Proportions of all alcohol-related deaths by age group and sex, Queensland, 1992 - 1996



Source: Queensland Health, Health Information Centre, 1999

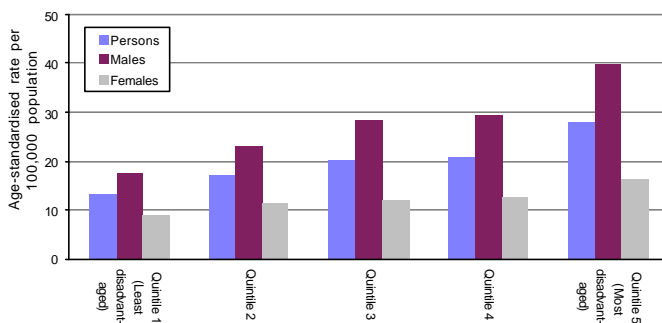
Estimated potential years life lost to age 70 by major cause

- It is estimated that in Queensland each year from 1992 to 1996, there was an average of 11,677 potential years life lost to the age of 70 years, which was directly attributable to hazardous and harmful alcohol consumption.
- The major causes of potential years life lost were road injuries (34%), suicide (13%), alcoholic liver cirrhosis (12%), ethanol toxicity (9%), and assault (7%).
- Seventy-one per cent of the potential years life lost to age 70 were due to deaths of people aged 15 to 44 years. This contrasts with the potential years life lost for cigarette-related conditions which were predominantly due to deaths of people aged 45 to 64 years.

Differentials by socioeconomic status

- Figure 5 shows the alcohol-related death rates from 1992 to 1995 by socioeconomic status using the socioeconomic index for areas (SEIFA) (see Appendix for definition of SEIFA)
- The estimated alcohol-related death rate for persons in the most disadvantaged group was 28 per 100,000, while the corresponding rate for the least disadvantaged group was only 13 per 100,000.

Figure 5: Average annual age-standardised death rates per 100,000 persons directly attributable to hazardous and harmful alcohol consumption by SEIFA socioeconomic disadvantage quintile, by sex, Queensland, 1992 - 1995



Source: Queensland Health, Health Information Centre, 1999

HOSPITAL SEPARATIONS

Overall hospital separations estimated to be directly attributable to hazardous and harmful alcohol consumption

- Of the 1,937,467 hospital separations of Queenslanders in the 1995/96 and 1996/97 financial years, it was estimated that 2%, or 41,245 separations, were alcohol-related.
- Males accounted for 63% of all separations estimated to be directly attributable to hazardous and harmful alcohol consumption.

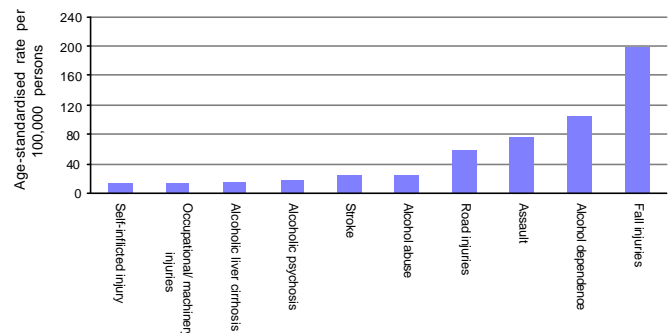
Age standardised hospital admission rates per 100,000 population (1995/96 - 1996/97)

- For Queensland, the average annual alcohol-related hospital separation rate was estimated to be 615 per 100,000 persons. The rate for males (792 per 100,000) was much higher than that for females (430 per 100,000).

Hospital separations attributable to hazardous and harmful alcohol consumption, by condition (1995/96 - 1996/97)

- The leading causes of hospital separations which were directly attributable to hazardous and harmful alcohol consumption were fall injuries, alcohol dependence, assault, and road injuries (Figure 6). The direct alcohol-related separation rates per 100,000 persons were markedly higher for these four conditions compared with the other conditions.

Figure 6: Average annual age-standardised separation rates per 100,000 persons directly attributable to hazardous and harmful alcohol consumption, by condition, Queensland, 1995/96 & 1996/97



Source: Queensland Health, Health Information Centre, 1999

Fall injuries

- Of the 52,668 hospital separations due to fall injuries for Queenslanders in the 1995/96 and 1996/97 financial years, it was estimated that 26%, or 13,546 separations were alcohol-related.
- Fall injuries were estimated to account for 33% of all alcohol-related separations among Queenslanders during this time period (Figure 7).

Alcohol dependence

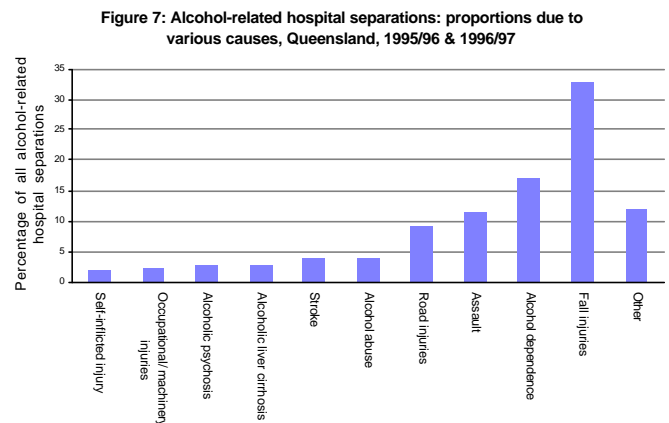
- Of the 7,062 separations due to alcohol dependence for Queenslanders in the 1995/96 and 1996/97 financial years, it was estimated that all were alcohol-related.
- Alcohol dependence was estimated to account for 17% of all alcohol-related separations among Queenslanders during this period (Figure 7).

Assault

- There were 10,242 hospital separations due to assault for Queenslanders in the 1995/96 and 1996/97 financial years. It was estimated that of these, 47%, or 4,814 were alcohol-related.
- Assault was estimated to account for 12% of all alcohol-related separations among Queenslanders during this time period (Figure 7)

Road injuries

- Of the 14,443 separations due to road injuries for Queenslanders in the 1995/96 and 1996/97 financial years, it was estimated that 26%, or 3,796 separations were alcohol-related.
- Road injuries were estimated to account for 9% of all alcohol-related separations during this period (Figure 7).

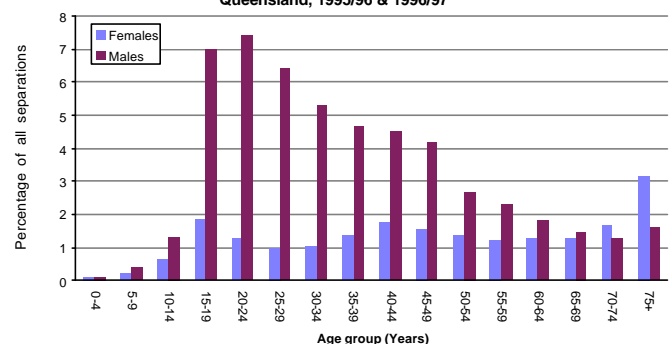


Source: Queensland Health, Health Information Centre, 1999

Alcohol-related hospital separations as a proportion of all separations, by age and sex

- The proportions of all hospital separations that were estimated to be alcohol-related were higher for males than females in all age groups below 70 years (Figure 8). Between the ages of 15 and 49 years, the proportion for males (5.5%) was more than four times higher than that for females (1.3%).
- This proportion peaked for males in the 20-24 years age group (7.4% of separations were estimated to be alcohol-related), and then decreased as age increased, while for females the proportion fluctuated between 1% and 2% between the ages of 15 and 74 years, with an increase for females aged 75 years and over (3.1%).
- The peak in the estimated proportion of alcohol-related separations in males aged 20-24 years is to a large extent due to road injuries.

Figure 8: Separations due to hazardous and harmful alcohol consumption as percentage of all separations, by age group and sex, Queensland, 1995/96 & 1996/97

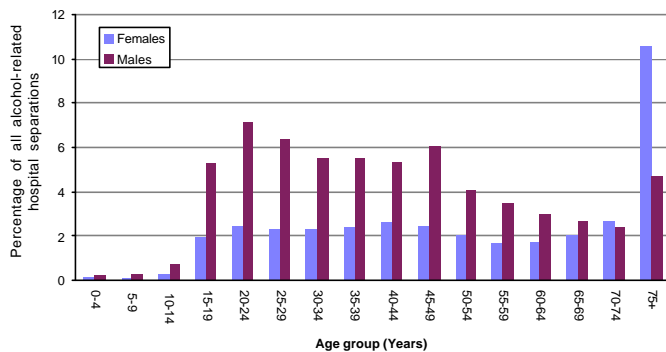


Source: Queensland Health, Health Information Centre, 1999

Percentage of alcohol-related hospital separations, by age and sex

- Hospital separations in Queensland estimated to be alcohol related (in the 1995/96 and 1996/97 financial years) were broken down by age and sex. There was a higher percentage of alcohol-related hospital separations for males than females in all age-groups, with the exception of those aged 70 years and over (Figure 9).
- For females, the proportion of alcohol-related separations was markedly higher for those aged 75 years and over than for all other age groups.
- For males, this proportion was greatest in the age range of 15 to 49 years.

Figure 9: Proportions of all alcohol-related hospital separations, by age group and sex, Queensland, 1995/96 & 1996/97

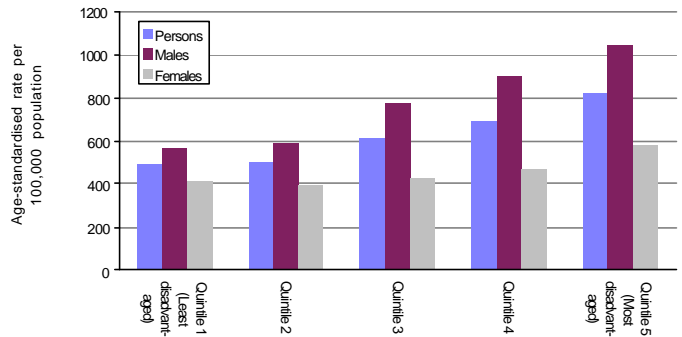


Source: Queensland Health, Health Information Centre, 1999

Differentials by socioeconomic status

- As was found with deaths, it was estimated that there were increasing alcohol-related separation rates with increasing levels of socioeconomic disadvantage, for both males and females in the 1997/98 financial year (Figure 10).
- The alcohol-related separation rate for persons in the most disadvantaged group was 819 per 100,000, while the corresponding rate for the least disadvantaged group was only 493 per 100,000 persons.

Figure 10: Age-standardised separation rates per 100,000 persons directly attributable to hazardous and harmful alcohol consumption by SEIFA socioeconomic disadvantage quintile, by sex, Queensland, 1997/98



Source: Queensland Health, Health Information Centre, 1999

Occupied bed days and costs

It is estimated that there were 146,822 average yearly occupied bed days directly attributable to hazardous and harmful alcohol consumption in the 1995/96 and 1996/97 financial years, at a cost each year to Queenslanders of \$86 million (see Appendix for description of cost calculations). The average length of stay for alcohol-related illnesses during 1995/96 and 1996/97 was 6.7 days, compared to an average length of stay for all hospital separations of 4.1 days.

CONCLUSION

- This report has shown that among the Queensland population, hazardous and harmful alcohol consumption is a significant contributor to deaths and hospital separations.

REFERENCES

- Australian Bureau of Statistics (1995). *National Health Survey: Summary of Results, Australia*. ABS Catalogue No. 4364.0, AGPS, Canberra.
- English DR, Holman CDJ, Milne E, Winter MG, Hulse GK, Codde JP, Bower CI, Corti B, de Klerk N, Knuiman MW, Kurinczuk JJ, Lewin GF, Ryan GA, (1995). *The quantification of drug caused morbidity and mortality in Australia, 1995 edition*. Commonwealth Department of Community Services and Health, Canberra.

Queensland Health (1995). *Queensland Drug Strategy 1995 - 1997*.

Tai YF, Saunders JB, Celermajer DS (1998). "Collateral damage from alcohol abuse: the enormous costs to Australia". *The Medical Journal of Australia*, Volume 168, number 1: 6-7.

Unwin E, & Codde J (1998). *Comparison of deaths due to alcohol, tobacco, and other drugs in Western Australia and Australia*. Health Department of Western Australia.

APPENDIX

Aetiological fractions

The use of aetiological fractions provides a mechanism for estimating the effects of a particular health risk factor on the mortality or hospital use of a given population. An aetiological fraction is the estimated proportion of cases of the disease in a specific population that would be eliminated in the absence of the risk factor.

The fractions used are those published by English et al., 1995 - *The Quantification of Drug Caused Morbidity and Mortality in Australia, 1995* (Commonwealth Department of Human Services and Health). The model used to derive the aetiological fractions for alcohol-caused morbidity and mortality is derived from the relative risk of illness and death in the 'unsafe' drinker (i.e. hazardous and harmful drinking as defined by the NHMRC) compared with the responsible drinker. The fractions were determined by a comprehensive literature review of national and international studies. Some 37 conditions were identified by the study as being significantly affected by hazardous and harmful alcohol consumption. For each alcohol-related condition, an aetiological fraction is provided by five year age group and sex. For example, it is estimated that 43% of road injuries in males aged from 25 to 29 years are directly attributable to hazardous and harmful alcohol consumption, while for fall injuries in females aged 70 years and over, 34% are estimated to be directly attributable to hazardous and harmful alcohol consumption. The published fractions for Australia have been applied to Queensland mortality and morbidity data.

Hospital separation

'Separation' is the term used to refer to the episode of care, which can be a total hospital stay (from admission to discharge, transfer or death), or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Age-standardised rates

The age-standardised rate for a given population is the weighted sum of the age- and sex- specific rates for that population. In this report directly age-standardised rates have been used.

For direct standardisation, the weight used is the proportion of the standard or reference population in each age group. The standard population used in this report is the Australian population in 1991. Age- and sex- specific rates for Queensland are then multiplied by the age-specific weights and summed to give the directly standardised rates.

Therefore, age standardised rates represent the rates that would have been observed if the study population had the same age-specific population distribution as the reference population.

Socioeconomic indexes for areas

The Australian Bureau of Statistics (ABS) has derived five summary indexes from the 1991 Population Census to measure different aspects of socioeconomic status by geographic areas. Together, these indexes make up the Socio-Economic Index for Areas (SEIFA). The Index of Relative Socio-Economic Disadvantage is used for the analysis of the deaths data in this report. It is a general socioeconomic index, and summarises variables related to the economic resources of households, education and occupation. The variables focus on attributes such as low income, low educational attainment and high unemployment (see ABS Cat No. 1356.0 for further detail).

The distribution of the SEIFA index is often divided into five equal parts and presented as quintiles.

For the analysis of the hospital separations data the same Index was used, but it was based on the 1996 Population Census.

Cost calculation

The average yearly cost to Queenslanders of alcohol-related occupied bed days was calculated by multiplying the average yearly number of occupied bed days directly attributable to hazardous and harmful alcohol consumption (during 1995/96 and 1996/97 financial years) by the cost accrued per admitted patient day (\$586 for 1996/97). This is an estimation, and is based on the assumption that the average cost per bed day is an approximation of the actual value.