

Drug and Alcohol Services South Australia

Alcohol-attributable mortality and morbidity rates in South Australia

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This Bulletin is the sixth in a series providing the most up-to-date data available on the prevalence of alcohol and other drug use and the harms associated with misuse in South Australia. This edition focuses on the contribution of alcohol to mortality rates, hospitalisations and emergency department presentations, which are important indicators of the harms associated with risky levels of alcohol consumption.

The most recent data from 2012¹ indicate that 81% of South Australians had consumed alcohol in the last 12 months. Almost 50% drank at least weekly, 8.4% daily and 19.3% were abstainers². Almost 30% drank at levels that put them at risk of injury on a single drinking occasion at least once a month (more than four drinks in a session), and 22.5% drank at levels that put them at risk of disease or injury over a lifetime (more than two drinks per day on average).

The National Drug Research Institute (NDRI) was commissioned by Drug & Alcohol Services South Australia (DASSA) to develop population alcohol-aetiological fractions (PAAFs)³ specific to the South Australian population and to apply these fractions to the production of reliable estimates of alcohol-attributable mortality and morbidity rates. These rates enable the monitoring of the prevalence and trends in conditions/injuries caused by acute and chronic alcohol consumption over time.

Mortality data have been collected via the National Coroners Information System (NCIS) and consist of 'Causes of Death Unit Record File Data (CODURF). This includes primary diagnosis and external cause of death, date of death, age, sex, Indigenous status and region. There is a considerable time lag in publishing mortality data, with data only available from 2005 and 2006.

Alcohol-related hospitalisation data were drawn from principal diagnosis and external cause information in the Integrated South Australian Activity Collection (ISAAC). The number of alcohol-related hospitalisations is composed of the sum of all alcohol-related conditions⁴ using the PAAFs. Data are available from 2007/08 to 2011/12.

The South Australian Health Department collects data on injury principal diagnosis presentations to metropolitan emergency departments (ED) as part of the Emergency Department Data Collection (EDDC). Alcohol-related injury cases were also calculated using aetiological fractions developed by NDRI⁵. These fractions calculate the proportion of presentations that can be attributed to alcohol. Data are also available from 2007/08 to 2011/12.

Summary

- Estimates indicate that 70% of all alcohol-attributable lives lost in 2005 and 68% in 2006 were male, and alcohol-attributable mortality rates among men were more than double that of women.
- Mortality rates increased with age irrespective of cause of death; however, those aged 20-24 years were twice as likely to die from alcohol-attributable conditions as from non-alcohol-attributable conditions.
- The alcohol-attributable mortality rate among Aboriginal & Torres Strait Islander South Australians was almost double that of other South Australians in 2005, primarily due to the much higher number of deaths among Aboriginal & Torres Strait Islander males.
- Chronic conditions accounted for 58% of alcohol-attributable deaths; the most common conditions included haemorrhagic stroke (chronic), suicide (acute), and colon cancer (chronic).
- There were an estimated 12,400 alcohol-attributable hospitalisations in 2010/11 and 2011/12 which represents; 2% of all hospitalisations. While there was no significant change over time, rates were 1.7 times higher among males, who made up 62% of all alcohol-attributable hospitalisations.
- Drinking at levels that increased the risk of disease or injury over a lifetime tripled the hospitalisation rate compared with low-risk drinking, and accounted for three quarters of all alcohol-attributable hospitalisations.
- For both males and females, the most common alcohol-attributable hospitalisations for **acute** conditions were accidents (34% and 32%), followed by alcohol abuse, poisoning (overdose) or psychosis (27%). With **chronic** conditions, the most common were cardiac conditions (38% and 40%) and cancer (19% and 27%).
- 30% of alcohol-attributable hospitalisations for **acute** conditions among those aged 14-24 years were for alcohol abuse, poisoning or psychosis, 22% for suicide, 18% for assault and 17% for accidents. For those aged 25 years and over, accidents were most common (33%), followed by alcohol abuse, poisoning or psychosis (27%). Half as many were for suicide (11%), and a further 11% for assault. With **chronic** conditions, the highest proportion were cardiac related for both those aged 14-24 years and those 25 years and over (24% and 39%), although this was followed by less severe conditions for the younger age group.

- The rate of alcohol-attributable hospitalisations among Aboriginal and Torres Strait Islanders was almost four times higher than the South Australian population, and there was a much higher rate among males. A higher proportion (81%) of alcohol-attributable hospitalisations among Aboriginal and Torres Strait Islanders were due to acute conditions compared with only (57%) among all patients.
- The majority (44%) of alcohol-attributable hospitalisation for **acute** conditions among Aboriginal and Torres Strait Islanders were for alcohol abuse, poisoning or overdose, followed by 29% for assault. In contrast, the largest proportions of alcohol-attributable hospitalisations for all patients included accidents (33%). Assault comprised only 13% of hospitalisations. For **chronic** conditions, the majority (31%) were for liver cirrhosis, followed by 20% for alcohol dependence and epilepsy (14%). In contrast, the largest proportions among all patients included cardiac conditions (38%) and cancer (22%).
- Among persons aged 15 years and over who had consumed more than four standard drinks, a significantly higher number of emergency department injury presentations were male in each year. There were statistically significant differences between all age groups between 2007/08 and 2011/12, with the exception of those aged 40-49 years and 60 years and over, who had similar rates. The highest rate was among those aged 15-19 years, followed by those aged 20-29 years.

Alcohol-Related Mortality

Sex

Table 1 shows that alcohol consumption accounted for 632 South Australian deaths in 2005 and 588 in 2006⁶. While the rate of non-alcohol-attributable deaths was similar between males and females, estimates indicate that 70% of all alcohol-attributable lives lost in 2005 and 68% in 2006 were male⁷. In addition, alcohol-attributable mortality rates among men were more than double that of women. This finding is consistent with population data from the National Drug Strategy Household Survey⁸, which report that men are significantly more likely than women to consume alcohol at levels that increase their risk of injury or disease over a lifetime according to the 2009 National Health & Medical Research Council (NH&MRC) Guidelines⁹ (29% of males reported drinking an average of three or more drinks every day over the last 12 months in the 2010 survey, compared with 10% of females).

Table 1: Estimated number of lives lost due to drinking in 2005 and 2006, based on 2009 NH&MRC drinking guidelines, by sex

Sex	Lives lost							
	Alcohol-attributable				Non-alcohol attributable			
	2005		2006		2005		2006	
	N	CR	N	CR	N	CR	N	CR
Male	444	5.8	399	5.1	2693	35.0	2720	34.9
Female	187	2.4	189	2.4	2628	33.4	2868	35.9
Total	632	4.1	588	3.7	5321	34.2	3388	35.5

Note: totals may not add up as they are based on actual estimates (including all decimal values) and not the rounded values given in this table. CR = Crude rates per 10,000 population. **Source:** Evans M. Pascal R. Chikritzhs T. *Development of South Australian Specific Aetiological Fractions and Estimates of Alcohol Attributable Morbidity and Mortalities*. Western Australia: National Drug Research Institute, Curtin University, 2010.

Age

Table 2 presents alcohol-related mortality estimates by five-year age groups. Mortality rates increased with age for alcohol-attributable conditions; reflecting that the majority of these are chronic rather than acute¹⁰. For every age group but those aged 20-24 years, the estimated number and rate of non-alcohol-attributable deaths in both 2005 and 2006 was higher than alcohol-attributable ones. Those aged 20-24 years were almost twice more likely to die from alcohol-attributable conditions than from non-alcohol-attributable conditions in 2005 (2.3 vs. 1.3), and 1.5 times more likely in 2006 (1.6 vs. 1.1). Most alcohol-attributable conditions among this age group are likely to be acute rather than chronic (see next section on hospitalisations), although data are not currently available to establish this. In addition, in 2005, alcohol was a major contributing cause of death amongst males aged 20-24 years when compared with similar age groups (males aged 15-19 and 25-29 years), and they died at a much higher rate.

Table 2: Estimated number of lives lost due to drinking in 2005 and 2006, based on 2009 NH&MRC drinking guidelines, by age group

Age Group	Lives lost							
	Alcohol-attributable				Non-alcohol-attributable			
	2005		2006		2005		2006	
	N	CR	N	CR	N	CR	N	CR
0-4	1	0.1	1	0.1	98	11.0	66	7.3
5-9	0	0.0	0	0.0	4	0.4	7	0.7
10-14	1	0.1	0	0.0	4	0.4	4	0.4
15-19	11	1.0	8	0.8	17	1.6	13	1.2
20-24	24	2.3	17	1.6	14	1.3	12	1.1
25-29	14	1.5	12	1.3	34	3.6	19	1.9
30-34	22	2.2	12	1.2	48	4.7	44	4.3
35-39	23	2.1	21	1.9	41	3.7	51	4.6
40-44	35	3.1	27	2.4	91	7.9	68	5.9
45-49	40	3.5	34	2.9	98	8.6	105	9.0
50-54	43	4.0	41	3.8	149	14.0	129	11.9
55-59	51	5.0	51	5.0	203	20.0	200	19.6
60-64	49	6.3	47	5.7	255	32.8	243	29.3
65-69	47	7.4	43	6.7	315	49.5	350	54.0
70-74	42	7.8	44	8.2	443	82.8	483	89.1
75-79	69	13.7	68	13.8	742	148.0	752	152.0
80-84	72	19.1	67	17.4	960	253.5	1070	277.4
85+	87	28.8	93	29.3	1805	596.6	1972	623.4
Total	632	4.1	588	3.7	5321	34.2	5588	35.5

Note: totals may not add up as they are based on actual estimates (including all decimal values) and not the rounded values given in this table. CR = Crude rates per 10,000 population based on age-specific estimates. Source: Evans M. Pascal R. Chikritzhs T. *Development of South Australian Specific Aetiological Fractions and Estimates of Alcohol Attributable Morbidity and Mortalities*. Western Australia: National Drug Research Institute, Curtin University, 2010.

Aboriginal & Torres Strait Islanders

Table 3 presents mortality estimates for Aboriginal and Torres Strait Islander South Australians. Although the number of Aboriginal and Torres Strait Islander deaths that were attributable to alcohol was much lower than that of other South Australians (21 compared with 591 in 2005 and 12 compared with 569 in 2006), the alcohol-attributable mortality rate was almost double that of other South Australians in 2005, primarily due to the much higher number of deaths among Aboriginal & Torres Strait Islander males. In 2006, the disparity between groups was less pronounced, but the mortality rate was still higher among the Aboriginal and Torres Strait Islander population. Deaths among Aboriginal and Torres Strait Islander males were also substantially higher than among their female counterparts. It is important to note, however, that numbers are small and population rates can vary considerably from year to year.¹¹

Table 3: Estimated number of lives lost due to drinking in 2005 and 2006, based on 2009 NH&MRC drinking guidelines, by Indigenous Status¹²

Indigenous status	Lives lost							
	Alcohol-attributable				Non-alcohol-attributable			
	2005		2006		2005		2006	
	N	CR	N	CR	N	CR	N	CR
Other South Australians	591	3.9	569	3.7	5167	33.8	5488	35.5
Aboriginal and Torres Strait Islander South Australians	21	7.7	12	4.3	71	25.5	62	21.9
Unknown	19	-	6	-	83	-	38	-
Total	632	4.1	588	3.7	5321	34.2	5588	35.5

Note: totals may not add up as they are based on actual estimates (including all decimal values) and not the rounded values given in this table. CR = Crude rates per 10,000 population. Source: Evans M. Pascal R. Chikritzhs T. *Development of South Australian Specific Aetiological Fractions and Estimates of Alcohol Attributable Morbidity and Mortalities*. Western Australia: National Drug Research Institute, Curtin University, 2010.

Acute vs. Chronic Conditions

Table 4 shows that of the 632 alcohol-attributable deaths in 2005, 56.5% were from chronic conditions; with the remaining due to acute conditions. This is similar to 2006 (588 deaths with 58.8% from chronic conditions and 41.2% from acute). Haemorrhagic stroke (chronic), suicide (acute), and colon cancer (chronic) were the most common causes of death attributable to alcohol in both years.

Table 4: Estimated number of lives lost due to drinking in 2005 and 2006, based on 2009 NH&MRC drinking guidelines, by condition

Condition	Alcohol-attributable			
	Lives lost			
	2005		2006	
	N	CR	N	CR
Acute	274	1.8	243	1.5
Chronic	357	2.3	346	2.2
Total	632	4.1	588	3.7

Note: totals may not add up as they are based on actual estimates (including all decimal values) and not the rounded values given in this table. CR = Crude rates per 10,000 population. **Source:** Evans M. Pascal R. Chikritzhs T. *Development of South Australian Specific Aetiological Fractions and Estimates of Alcohol Attributable Morbidity and Mortalities*. Western Australia: National Drug Research Institute, Curtin University, 2010.

Alcohol-Related Hospitalisations

The following section provides estimates of the annual number and rate (per 10,000 population) of hospitalisations in South Australia between 2007/08 and 2011/12 that were attributable to alcohol, and examines these data by sex, age, Indigenous status and whether conditions were chronic or acute. On average, there was an estimated 12,400 hospitalisations per year, which comprised approximately 2% of all hospitalisations.

Sex

Estimates in Table 5 show that 9336 and 9352 people were hospitalised in 2010/11 and 2011/12, respectively, as a consequence of drinking at levels that increase the risk of disease or injury over a lifetime¹³ (defined as, on average, the consumption of more than two standard drinks per day over the previous 12 months). This is around three times the rate of those hospitalised due to low-risk drinking over the same time periods. Risky drinking accounted for three quarters of all alcohol-attributable hospitalisations in both years.

Males made up the majority (62%) of all hospitalisations in both years, for both low-risk and risky drinking. They were also more likely to be hospitalised due to risky drinking: in 2011/12, 67% of these hospitalisations were males, compared with 46% of hospitalisations due to low-risk drinking.

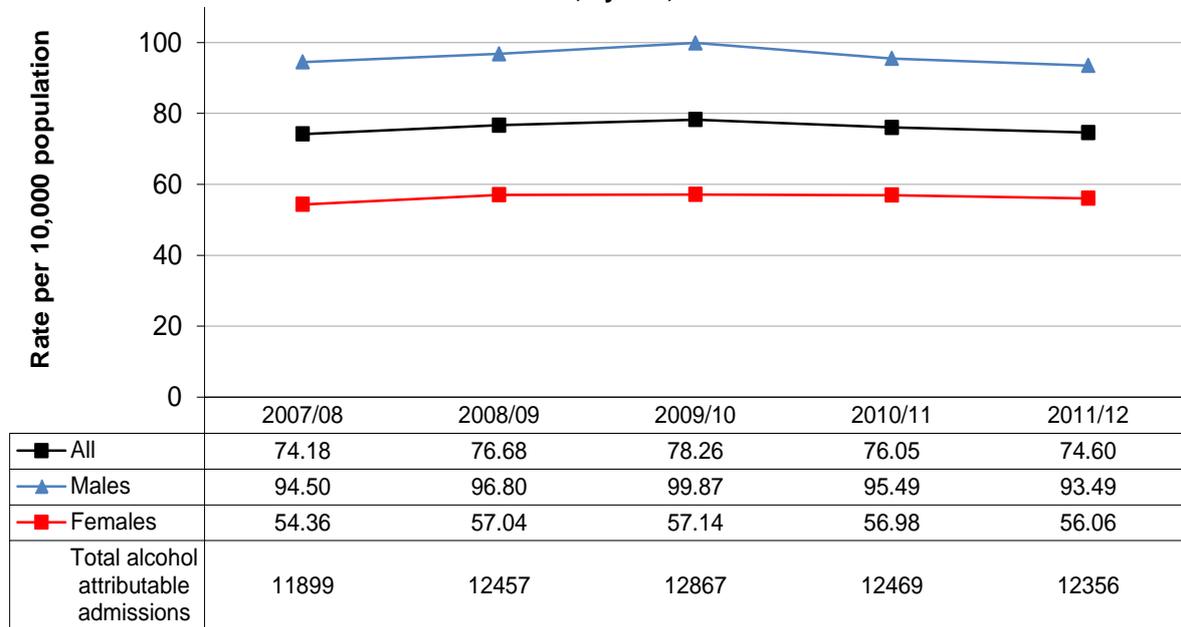
Table 5: Estimated number of alcohol-attributable hospitalisations due to low and risky/high risk drinking in 2010/11 and 2011/12, based on 2009 NH&MRC drinking guidelines, by sex

Drinking prevalence	2010/11		2011/12	
	N	CR	N	CR
Low-risk				
Male	1443	17.6	1385	16.9
Female	1690	20.2	1618	19.4
Total	3132	18.9	3003	18.2
Risky				
Male	6309	77.0	6284	76.7
Female	3026	36.1	3068	36.7
Total	9336	56.3	9352	56.5
Total	12468	75.3	12356	74.7

Note: totals may not add up as they are based on actual estimates (including all decimal values) and not the rounded values given in this table. CR = Crude rates per 10,000 population. **Source:** Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

Figure 1 shows that there was an increase in the number and rate of alcohol-related hospitalisations between 2007/08 and 2009/10, followed by a decrease in 2010/11, and a further decrease in 2011/12. Despite these small fluctuations there was no significant change in hospitalisations over time. The pattern was the same for both males and females but rates were 1.7 times higher for males in each year of data collection.

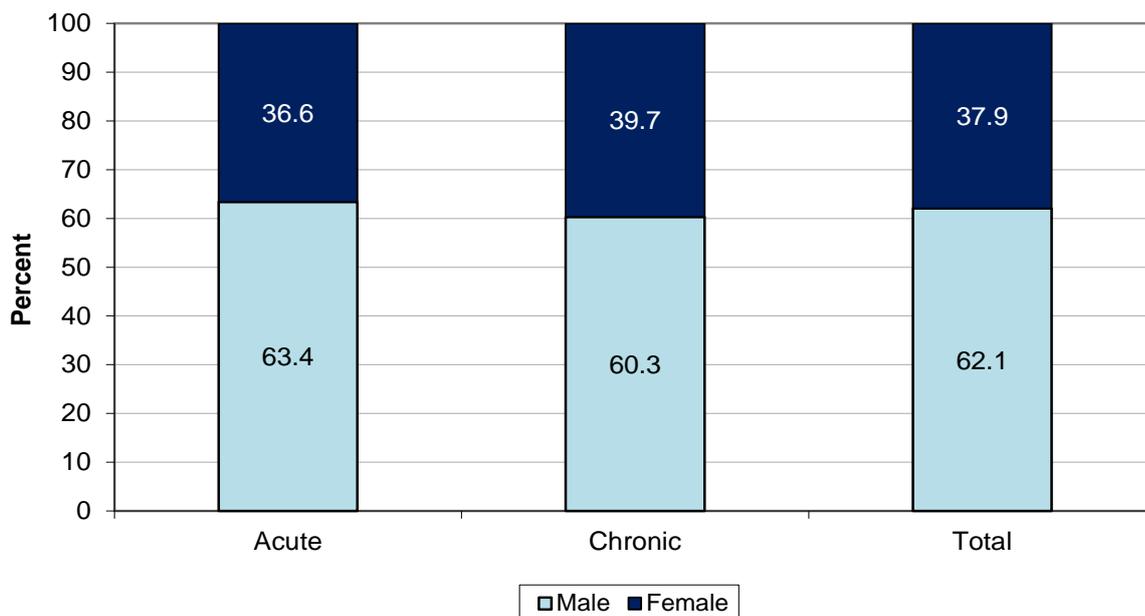
Figure 1: Estimated numbers and rates of hospital admissions attributable to the use of alcohol, by sex, 2007/08 - 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department. Population estimates from the ABS: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3235.0>

Figure 2 shows the estimated proportion of alcohol-attributable hospitalisations in 2011/12 for acute and chronic conditions, by sex. Males made up the majority of hospitalisations for both chronic and acute conditions (60% and 63%, respectively). Overall, males made up 62% of alcohol-attributable hospitalisations.

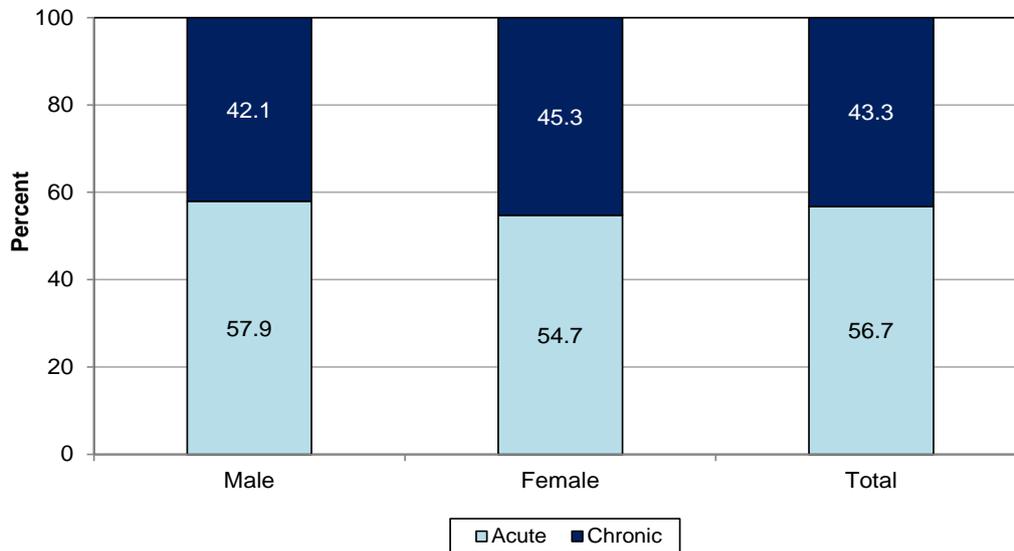
Figure 2: Estimated percentage of acute and chronic alcohol-attributable hospitalisations by sex, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

Figure 3 shows that among males, 58% of alcohol-attributable hospitalisations were due to acute conditions and 42% to chronic conditions. For females, a slightly higher proportion of hospitalisations were for chronic conditions (45%).

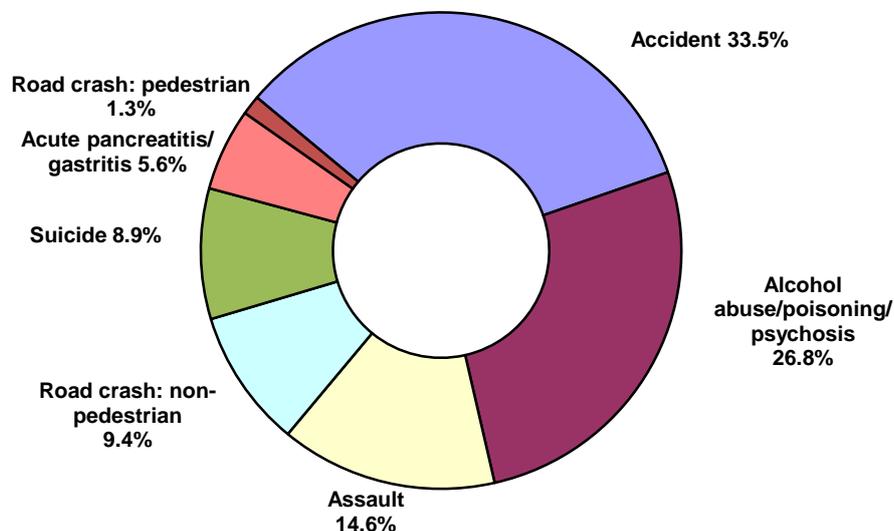
Figure 3: Estimated percentage of acute and chronic alcohol-attributable hospitalisations for males and females, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

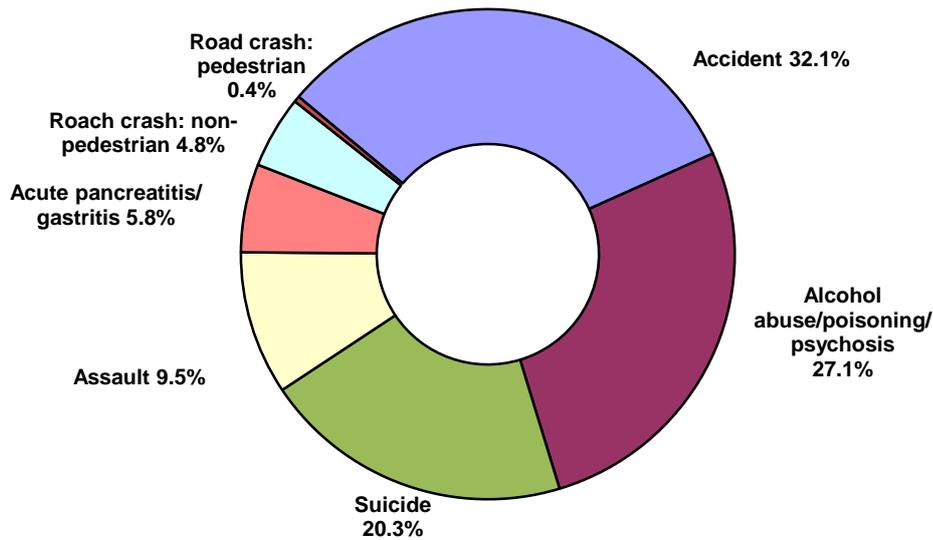
Figures 4 and 5 present the specific alcohol-attributable acute conditions for which patients were hospitalised in 2011/12. For both males and females, the most common alcohol-attributable hospitalisations were for accidents (falls, fire injuries, occupational machine injuries, aspiration and drowning), comprising 34% of hospitalisations among males and 32% of those among females. This was followed by alcohol abuse, poisoning (overdose) or psychosis: 27% among both. However, the next most common condition among males was assault (15% vs. 9.5% among females), whereas for females, the next most common was suicide (20% vs. 9% among males). A higher proportion of hospitalisations among males were for road crashes not involving pedestrians (9% vs. 5% among females). Similar proportions of hospitalisations were for alcoholic gastritis or pancreatitis.

Figure 4: The percentage of alcohol-attributable acute hospitalisations for males, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

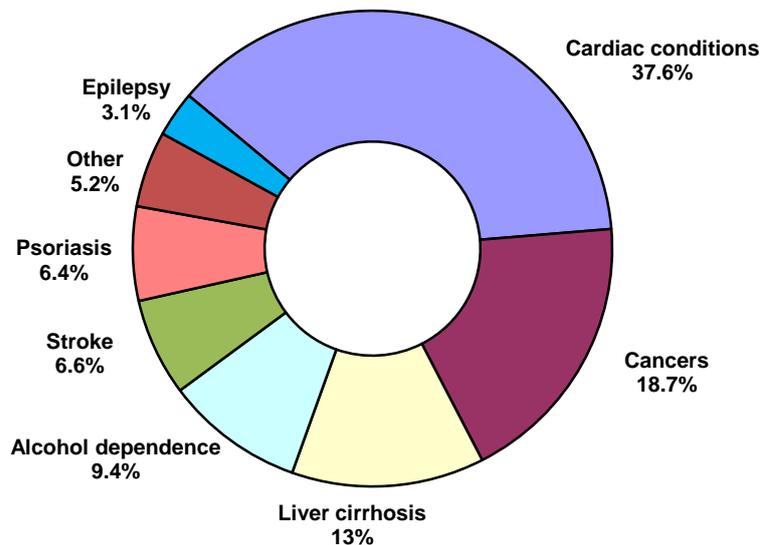
Figure 5: The percentage of alcohol-attributable acute hospitalisations for females, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

Figures 6 and 7 present the specific alcohol-attributable chronic conditions for which patients were hospitalised in 2011/12. For both males and females, the most common alcohol-attributable chronic conditions were supraventricular cardiac dysrhythmias and alcoholic cardiomyopathy (38% and 40%, respectively). This was followed by cancer (oropharyngeal, oesophageal, colon, rectal, liver and laryngeal): 19% for males and 27% for females. Note that for females, this included 9% for breast cancer. This was followed by liver cirrhosis (13% and 8.5%) and alcohol dependence (9.4% and 7.8%). Proportions for other conditions were similar between males and females, with the exception of stroke, which was much higher among males (6.6% compared with 1.8%).

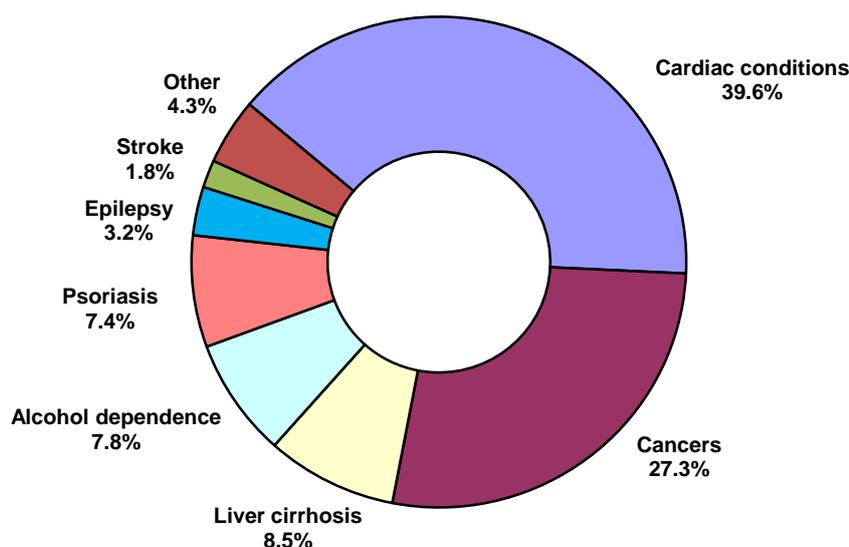
Figure 6: The percentage of alcohol-attributable chronic hospitalisations for males, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

'Other' includes: gastro-oesophageal conditions; pancreatitis; hypertension and alcoholic polyneuropathy. There were no alcohol-attributable hospitalisations for foetal alcohol syndrome.

Figure 7: The percentage of alcohol-attributable chronic hospitalisations for females, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department. Other includes: gastro-oesophageal conditions; pancreatitis; hypertension and alcoholic polyneuropathy. There were no alcohol-attributable hospitalisations for foetal alcohol syndrome.

Age

Table 6 presents the estimated number and rate of alcohol-attributable hospitalisations in 2010/11 and 2011/12 by age group. In both years, alcohol-attributable hospitalisations made up less than 2% of all hospitalisations, and the population rate tended to increase with age, although it is notable that the rate among those aged 15-19 years was higher than among those aged 20-34 years. In addition, the rate dropped slightly among those aged 65-69 years. There was little difference in total hospitalisations between 2010/11 and 2011/12; 12469 and 12356 respectively.

Table 6 also shows the estimated number and rate of non-alcohol-attributable hospitalisations¹⁴ for each year. These were higher than alcohol-attributable hospitalisations for all age groups in both 2010/11 and 2011/12. In addition, there was the same overall trend of the rate increasing with age, with the exception of those aged 10-14 years, who had the lowest hospitalisation rate. Conversely, those aged 0-4 years had a rate more than double that of those aged 5-9 years.

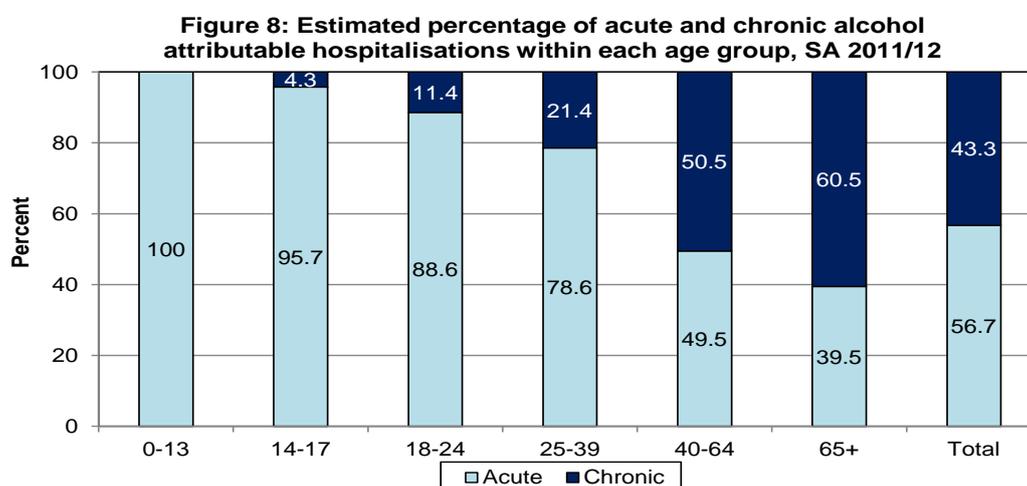
Table 6: Estimated number of alcohol-attributable hospitalisations due to drinking in 2010/11 and 2011/12, based on 2009 NH&MRC drinking guidelines, by age group

Age Group	Hospitalisations							
	Alcohol-attributable				Non-alcohol-attributable			
	2010/11		2011/12		2010/11		2011/12	
	N	CR	N	CR	N	CR	N	CR
0-4	14	1.4	9	1.0	25556	2559.5	25578	2575.2
5-9	7	0.7	9	0.9	9726	1031.5	10141	1063.3
10-14	110	11.2	118	12.1	7761	781.9	7972	819.8
15-19	779	73.7	744	70.9	16914	1574.0	17554	1669.3
20-24	667	58.0	704	61.2	23276	1995.3	23670	2058.5
25-29	684	60.7	676	59.1	26258	2313.0	27390	2399.4
30-34	674	66.2	698	66.9	29460	2852.5	29761	2854.6
35-39	811	76.2	733	70.3	29908	2785.4	30063	2883.3
40-44	924	80.6	887	76.2	30455	2648.0	31657	2728.0
45-49	960	83.7	882	77.8	37784	3245.3	37671	3305.5
50-54	1077	94.3	1090	94.4	41541	3619.1	44107	3811.0
55-59	1039	100.1	993	94.0	49939	4729.5	51269	4875.3
60-64	1093	111.4	1033	106.3	58396	5846.4	60024	6100.7
65-69	752	98.2	749	90.5	56467	7361.5	59980	7244.8
70-74	699	117.3	706	115.3	58488	9748.8	60231	9940.7
75-79	645	136.2	709	146.9	57860	1211.6	59887	12454.9
80-84	718	179.8	728	185.0	53354	13297.3	56460	14351.0
85+	815	214.1	885	221.6	47825	12249.6	51527	12908.1
Total	12469	76.1	12356	74.6	660968	3988.9	684939	4139.2

Note: totals may not add up as they are based on actual estimates (including all decimal values) and not the rounded values given in this table. CR = Crude rates per 10,000 population based on age-specific estimates.

Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

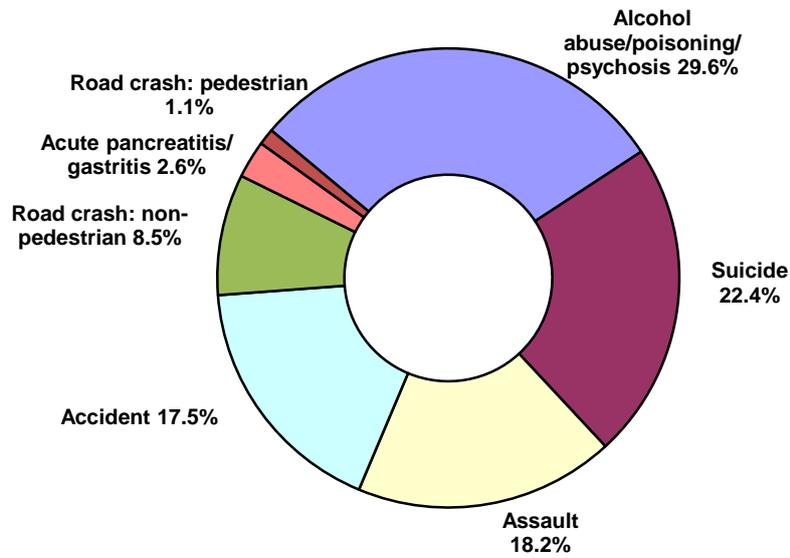
Figure 8 shows that the estimated proportion of hospitalisations due to alcohol-attributable chronic conditions increased with age. Overall, 57% of hospitalisations were due to acute conditions, and among those aged 40-64 years, the split was close to 50%.



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

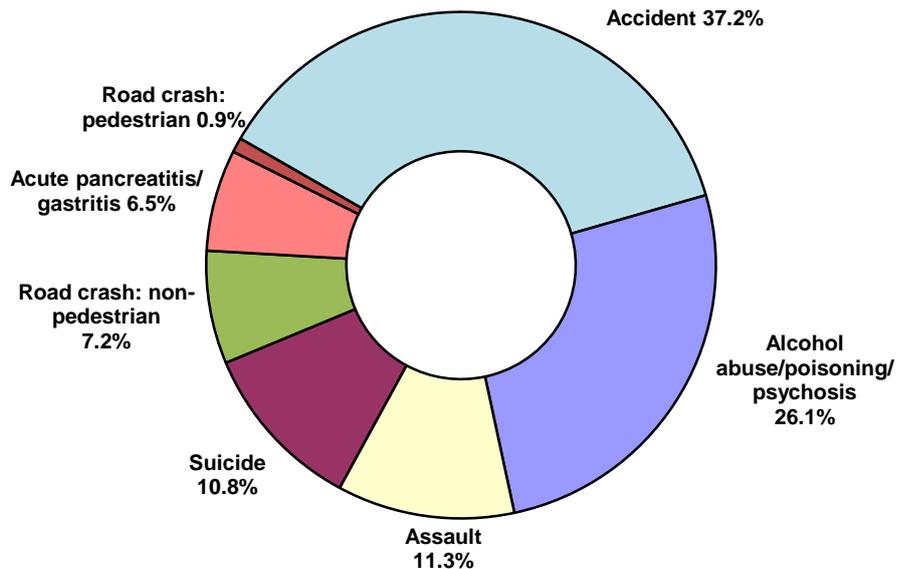
Figures 9 and 10 present the specific alcohol-attributable acute conditions for which patients were hospitalised for those aged 14-24 years and those aged 25 years and over. Although the same four conditions were the most common, the order differed. Nearly 30% of hospitalisations among those aged 14-24 years were for alcohol abuse, poisoning or psychosis, followed by 22% for suicide, 18% for assault and 18% for accidents. For those aged 25 years and over, accidents were most common (33%), followed by alcohol abuse, poisoning or psychosis (27%). Half the proportion were for suicide (11%), and a further 11% for assault.

Figure 9: Acute conditions for alcohol-attributable hospitalisations among those aged 14-24 years, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

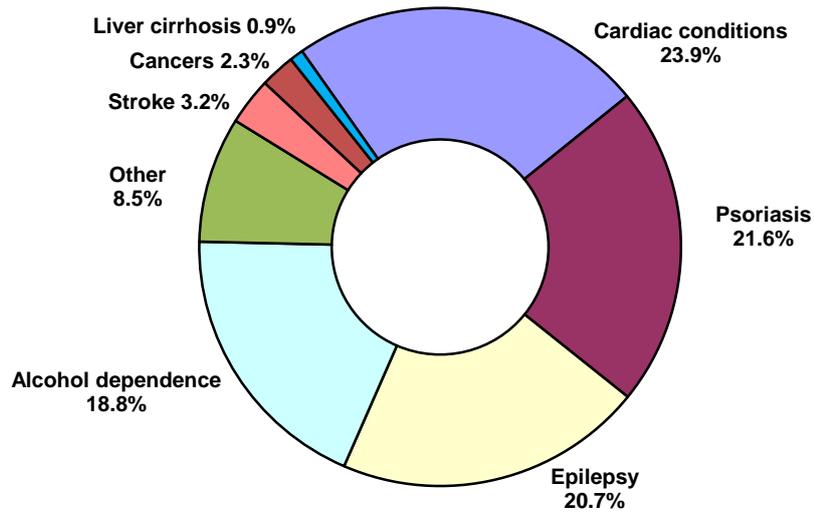
Figure 10: Acute conditions for alcohol-attributable hospitalisations among those aged 25 years and over, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

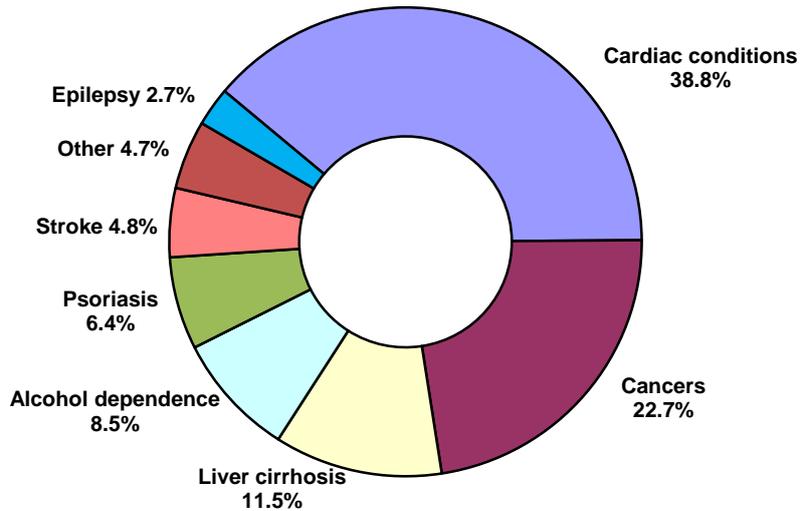
Figures 11 and 12 present the specific alcohol-attributable chronic conditions for which patients were hospitalised for those aged 14-24 years and those aged 25 years and over. Note that there were only 138 hospitalisations in total for those 14-24 years and 5209 for those aged 25 years and over. The highest proportion of alcohol-attributable hospitalisations for chronic conditions were cardiac related for both those aged 14-24 years and those 25 years and over (24% and 39%, respectively). For the younger age group, this was followed by psoriasis (22%), epilepsy (21%) and alcohol dependence (19%). In contrast, for those aged 25 years and over, alcohol-attributable hospitalisations were for cancer (23%) and cirrhosis (12%). The proportion of alcohol-attributable hospitalisations for stroke was low in both groups (3% and 5%, respectively).

Figure 11: Chronic conditions for alcohol-attributable hospitalisations among those aged 14-24 years, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department. Other includes: gastro-oesophageal conditions; pancreatitis; hypertension and alcoholic polyneuropathy. There were no alcohol-attributable hospitalisations for foetal alcohol syndrome.

Figure 12: Chronic conditions for alcohol-attributable hospitalisations among those aged 25 years and over, South Australia, 2011/12

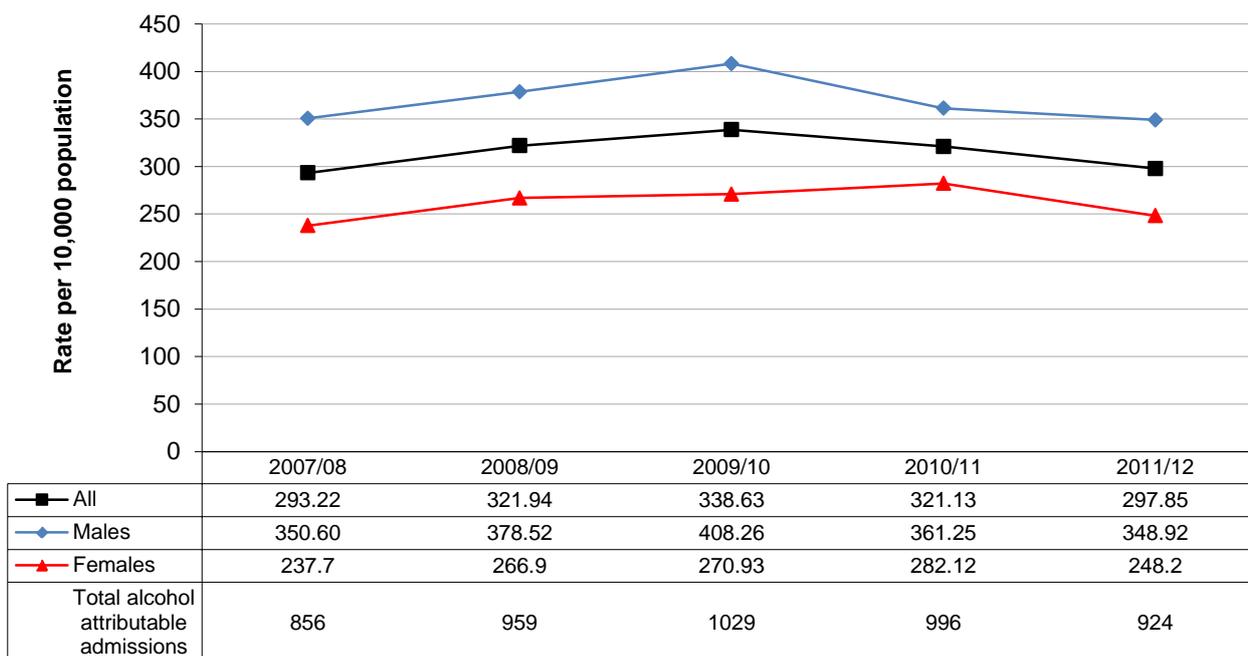


Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department. Other includes: gastro-oesophageal conditions; pancreatitis; hypertension and alcoholic polyneuropathy. There were no alcohol-attributable hospitalisations for foetal alcohol syndrome.

Aboriginal & Torres Strait Islanders

Figure 13 presents estimates of the annual number and rate of alcohol-attributable hospitalisations among Aboriginal and Torres Strait Islander South Australians¹⁵. As was observed with the South Australian population as a whole, the estimated number and rate increased between 2007/08 and 2009/10 and showed a decrease in 2010/11, which continued in 2011/12. However, the rate among Aboriginal and Torres Strait Islanders was almost four times higher than the overall South Australian population. Aboriginal & Torres Strait Islander South Australians were also almost twice as likely to be hospitalised due to non-alcohol-attributable conditions as non-Indigenous South Australians. Males had a much higher rate of alcohol-related hospitalisation than females: 1.3-1.5 times higher across the five years of data collection.

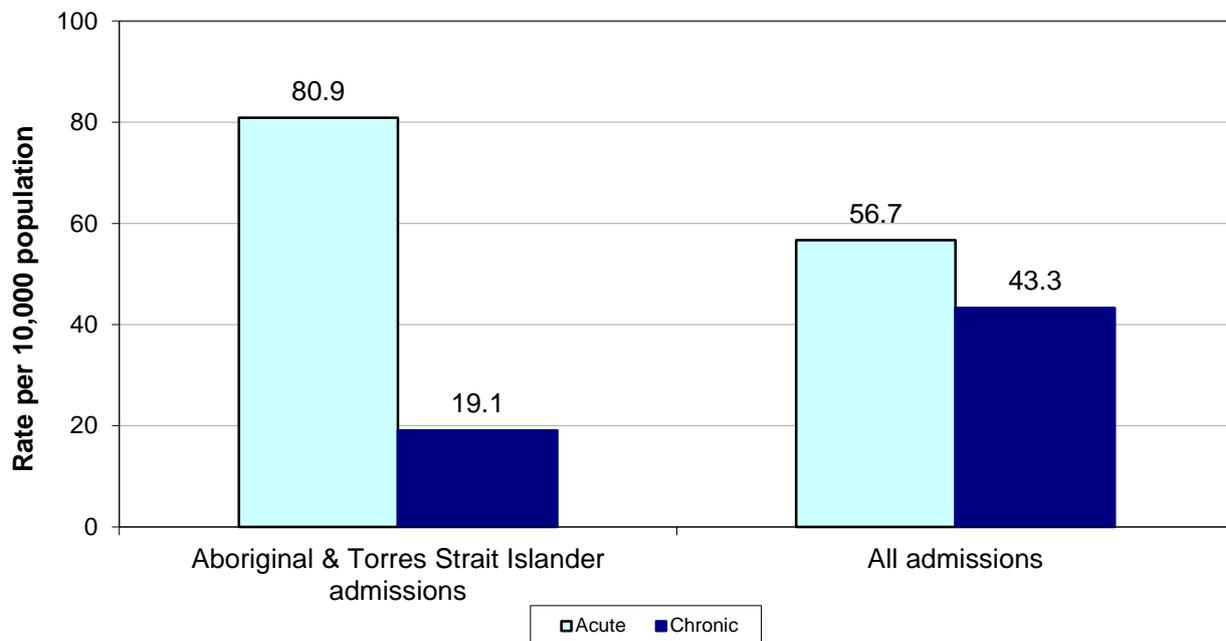
Figure 13: Estimated numbers and rates of hospital admissions attributable to the use of alcohol among Aboriginal & Torres Strait Islander South Australians, by sex, 2007/08 - 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department. Population estimates from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3235.0>

Figure 14 shows the proportion of estimated alcohol-attributable chronic and acute condition hospitalisations for Aboriginal or Torres Strait Islander patients, and for all patients, in 2011/12. There is a striking difference between the two groups: among Aboriginal and Torres Strait Islanders, 747 (81%) of alcohol-attributable hospitalisations were due to acute conditions and the remaining 177 (19%) for chronic conditions. In contrast, for all patients, 7009 (57%) of all alcohol-attributable hospitalisations were due to acute conditions and 5347 (43%) due to chronic conditions.

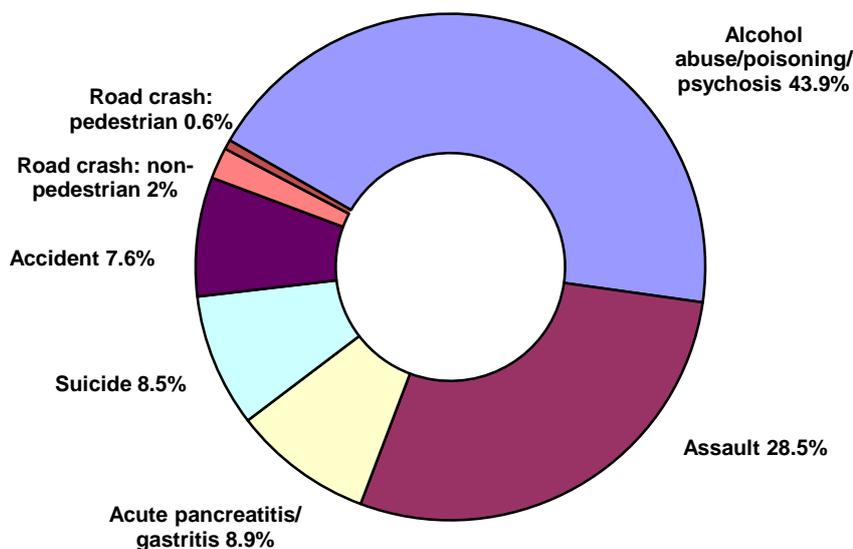
Figure 14: Proportion of estimated hospitalisations attributable to the use of alcohol, by condition and Indigenous status, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

Figure 15 presents the specific alcohol-attributable acute conditions for which Aboriginal & Torres Strait Islander patients were hospitalised. The majority (44%) were for alcohol abuse, poisoning or overdose, followed by 29% for assault. Suicide, accidents and road crashes not involving pedestrians comprised much smaller proportions. In contrast, the largest proportions of alcohol-attributable hospitalisations for acute conditions among all patients included accidents (33%) and alcohol abuse, poisoning and psychosis (27%). The proportion of all alcohol-attributable hospitalisations for assault (13%) was much lower than among Aboriginal & Torres Strait Islanders (29%) and the proportion of all alcohol-attributable hospitalisations for suicide (13%) was lower among Aboriginal & Torres Strait Islanders (9%).

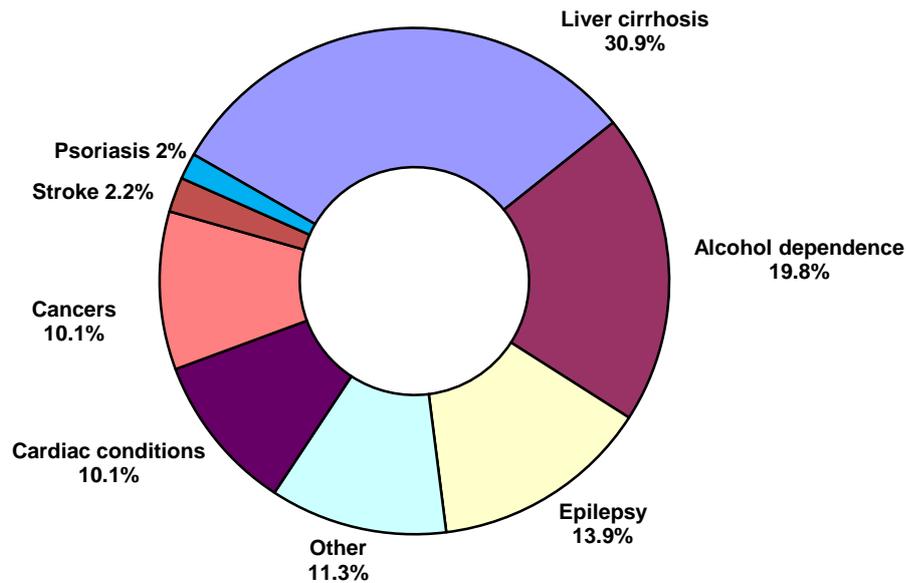
Figure 15: Acute conditions for alcohol-attributable hospitalisations among Aboriginal & Torres Strait Islanders, South Australia, 2011/12



Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department.

Figure 16 now presents the specific alcohol-attributable chronic conditions for which Aboriginal & Torres Strait Islander patients were hospitalised. The majority (31%) were for cirrhosis, followed by 20% for alcohol dependence and epilepsy (14%). In contrast, the largest proportions of alcohol-attributable hospitalisations for chronic conditions among all patients included cardiac conditions (38%) and cancer (22%). The proportion of all alcohol-attributable hospitalisations for cirrhosis (11%) and epilepsy (3%) was much lower than among Aboriginal & Torres Strait Islanders (31% and 14%, respectively) and the proportion for cancer and cardiac conditions was almost half as high among Aboriginal & Torres Strait Islanders (10%). Alcohol dependence was also much higher among Aboriginal & Torres Strait Islanders (19% compared with 9% of all patients).

Figure 16: Chronic conditions for alcohol-attributable hospitalisations among Aboriginal & Torres Strait Islanders, South Australia, 2011/12



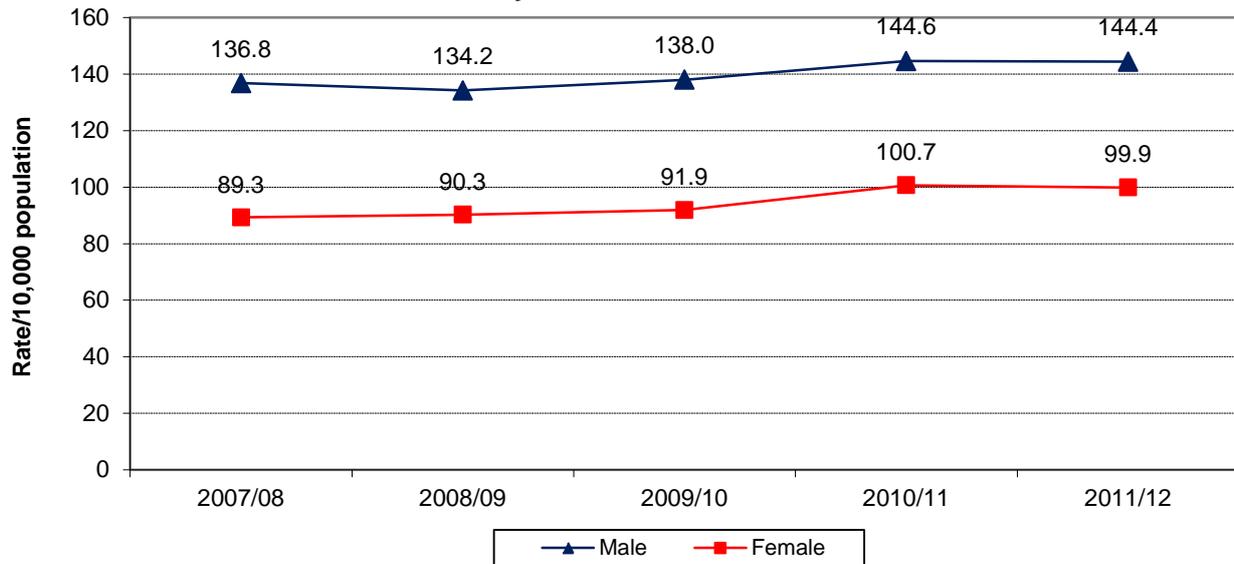
Source: Integrated South Australian Activity Collection (ISAAC), South Australian Health Department. Other includes: gastro-oesophageal conditions; pancreatitis; hypertension and alcoholic polyneuropathy. There were no alcohol-attributable hospitalisations for foetal alcohol syndrome.

Alcohol-Related Emergency Department Presentations

The estimated number of emergency department (ED) injury presentations for persons aged 15 years and older that was attributable to the use of alcohol, and where **more than four drinks** were consumed prior to presentation increased between 2007/08 and 2011/12, from 10869 to 12152. Similarly, the rate per 10,000 persons increased to 112.3 in 2007/08 to 121.6 in 2011/12¹⁶. Although changes over time were not statistically significant overall, there were sex and age differences.

Figure 17 presents the estimated rate of ED injury presentations by sex, among those who had consumed more than four standard drinks prior to presentation. The rate among males was approximately 1.5 times higher than females in each year, and this difference was statistically significant. That is, among persons who had consumed more than four standard drinks prior to presentation, a significantly higher number were male. However, for both males and females there was no significant change over time.

Figure 17: Rate per 10,000 population aged 15 years and over of estimated emergency department injury presentations attributable to the use of alcohol where more than four standard drinks were consumed prior to presentation, by sex, 2007/08 - 2011/12

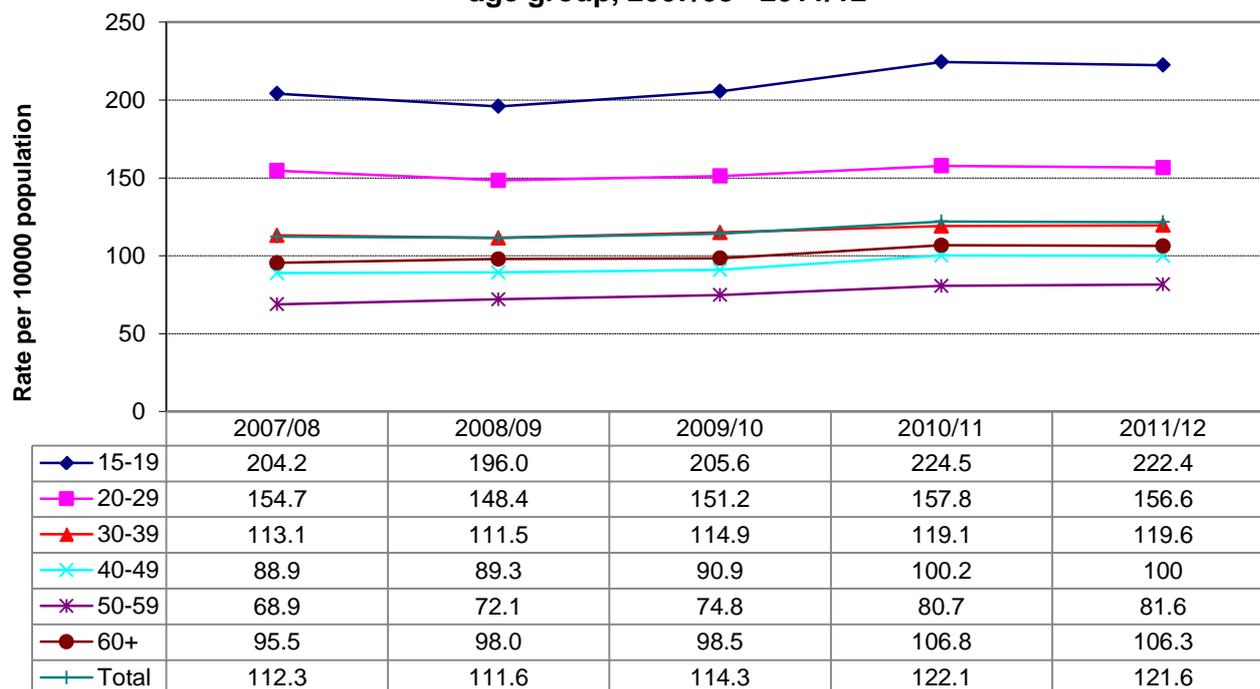


Source: Emergency Department Data Collection (EDDC), South Australian Health Department. Population Estimates from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3235.0>

Figure 18 presents the estimated rate of ED injury presentations by age group, for those who had consumed more than four standard drinks prior to presentation. There were no significant differences over time among any age group, although there were some differences between groups.

In each year, the highest rate was among those aged 15-19 years, followed by those aged 20-29 years. There were also statistically significant differences between all age groups in the rate of ED presentations in each year, with the exception of those aged 40-49 years and 60 years and over, who had similar rates. Moreover, in 2010/11 the rate between those aged 30-39 years and 60 years and over was not significantly different. Importantly, those aged 15-19 years had a rate of estimated ED presentations attributable to alcohol that was significantly higher than all other age groups when more than four standard drinks were consumed prior to presentation. In addition, in 2007/08 and 2009/10 those aged 15-19 years had a rate that was significantly higher than those aged 40 years and over, and those aged 20-29 years had a rate significantly higher than those aged 50-59 years.

Figure 18: Rate per 10,000 population of estimated emergency department injury presentations attributable to the use of alcohol where more than four standard drinks were consumed prior to presentation, by age group, 2007/08 - 2011/12



Source: Emergency Department Data Collection (EDDC), South Australian Health Department.
Population Estimates from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3235.0>

For more information

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1 <http://www.dassa.sa.gov.au/webdata/resources/files/StatBullNo5HOS12Apr2013.pdf>

2 Abstainers include both ex-drinkers and those who had never drunk alcohol

3 The PAAF for a particular illness or injury is the proportion of cases with that condition in the population that can be attributed to drinking. For some conditions (e.g. alcoholic liver cirrhosis and alcohol dependence) the PAAF is one (1), because such conditions are – by definition – wholly attributable to alcohol. For other conditions (e.g. assault, road crashes and stroke) the PAAF is less than one, because they are only partially attributable to alcohol. In these instances, the PAAF is a function of both the strength of the causal relationship between a particular level of drinking and the condition (measured as a 'relative risk') and the proportion of the population drinking at that particular level (i.e. drinking prevalence). Taken from Evans, M., Pascal, R., and Chikritzhs, T. (2010). Development of South Australian Specific Aetiologic Fractions and Estimates of Alcohol-Attributable Morbidity and Mortalities. Stage 1: Final report. Perth, National Drug Research Institute, Curtin University, page 12.

4 **Chronic conditions:** Oropharyngeal Cancer; Oesophageal Cancer; Liver Cancer; Laryngeal Cancer; Female Breast Cancer; Hypertension; Supraventricular Cardiac Dysrhythmias; Haemorrhagic Stroke; Ischaemic Stroke; Oesophageal Varices; Unspecified Liver Cirrhosis; Psoriasis; Colon Cancer; Rectal Cancer; Foetal Alcohol Syndrome; Alcohol Dependence; Alcoholic Poly Neuropathy; Alcoholic Cardiomyopathy; Alcoholic Liver Cirrhosis; Alcoholic Pancreatitis; Epilepsy; Gastro-Oesophageal Haemorrhage; Chronic Pancreatitis. **Acute conditions:** Suicide; Alcoholic Psychosis; Alcohol Abuse; Alcoholic Gastritis; All Alcohol Poisoning; Aspiration; Acute Pancreatitis; Falls; Fire injuries; Drowning; Occupational Machine Injuries; Assault; Child Abuse; Hospitalisations: Non-Pedestrian; Hospitalisations: Pedestrian. Note that mortality data do not include alcoholic pancreatitis.

5 Chikritzhs, T., Evans, M., Gardener, C., Liang, W., Pascal, R., Stockwell, T. and Zeisser, C (2011). Australian Aetiologic Fractions for Injuries Treated in Emergency Departments. Perth, National Drug Research Institute, Curtin University.

6 Data differ from those published elsewhere (National Alcohol Indicators Project. Trends in estimated alcohol attributable deaths and hospitalisations in Australia, 1996-2005. Bulletin No. 12, September 2009) as they are based on all levels of risk rather than just deaths or hospitalisations attributable to risky/high risk alcohol consumption. Data presented here are also based on SA-specific aetiological fractions.

7 Evans M. Pascal R. Chikritzhs T. *Development of South Australian Specific Aetiological Fractions and Estimates of Alcohol Attributable Morbidity and Mortalities*. Western Australia: National Drug Research Institute, Curtin University, 2010, page 37.

8 **Source:** National Drug Strategy Household Survey 2010. <http://www.aihw.gov.au/national-drugs-strategy-household-surveys/>

9 http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/ds10-alcohol.pdf

10 Evans M. Pascal R. Chikritzhs T. *Development of South Australian Specific Aetiological Fractions and Estimates of Alcohol Attributable Morbidity and Mortalities*. Western Australia: National Drug Research Institute, Curtin University, 2010, page 37.

11 Evans M. Pascal R. Chikritzhs T. *Development of South Australian Specific Aetiological Fractions and Estimates of Alcohol Attributable Morbidity and Mortalities*. Western Australia: National Drug Research Institute, Curtin University, 2010, page 38.

12 Due to the paucity of data on estimates of drinking prevalence among Aboriginal and Torres Strait Islander South Australians, estimates of mortality and morbidity use recent drinking prevalence estimates for the whole South Australian population.

13 http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/ds10-alcohol.pdf

14 Obtained by calculating the total number of hospitalisations for each age group minus the number of alcohol-attributable hospitalisations for each age group. Non-alcohol-attributable conditions are defined as those conditions not currently considered attributable to alcohol use.

15 The most recent population estimates available are based on the 2006 Census

16 As 2011/12 population estimates by region were not available, the metropolitan population was calculated as 72.8% of the total SA population based on the previous year's (2010/2011).