

How much is too much?

Alcohol consumption and related harm in the Northern Territory

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The Northern Territory's population has a long history of heavy alcohol consumption and related harm. Per capita alcohol consumption (PCAC) in the NT has been well in excess of the national level since at least the 1980s.¹ During the 1990s, the PCAC among adult (aged ≥ 15 years) non-Aboriginal people in the NT was estimated at 13.83 litres of pure alcohol per year, about 1.43 times the national average; and the PCAC of Aboriginal adults was estimated at 1.97 times the national average (19.05 litres).² Death rates attributable to risky or high-risk drinking in the NT in the 1990s were three times those for the nation, and alcohol-attributable hospitalisation rates were at least 50% higher.³

The Australian and NT governments are currently reconsidering alcohol policies and programs at national and territory levels. The alcohol industry and the public often question such changes. To inform public discussion, we present estimates of alcohol consumption and its impact on the health of people in the NT and draw comparisons with Australia as a whole.

METHODS

Per capita alcohol consumption

The NT Department of Justice provided us with routinely collected data on wholesale sales of alcohol. We used these data to calculate apparent PCAC for the adult (aged ≥ 15 years) NT population in relation to the estimated resident population reported by the Australian Bureau of Statistics, with an adjustment to allow for tourist numbers. We estimated Aboriginal-specific and non-Aboriginal-specific PCAC according to methods described elsewhere,² using estimates of alcohol consumption based on the 2004 National Drug Strategy Household Survey (NDSHS)⁴ for non-Aboriginal people and the 1994 NDSHS Aboriginal and Torres Strait Islander peoples supplement⁵ for urban Aboriginal people.

Self-reported alcohol consumption

Data concerning patterns and levels of self-reported alcohol consumption for adults (aged ≥ 14 years) in the NT were sourced from the 2004 and 2007 NDSHS.^{4,6} Self-

ABSTRACT

Objective: To present recent estimates of alcohol consumption and its impact on the health of people in the Northern Territory, and to draw comparisons with Australia as a whole.

Design, setting and participants: Descriptive study of alcohol consumption in the NT population, based on sales data and self-report surveys, and alcohol-attributable deaths and hospitalisations among people in the NT in the 2004–05 and 2005–06 financial years using population alcohol-attributable fractions specific to the NT.

Main outcome measures: Per capita consumption of pure alcohol, self-reported level of consumption, and age-standardised rates of death and hospitalisation attributable to alcohol.

Results: Apparent per capita consumption of pure alcohol for both Aboriginal and non-Aboriginal populations in the NT has been about 14 litres or more per year for many years, about 50% higher than for Australia as a whole. We estimated that there were 120 and 119 alcohol-attributable deaths in the NT in 2004–05 and 2005–06, respectively, at corresponding age-standardised rates of 7.2 and 7.8 per 10000 adult population. Alcohol-attributable deaths occur in the NT at about 3.5 times the rate they do in Australia generally; rates in non-Aboriginal people were about double the national rate, while they were 9–10 times higher in Aboriginal people. There were 2319 and 2544 alcohol-attributable hospitalisations in the NT in 2004–05 and 2005–06, respectively, at corresponding rates of 146.6 and 157.7 per 10000 population (more than twice the national rate).

Conclusion: In recent years, alcohol consumption and consequent alcohol-attributable deaths and hospitalisations for both Aboriginal and non-Aboriginal people in the NT have occurred at levels far higher than elsewhere in Australia.

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reported quantity and frequency of alcohol consumption is described as either “low risk”, “risky” or “high risk” for short-term and long-term harms, according to the 2001 National Health and Medical Research Council alcohol guidelines.⁷

The proportions of people in each category in the NT and Australia were compared by calculating χ^2 values based on the standard error of the difference between the proportions using the EpiTable calculator function in Epi Info version 6 (Centers for Disease Control and Prevention, Atlanta, Ga, USA). The level of statistical significance was set at $P < 0.05$.

Alcohol-attributable deaths and hospitalisations

To estimate the proportion of deaths and hospitalisations in the NT that were attributable to alcohol, population alcohol-attributable fractions (PAAFs) were calculated using the methods described by English and colleagues⁸ and the World Health Organiza-

tion.⁹ PAAF calculations combine relative risks of alcohol consumption for disease or injury (usually derived from meta-analyses of epidemiological studies) with estimates of alcohol consumption specific to the population of interest (usually derived from self-report surveys). Such calculations can find that alcohol may cause or, for a small range of conditions, prevent hospitalisations or deaths.

We took relative risks from appropriate meta-analyses of epidemiological studies.^{8,10–12} For conditions where appropriate epidemiological studies were not available, we used directly derived PAAFs estimated from case series. The range of conditions included were those for which English et al⁸ considered there to be adequate evidence of a causal link with alcohol consumption, with the addition of type 2 diabetes, colon cancer and rectal cancer on the basis of evidence that emerged after English et al's study.^{11,13} Estimates of alcohol consumption specific to the NT population were drawn

from the 2004 NDSHS data⁴ for non-Aboriginal people and from the NDSHS 1994 supplement for Aboriginal people.⁵

PAAFs were estimated for drinkers of alcohol compared with abstainers. In keeping with WHO guidelines,⁹ authoritative Australian estimates of alcohol-attributable morbidity and mortality^{3,8,10} and the NDSHS, an “abstainer” was defined as someone who had not consumed alcohol in the past 12 months. The NT-specific PAAFs were applied to hospital separations (ie, hospitalisations) and death data from the NT Department of Health and Families for the financial years 2004–05 and 2005–06. Rates were directly age-standardised relative to the 2001 national population.¹⁴

Ethics approval

Ethics approval for this project was received from the Human Research Ethics Committee of the NT Department of Health and Families and Menzies School of Health Research, and the Central Australian Human Research Ethics Committee.

RESULTS

Per capita alcohol consumption

In recent years, estimated PCAC in the NT adult population has been about 50% higher than for the nation as a whole (Box 1). This excess consumption was seen in both Aboriginal and non-Aboriginal people in the NT.

Self-reported alcohol consumption

According to the 2004 and 2007 NDSHS,^{4,6} the NT consistently had higher proportions than the Australian average of people who reported drinking alcohol at risky or high-risk levels and lower proportions of people who did not drink at all or drank at low-risk levels (Box 2). The difference between the NT and Australian proportions was statistically significantly different ($P < 0.05$) for all categories of consumption, except for those in the 2004 NDSHS who were at short-term harm from risky or high-risk drinking on a yearly basis.

Alcohol-attributable deaths

We estimated that there were 120 deaths in 2004–05 and 119 in 2005–06 in the NT that were attributable to alcohol consumption. In 2004–05, the age-standardised rates of deaths per 10 000 adults (aged ≥ 15 years) were 7.2 for all people in the NT, 18.6 for Aboriginal people and 3.8 for non-Aboriginal people. In 2005–06, the corre-

1 Estimated annual per capita consumption of pure alcohol in litres per person aged 15 years or older, Northern Territory and Australia

Financial year	Australia ¹⁵ (a)	NT (b)	Relative difference ((b – a)/a)	NT Aboriginal*	NT non-Aboriginal*
2000–01	10.01	13.44	34%	15.2	13.0
2001–02	9.53	13.57	42%	15.3	13.1
2002–03	9.97	14.06	41%	15.8	13.6
2003–04	9.79	14.78	51%	16.6	14.2
2004–05	9.83	15.07	53%	16.9	14.5
2005–06	9.84	14.93	52%	16.8	14.4
2006–07	9.88	14.35	45%	16.1	13.8

* Estimated using methods described by Gray and Chikritzhs.² ◆

2 Proportions of people aged 14 years or older reporting different levels of alcohol consumption, Northern Territory and Australia, 2004 and 2007*

Level of alcohol consumption	2004		2007	
	Australia	NT	Australia	NT
Abstainer [†]	16.4%	12.8%	17.1%	14.4%
Long-term harm: low risk	73.7%	70.1%	72.6%	69.1%
Long-term harm: risky or high risk [‡]	9.9%	17.1%	10.3%	16.5%
Short-term harm: low risk	48.2%	40.5%	48.3%	40.2%
Short-term harm: risky or high risk on weekly basis [§]	7.7%	13.6%	7.8%	12.1%
Short-term harm: risky or high risk on monthly basis	12.9%	18.4%	12.6%	16.3%
Short-term harm: risky or high risk on yearly basis	14.8% [¶]	14.7% [¶]	14.2%	16.9%

* Data from the 2004 and 2007 National Drug Strategy Household Surveys.^{4,6} † No alcohol consumed in past 12 months. ‡ Standard drinks consumed per week: males, > 28 ; females, > 15 . § Standard drinks consumed on one occasion: males, > 6 ; females, > 4 . ¶ No statistically significant difference in these two proportions. ◆

sponding rates were 7.8, 21.4, and 4.0 per 10 000 adults.

For both Aboriginal and non-Aboriginal people, the three most common causes of death, together accounting for 71% of all deaths that were attributable to alcohol, were alcoholic liver cirrhosis, road crashes and suicide.

We estimated that alcohol consumption may have prevented 25 deaths in 2004–05 and 22 in 2005–06, from ischaemic heart disease and type 2 diabetes in men and women, ischaemic stroke in women, and haemorrhagic stroke in some age groups of women.

Alcohol-attributable hospitalisations

In 2004–05 and 2005–06, we estimated that there were 2319 and 2544 alcohol-attributable hospitalisations in the NT, at age-standardised rates of 146.6 and 157.7 per 10 000 adults, respectively. The most common

causes of alcohol-attributable hospitalisation were assault and pancreatitis for Aboriginal people and falls and occupational machine injuries for non-Aboriginal people.

We estimated that alcohol consumption may have prevented 284 hospitalisations in 2004–05 and 328 in 2005–06 for cholelithiasis, type 2 diabetes, and ischaemic heart disease and stroke in both men and women and haemorrhagic stroke in women.

DISCUSSION

We found that alcohol consumption and subsequent harm in the NT are at unacceptable levels and well in excess of those in Australia as a whole. Our estimates show that both Aboriginal and non-Aboriginal populations in the NT have been consuming 14 litres or more of pure alcohol per person per year over many years. Moreover, people in the NT are characterised by fewer abstainers, fewer low-risk drinkers and more risky

and high-risk drinkers compared with Australian averages. This is not a new situation. Alcohol consumption in the NT has been at rates between 50% and 100% higher than Australia as a whole for nearly 30 years¹ and also appears to be higher than most other nations. According to the WHO,¹⁶ in 2003 Luxembourg had the highest alcohol consumption of the 175 nations recorded, at 15.6 litres per person, with Ireland in second place at 13.7 litres.

The consequences of this level of consumption are serious. Alcohol-attributable deaths occur in the NT at about 3.5 times the rate they do in Australia generally; the national rate in 2005 was estimated to be only 1.9 per 10 000 population.¹⁷ No other state had a rate higher than 2.6 per 10 000 population in 2005. The excess in the NT is particularly high among Aboriginal people, but the death rate in non-Aboriginal people is twice the national rate. Alcohol-attributable hospitalisations in the NT also greatly exceed those for the country as a whole. In 2005, the age-standardised national rate was 62.2 admissions per 10 000 population¹⁷ — less than half the rate we found in the NT.

Drink-driving contributes greatly to the road toll in the NT, which for many years has been at least three times the national average.¹⁸ Some 48% of NT road fatalities involve an illegal blood alcohol concentration (BAC), compared with less than 30% in other jurisdictions.¹⁸ Indicative of this apparent culture of drinking and driving in the NT, police randomly breath-tested 9480 drivers in the NT (about 8% of all NT licensed drivers) during December 2005 to January 2006 and found that one in 42 were over the legal BAC limit. This contrasted starkly with rates of one driver in 314 over the limit in Victoria and one in 192 in Queensland during the same period.¹⁸

Although other Australian studies have examined alcohol-attributable morbidity and mortality by jurisdiction or region, methodological approaches often differ, making comparisons between regions and over time problematic.³ However, these methodological differences are unlikely to account for the consistent and substantial excess mortality and morbidity reported for the NT — particularly in the context of standardised and reliable measures of consumption showing equally excessive levels.

The differences between the NT death and hospitalisation rates found in this study and those reported by the National Drug Research Institute¹⁷ arise because this study had access to Indigenous-specific data and

so made estimates for Aboriginal and non-Aboriginal people separately. We chose to use the 1994 NDSHS supplement over more recent surveys for our estimates of alcohol consumption for Aboriginal people because the methods were similar to those used by the 2004 NDSHS and are considered more suitable for this population, and so are considered to provide the most reliable estimates of Aboriginal alcohol consumption to date.¹⁹

There is a degree of uncertainty in estimates of “all condition” alcohol-attributable morbidity and mortality. However, because the final PAAF calculation combines relative risks for a broad range of conditions with estimates of alcohol consumption, both of which may differ by age group and sex, and because of the need to use directly estimated PAAFs for some conditions, confidence intervals can generally not be reported.

There was a time, prior to the years we studied, when alcohol consumption and related harm declined in the NT. The Living With Alcohol (LWA) program, a whole-of-government initiative operated initially by the Department of the Chief Minister, ran in the NT between 1991 and 2000. It incorporated a tax levy (imposed in early 1992) on all alcohol products containing more than 3% alcohol, leading to a significant price difference between light and full-strength beer. The revenues were hypothecated (pledged) directly back to fund the program. There was also an increase in treatment programs and more high-profile prevention and mass media programs. The legal BAC limit for drivers was lowered to 0.05 (ie, 0.05 g alcohol per 100 mL blood) in 1994, supported by increased drink-driving law enforcement and mass media campaigns. Restrictions on the availability of certain types of alcohol and trading hours were introduced in some regions of the NT.²⁰

Before the LWA program, apparent PCAC in the NT was consistently about 20 litres of pure alcohol per year. By 1992–93, consumption was less than 16 litres, and it reached a low point of less than 14 litres in 1998–99, where it remained until 2000–01. There were estimated reductions of 34% in alcohol-related road fatalities, 23% in deaths from other acute conditions, and 28% for road crash hospitalisations in the 4 years after the commencement of the LWA program.¹ It was also estimated that the program led to a saving to the NT economy of \$124 million in the 4 years to 1995–96.¹ However, in August 1997, the High Court determined that states and territories could

not levy taxes on alcohol. Subsequently, the Australian Government returned an equivalent revenue to the NT Government, but the funds were no longer hypothecated to the LWA program, sparking a gradual decline in the program until its eventual end in 2000.²⁰ Alcohol sales data (Box 1) show some increase in PCAC since the program ended.

The alcohol regulatory framework in the NT is extremely complex. This is a consequence of people living in a combination of towns, town camps, remote communities and itinerant situations with differing regulations, as well as the NT and Australian governments having control over different aspects of alcohol regulation. Since the Australian Government's Northern Territory Emergency Response in 2007, there have been many ad-hoc modifications to various aspects of the framework as a consequence of both NT and Australian Government actions.

Although a detailed discussion of policy options to address alcohol-related harm in the NT is beyond the scope of this article, some general points can be made. There is substantial international, Australian and NT evidence about what is and is not effective in reducing alcohol-related harm. An explicit intent to change the drinking culture is needed, using a comprehensive package of measures to reduce the supply of and demand for alcohol and to address the harm created by it. The NT *Liquor Act* has been under review for several years and, should the new Act adopt the prevention of harm as a principal focus, it could provide the legal foundation for substantial and much-needed change. The National Preventative Health Taskforce report provides a practical framework that is well informed by the evidence,²¹ as does the NT's Alcohol Framework, which has the important addition of political commitment to a whole-of-government approach with a high-level governance structure.²² Such an approach is what characterised the LWA program and has been lacking since it ended.

Alcohol is an important part of the life and culture of the NT. As the former Administrator of the NT Ted Egan sang, there are indeed some “bloody good drinkers” in the NT.²³ But just as drinking too much has consequences for an individual, so a society that drinks too much will also suffer harm. Some of these harms in Aboriginal communities were poignantly described in the “Little children are sacred” report²⁴ and attributed by one of its authors, Pat Ander-

son, to “rivers of grog” flowing through them. However, as our findings show, excess alcohol consumption and consequent harm are also important issues for non-Aboriginal people in the NT. The NT has previously shown that by implementing a comprehensive, committed program that is well informed by the evidence, this alcohol-related harm can be turned around.

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COMPETING INTERESTS

None identified.

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