



## Alcohol Control Measures: Central Australia and Alice Springs

This paper presents evidence for the effectiveness in Alice Springs of two alcohol control measures:

- indirect price control through the banning of table wine in containers of >2 litres and fortified wine in containers of >1 litre; and,
- the Northern Territory Banned Drinkers Register.

### Price and consumption: the Alice Springs Liquor Supply Plan

The National Drug Research Institute conducted *A longitudinal study of the influences on alcohol consumption and related harm in Central Australia: with a particular emphasis on the role of price.*<sup>1</sup> The material in this section is based upon that report. In the 2nd quarter 2002, following a lengthy period of debate, Trial Liquor Licensing Restrictions were introduced in Alice Springs. A key element of these restrictions was a ban on the sale of table wine in containers >2 litres. This ban was lifted as part of amended restrictions in the 3rd quarter 2003 and along with a ban on fortified wine in containers of >1 litre was reintroduced in the 4th quarter 2006.

Over the period from the 3rd quarter 2000 to the 4th quarter 2010, there was an overall decline in per capita consumption of pure alcohol (based wholesale sales data – the most accurate estimate of consumption) from about four to about 3.5 litres per quarter by persons aged ≥15 years. The level of consumption of most beverage types remained stable and the largest changes took place in relation to cask table wine, fortified wine, and full-strength beer. Changes in consumption of these beverages is shown in Figure 1.



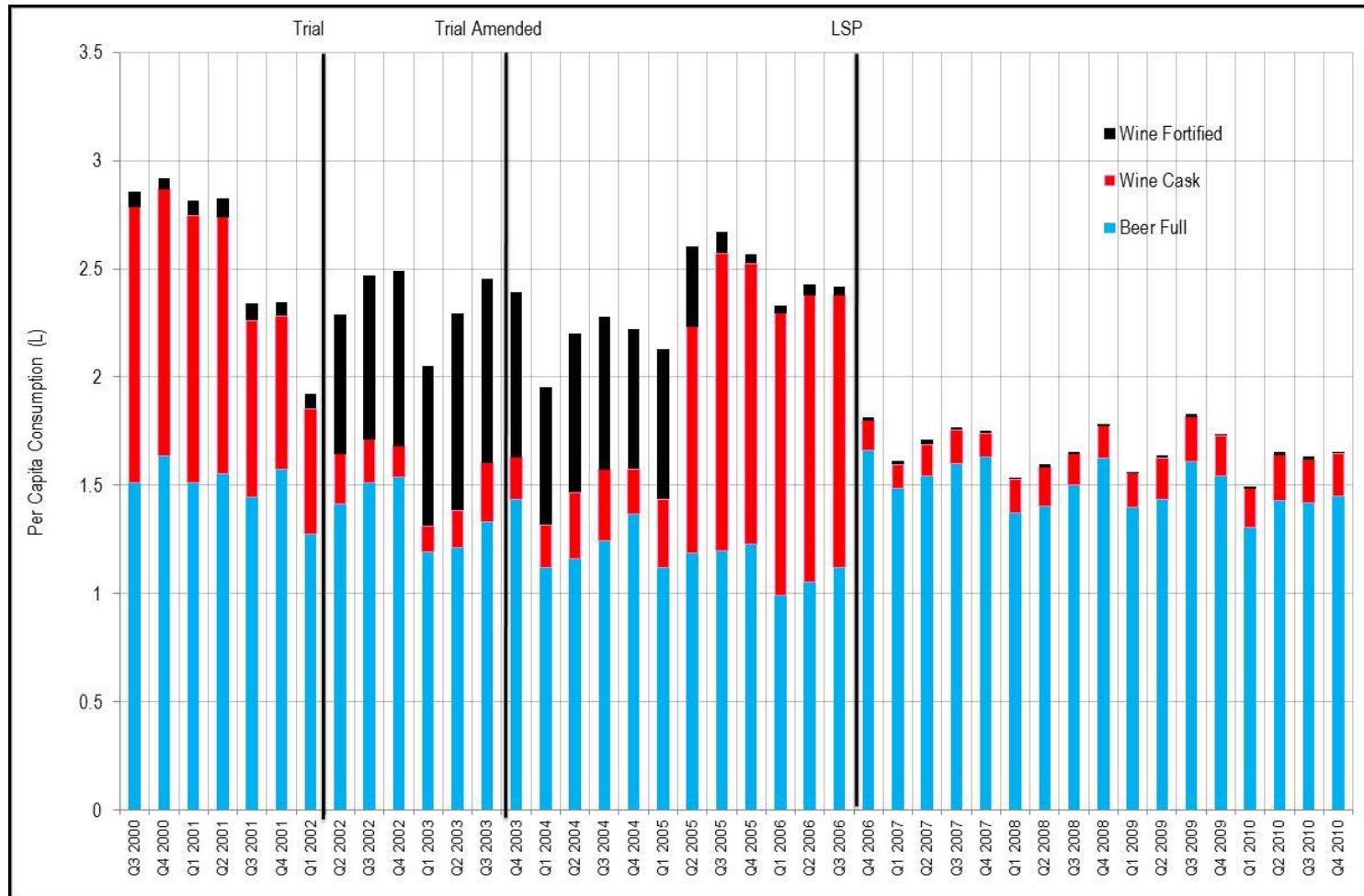


Figure 1: Impact of restrictions on estimated consumption of cask wine, fortified wine and full strength beer (in litres of pure alcohol) per person aged  $\geq 15$  years by quarter, Central Australia, July 2000 – December 2010

Over several quarters, in anticipation of the imminent introduction of the restriction on sale of table wine in containers >2 litres, it appears that retailers reduced their purchases of this beverage type (red bars in Figure 1) so as not to be caught with stock that they could not sell. Following the introduction of the Trial Restrictions, retailers began selling fortified wine (black bars in Figure 1) in casks of two litres as a cheap alternative to the larger casks of table wine. The result of this was that estimated consumption remained largely unchanged during the Trial period.

In the 3rd quarter 2003, amendments were made to the Trial Restrictions to again allow the sale of table wine in casks >2 litres. The result of this was that wholesale sales remained level but, over the ensuing 12 quarters, there was a shift back from consumption of fortified wine to table wine. Subsequently in the 3rd quarter 2006, sales of both table wine in containers of >2 litres and fortified wine in containers of >1 litre were prohibited. Thus removing from the market the two cheapest forms of alcoholic beverage. As is evident from Figure 1, there was then a switch to the consumption of full-strength beer (blue bars). However, the increase in consumption of this higher priced beverage did not match the decline in consumption of cask table and fortified wine. (Consumption of cask table wine and fortified wine after this time was in smaller more expensive containers.)

Figure 2 illustrates the change in the mean (average) wholesale price per standard drink (a drink containing 12ml of pure alcohol) from the 3rd quarter 2000 to the 4th quarter 2010. As table wine in casks was withdrawn prior to the trial restrictions, the price rose from about \$0.80 to about \$0.95 per standard drink. With the introduction of two litre casks of fortified wine, which substituted for the larger containers of cask table wine, the mean price fell back to about \$0.80. With the introduction of the Alice Springs Liquor Supply Plan and the banning of both table wine in containers >2 litres and fortified wine in containers of >1 litre, the mean price rose to about \$1.10. This increase was primarily achieved by a doubling of the minimum unit price (MUP) from about \$0.25 cents per standard drink to \$0.50 per standard drink. This was the actual effect of removing the super-cheap four and five litre cask table wine and two litre cask port from sale which left two litre cask wine sold by the big supermarkets as the cheapest alcoholic beverage which sold for \$0.50 per standard drink. This demonstrates the effectiveness of using a minimum unit pricing approach to achieve a planned substitution to more expensive, less harmful forms of alcohol.



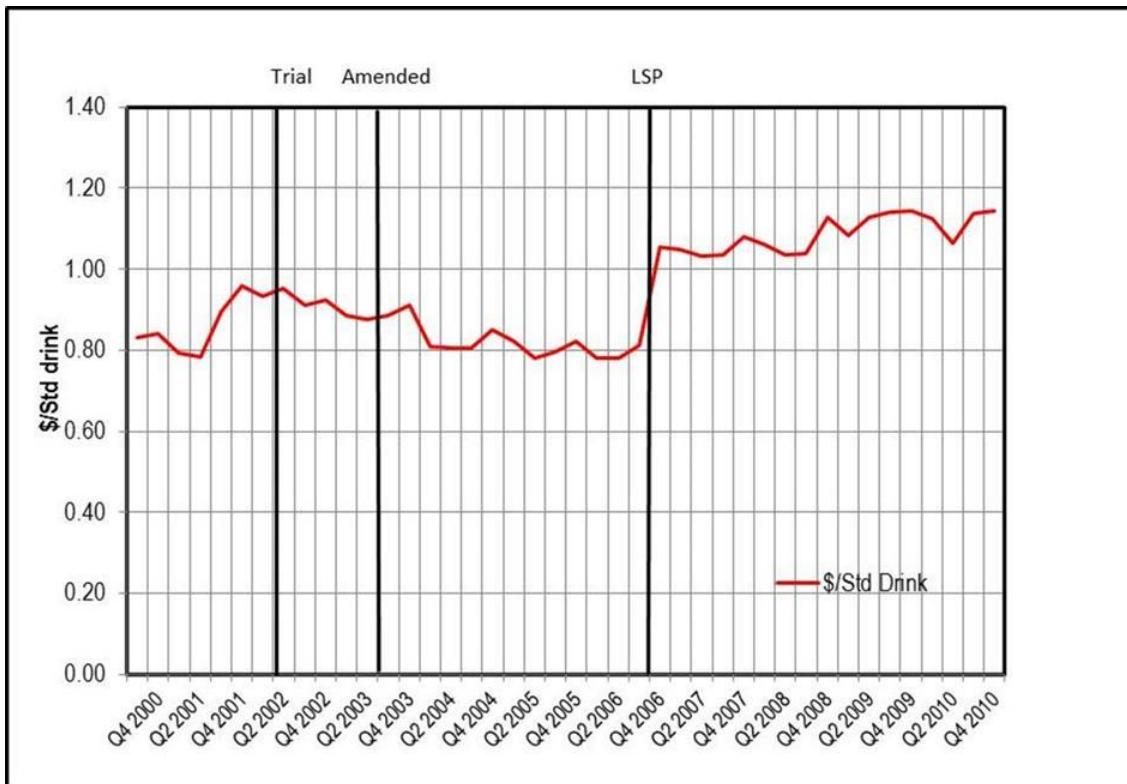


Figure 2: Impact of restrictions on mean wholesale price per standard drink (12ml alcohol) by quarter, Central Australia, July 2000 – December 2010

The impact of the changes in mean price per standard drink upon consumption is evident in Figure 3. With the increase in price from about \$0.80 to about \$0.95 in the lead-up to the trial restrictions, mean consumption among persons aged  $\geq 15$  year fell from about 25 standard drinks to about 20 per week. During the Trial Restrictions period when two litre casks of fortified wine were introduced, price declined to about \$0.80 and consumption rose to about 24 standard drinks per person per week. With the increase in price to about \$1.10 following the introduction of the Liquor Supply Plan mean weekly consumption declined to about 20 standard drinks.

It is important to note that other restrictions – such as reductions in takeaway trading hours made a contribution to the observed decline in consumption. Nevertheless, the correlation between mean price per standard drink and mean weekly consumption was 0.56 ( $R^2 = 0.56$   $p < 0.01$ ). This indicates that price accounted for 56% of the observed reduction in consumption and that the probability of such a relationship occurring by chance was less than one in 1,000. *This demonstrates that this indirect price control measure (i.e. removal of the cheapest priced beverages) led to a significant reduction in alcohol consumption in Alice Springs and Central Australia.*

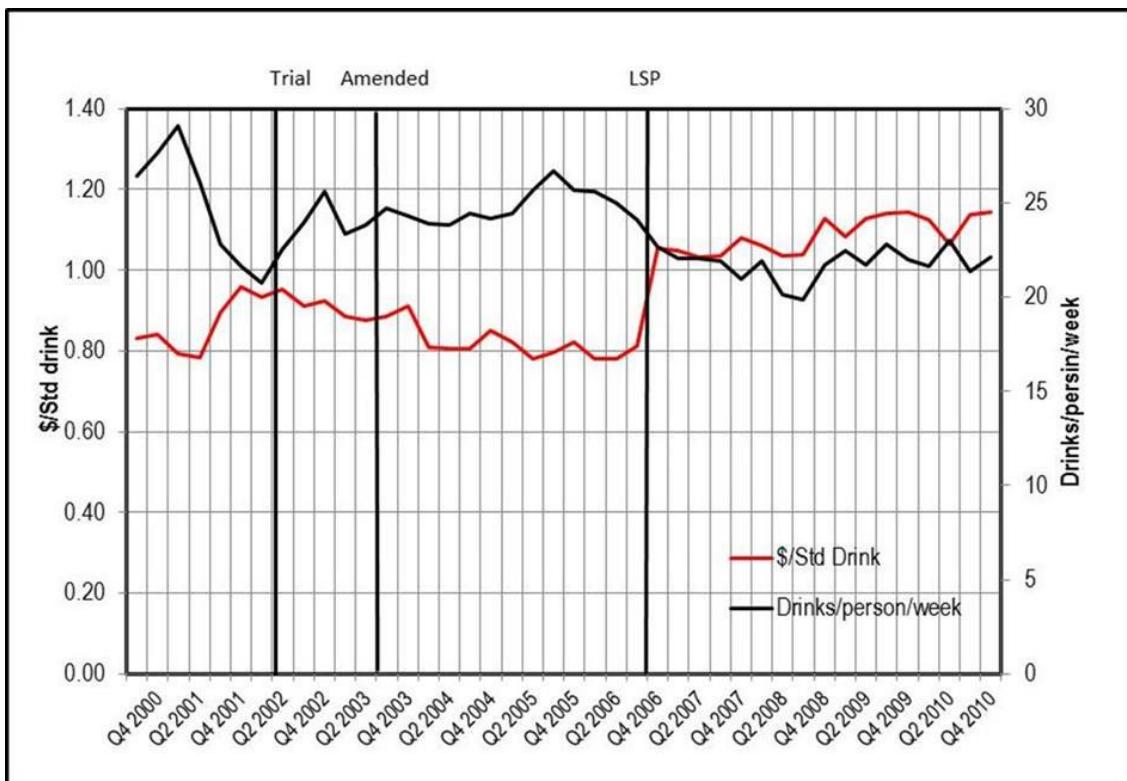


Figure 3: Impact of restrictions on mean wholesale price per standard drink (12ml alcohol) and mean weekly consumption of alcohol (standard drinks) per person  $\geq 15$  years by quarter, Central Australia, July 2000 – December 2010

As evidenced by predictive time series analysis,<sup>2</sup> the reduction in per capita alcohol consumption led to a significant reduction on alcohol-related harm – this is indicated by a reduced rate of admissions to Alice Springs Hospital for alcohol-attributable conditions (Figure 4). The red line in Figure 4 represents the rate of hospital admissions per thousand persons aged  $\geq 15$  years per quarter. This rose from about six in the 3rd quarter 2003 to about eight in the 2nd quarter 2006, prior to introduction of the Alice Springs Liquor Supply Plan. Based on the underlying trend in this rate of increase, statistical forecasting indicates that this would have continued to rise to about 13 admissions (95% confidence limits 12 – 13) by the 4th quarter 2010 (the blue line in Figure 4). The upper and lower confidence limits (UCL and LCL – represented by the broken mauve lines) indicate that, allowing for error one can be 95% confident that by that quarter the forecast rate would have been between 12 and 14 admissions per 1000 persons per quarter. However – as represented by the continuing red line from the 2nd quarter 2006 to the 4th quarter 2010 – admissions for alcohol-attributable conditions continued to rise albeit at decreased rate. That this observed rate was outside the lower confidence interval indicates that it is 95% likely that the decrease is attributable to the introduction of the Liquor Supply Plan – a major impact of which was the increase in mean price per standard drink and the associated decrease in consumption.

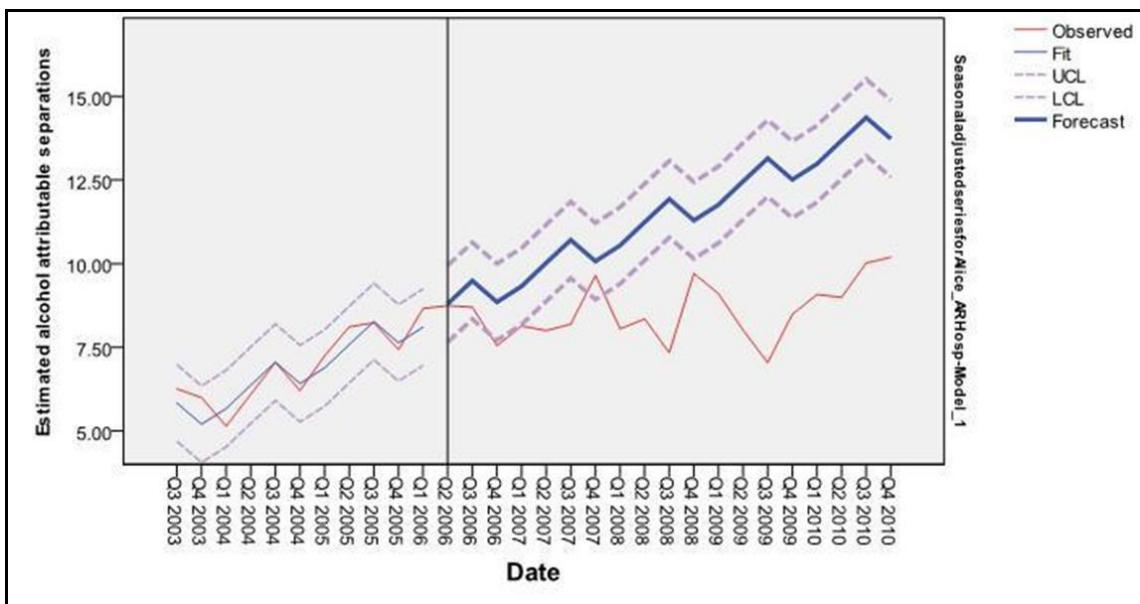


Figure 4: Impact of the Alice Springs Liquor Supply Plan on Alice Springs Hospital admission rates for alcohol-attributable conditions, observed and forecast values post-Q1 2006

### **The Banned Drinkers Register and Emergency Department presentations and Alice Springs Hospital admissions**

In May 2011, the NT Labor Government passed the *Alcohol Reform (Prevention of Alcohol-Related Crime and Substance Misuse) Act*. Under the provisions of this Act a Banned Drinkers Register (BDR) was introduced and provision made to issue ‘Banning and Alcohol Treatment Orders’ to persons taken into police custody three times in three months, or committing any alcohol related offences. These orders prohibited the purchase of takeaway alcohol for a period of three months, reducible to one month if a person underwent voluntary treatment. The legislation was in force for a 14 month period from July 2011 to August 2012 when it was repealed by the newly elected Liberal Country Party Government. There has been no published evaluation of the impact of the BDR and there has been some controversy surrounding its effectiveness or otherwise.

Under provisions of Freedom of Information Legislation, the Alice Springs People’s Alcohol Action Coalition (PAAC) obtained data from the Northern Territory Health Department on monthly presentations at the Alice Springs Hospital (ASH) Emergency Department (ED) and admissions to the ASH for conditions attributable to alcohol. The data on ED presentations covered the period July 2005 to October 2013 and the admissions data the period January 2011 to June 2013. PAAC provided these data to the National Drug Research Institute and requested that they be analysed to ascertain whether or not the introduction of the Banned Drinkers Register (BDR) in July 2011 or

its subsequent abolition in August 2012 had any impact upon them. The data were subjected to the same predictive time series analysis as the ASH admissions data in the previous section.<sup>2</sup>

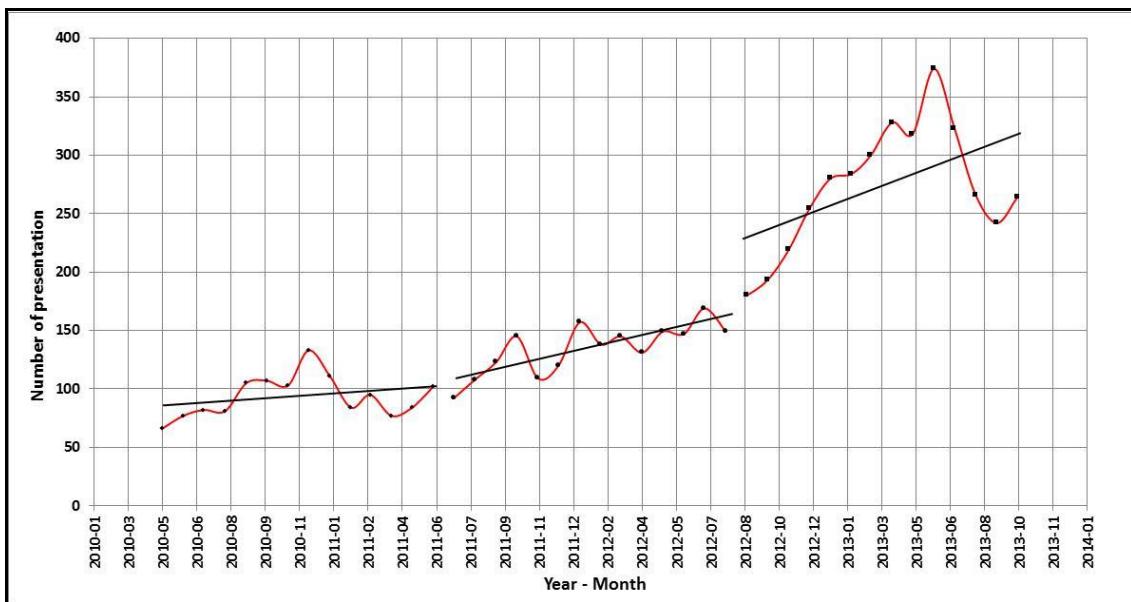


Figure 5: Alice Springs Hospital Emergency Department presentations for conditions wholly attributable to alcohol pre (May 2010–June 2011), during (July 2011–August 2012) and post (September 2012–October 2013) operation of the NT Banned Drinkers Register

Figure 5 presents monthly ED presentations wholly attributable to alcohol, and the underlying trends, for the 14 month periods pre-, during, and post operation of the BDR. Figure 6 shows that in the period prior to the introduction of the BDR, the number of presentations increased from about 75 per month to about 100 (red line). Based on this trend, it was forecast that presentations should have continued to rise to about 125 per month by August 2012 (blue line). In fact, however, presentations increased from about 100 to 150 per month (continuing red line) – an increase that statistically was significantly higher than that forecast. This increase is unlikely to be explained by the introduction of the BDR itself, as even its critics argue that it was ineffective rather than having had a negative impact.

While, do not have the data to explain this increase, it is widely known and reported in newspapers that following the Briscoe death in custody in January 2012,<sup>3</sup> the police began taking all people on protective custody apprehensions to ED for medical assessment. This practice is very likely to account for the apparent contradiction to the effectiveness of the BDR due to this new policy which added substantially to alcohol caused ED presentations. This could be verified if police data was available but are best estimate is that this would have amounted to enough of an increase to solely account for

the increase in alcohol caused ED presentations in this period and probably, without this change in policy, there would have been a decrease in presentations. This is an important point that requires further analysis of the actual data.

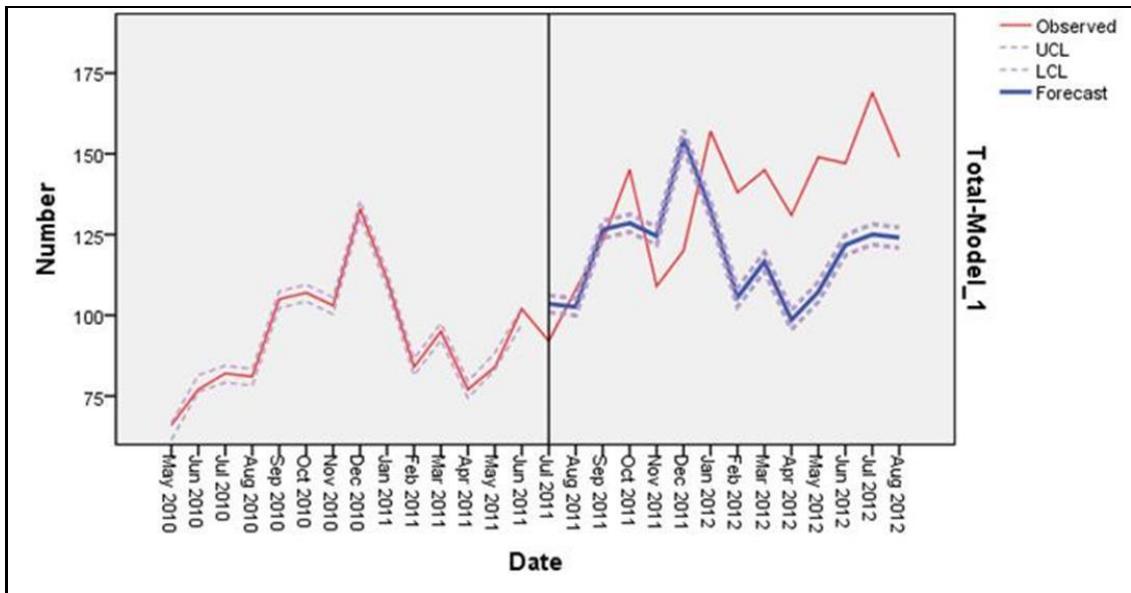


Figure 6: Alice Springs Hospital Emergency Department presentations for conditions wholly attributable to alcohol May 2010 to August 2012 and forecast numbers of admissions during operation of the NT Banned Drinkers Register (based on the series May 2010 to June 2011)

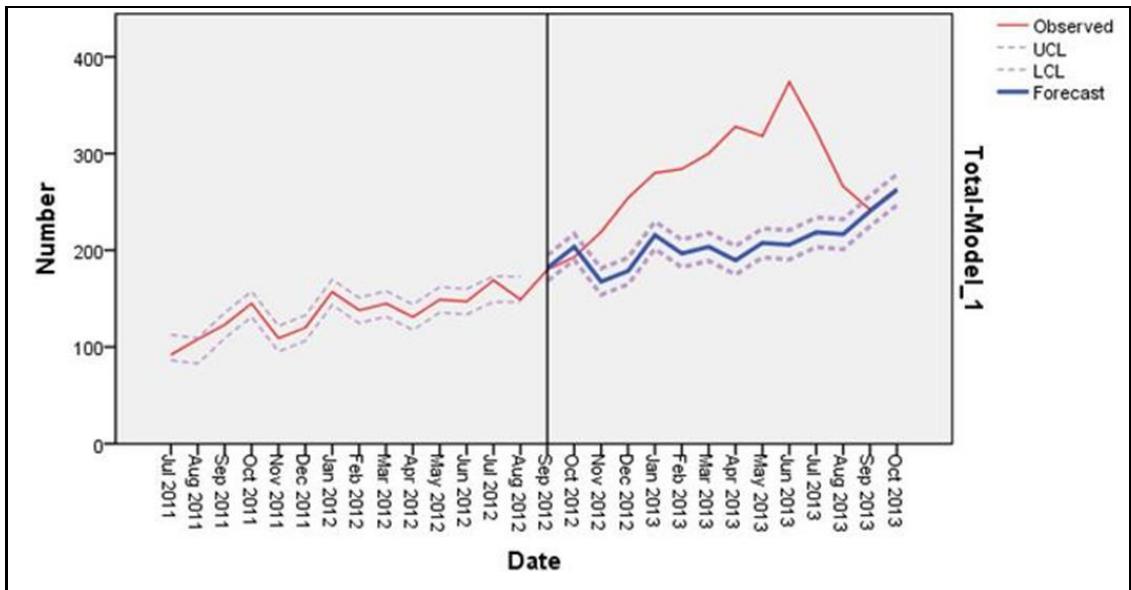


Figure 7: Alice Springs Hospital Emergency Department number of presentations for conditions wholly attributable to alcohol July 2011 to October 2013 and forecast numbers of admissions post-abolition of the NT Banned Drinkers Register (based on the series July 2011 August 2012)

Figure 7 illustrates the trend in ED presentations in the period subsequent to abolition of the BDR. As also shown in Figures 5 and 6, during the period that the BDR was in place the number of presentations rose from about 100 to 150 per month. Based on this trend (red line in Figure 7) it was forecast that over the period September 2012 to October 2013 this should have continued to rise to about 250 per month. However, for most months after abolition of the BDR there was a statistically significant rise (continuing red line) far in excess of that forecast (blue line).

Data were provided to PAAC on admissions to ASH for conditions wholly attributable to alcohol, conditions with an alcohol attributable aetiologic fraction of >0.4 (i.e. conditions for which it is known that at least 40% of cases are caused by alcohol), and assaults. As these data dated only from July 2011 to June 2013, it was not possible to examine any changes that might, or might not, have occurred following introduction to the BDR, but Figures 8 to 10 present the results of predictive time series analyses of the changes occurring in the 14 month periods during which it was in operation and subsequent to its abolition. These Figures show that there was a statistically significant increase in each of these indicators in the post-operation period (continuing red lines) over those forecast (blue line) on the basis of the trends in the period the BDR was in place (red line on the left of the Figures).

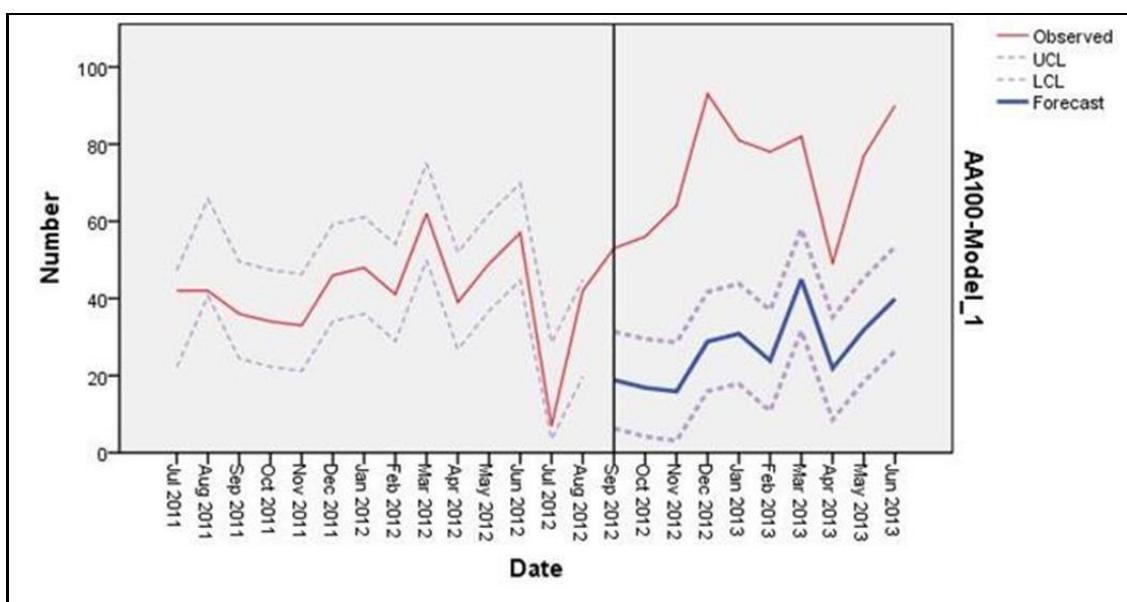


Figure 8: Alice Springs Hospital, number of admissions for conditions wholly attributable to alcohol July 2011 to June 2013 and forecast numbers of admissions post-abolition of the NT Banned Drinkers Register (based on the series July 2011 to August 2012)

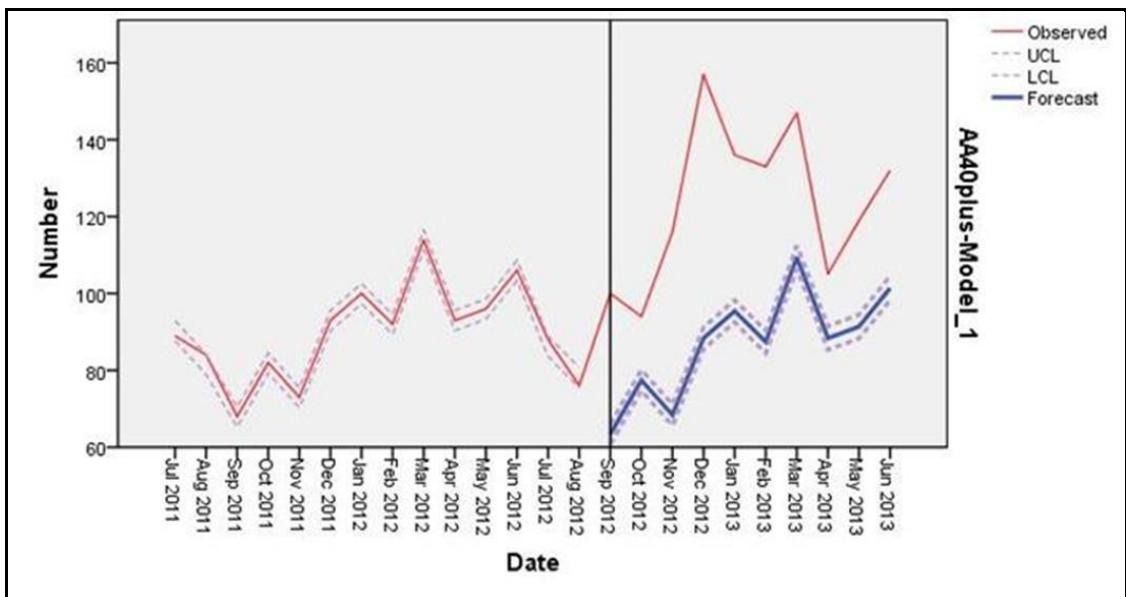


Figure 9: Alice Springs Hospital number of admissions for conditions with an alcohol-attributable aetiological fraction  $>0.4$ , July 2011 to June 2013 and forecast numbers of admissions post-abolition of the NT Banned Drinkers Register (based on the series July 2011 to August 2012)

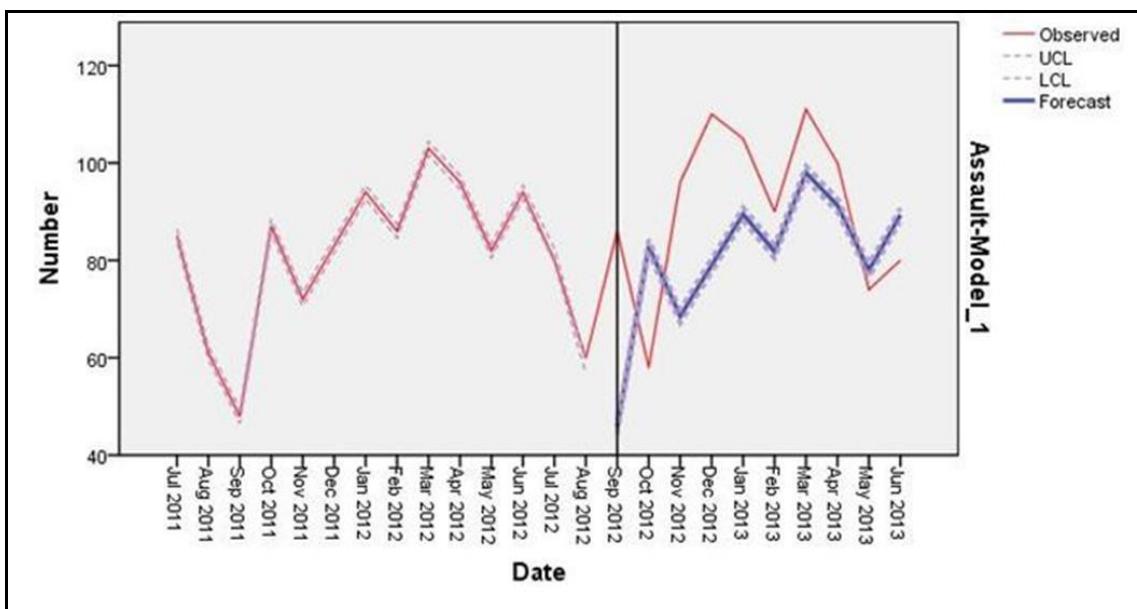


Figure 10: Alice Springs Hospital, number of admissions for assault injuries July 2011 to June 2013 and forecast numbers of admissions post-abolition of the NT Banned Drinkers Register (based on the series July 2011 to August 2012)

As indicated above, although there was an increase in ASH ED presentations for wholly alcohol attributable conditions following the introduction of the BDR, this is unlikely to

have been a result of the BDR itself, as even its critics say only that the BDR was ineffective rather than negative in its impact. However, after abolition of the BDR, for each of the indicators examined – ED presentations for wholly alcohol attributable conditions, and ASH admissions for wholly alcohol attributable conditions, conditions with an alcohol-attributable fraction of 0.4, and assaults – there were increases that statistically were significantly higher than those predicted on the basis of trends during the period in which the BDR was in place. *Taken together, these indicators strongly suggest that the BDR was effective in reducing alcohol-related harms to health in Alice Springs.*

## References

1. Symons M, Gray D, Chikritzhs T, Skov S, Saggers S, Boffa J, Low, J. *A Longitudinal Study of Influences on Alcohol Consumption and Related Harm in Central Australia: With a Particular Emphasis on the Role of Price*. Perth: National Drug Research Institute, Curtin University, 2012.
2. IBM SPSS. *SPSS Forecasting 20*. Chicago: IBM SPSS, 2011
3. Cavanagh G (Coroner). *Inquest into the death of Terence Daniel Briscoe* [2012] NTMC 032.