

# Young adults' experience of responsible service of alcohol in NSW: 2011 update

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**Aim:** To determine whether the provision of responsible service of alcohol (RSA) changed in NSW licensed premises between 2002 and 2011.

**Method:** A repeat cross-sectional telephone survey of young adults ( $n=2,503$  in 2011,  $n=2,427$  in 2006,  $n=1,090$  in 2002).

**Results:** The percentage of respondents who reported showing at least one sign of intoxication at licensed premises decreased from 2006 to 2011 (from 56% to 51%). The overall provision of RSA to those who reported any signs of intoxication increased from 2002 to 2011 (from 10% in 2002 to 15% in 2006 to 19% in 2011). There was no change in the overall provision of RSA to those who reported three or more signs of intoxication between 2006 and 2011. However, particular RSA practices appear to have become more stringent among more intoxicated patrons (4% were asked to leave the premises in 2006 cf. 12% in 2011). Non-intoxicated patrons also reported that intoxicated patrons were asked to leave the licensed premises more often over this time period.

**Conclusion:** There has been an increase in the use of RSA initiatives in New South Wales licensed premises over the period 2002 through 2011.

**Keywords:** alcohol, signs of intoxication, responsible service of alcohol (RSA), licensed premises, repeat cross-sectional surveys

## INTRODUCTION

Research clearly shows that the service of alcohol to intoxicated patrons increases the likelihood of alcohol-related harms, such as violence and injury occurring (Chikritzhs, Catalano, Pascal, & Henrickson, 2007; Donnelly & Briscoe, 2002). An important set of strategies to reduce harms associated with alcohol intoxication are to equip licensed premises staff with the skills to recognise signs of intoxication among patrons and also to be able to refuse service to such patrons (Saltz, 1986; Wallin, Gripenberg, & Andreasson, 2005). These strategies are referred to as the responsible service of alcohol (RSA) and they are important given that in New South Wales (NSW) it is an offence for licensed premises to serve alcohol to intoxicated persons.

While initial demonstration projects in the 1980s showed promising results for RSA programs, attempts to implement such projects at the broader community level had generally been less successful (Stockwell, 2001). A telephone survey of over one thousand young adults conducted by the NSW Bureau of Crime Statistics and Research (BOCSAR) in 2002 found that a large percentage of this group reported that they were showing signs of intoxication while drinking at licensed premises. Very few of the respondents who reported these signs experienced any of

the standard RSA responses that licensed premises staff are supposed to provide (Donnelly & Briscoe, 2002).

After this survey was conducted in 2002, a range of initiatives were undertaken by the NSW Government to encourage more responsible service of alcohol on licensed premises and reduce the prevalence of intoxication among patrons. In August 2003, the NSW Government convened an *Alcohol Summit*, which involved government agencies, alcohol industry representatives and community groups actively discussing how the harms associated with alcohol use could be minimised. Following this *Summit*, the Government amended the liquor laws to require mandatory training for all licensed premises staff in an accredited RSA course (NSW Government, 2004; Scott, Donnelly, Poynton, & Weatherburn, 2007).

Another initiative that had the potential to impact on RSA practice was the roll-out of the NSW Police *Linking Project* into the Sydney metropolitan area in late 2004. As well as improving the flagging of crime incidents as alcohol-related, this project required police to record information about the last place at which offenders reported drinking. As a result of this initiative, police in Local Area Commands were able to link alcohol-related incidents to specific licensed premises (Wiggers et al., 2004).

These premises receive routine reports from the police about alcohol-related incidents involving patrons at the premises and are sometimes given advice by police on how to avoid these incidents through better serving practices.

In 2006, BOCSAR conducted the second telephone survey of young adults' experience of responsible service practice in NSW to assess if there had been any impact of the RSA program roll-out (Scott et al., 2007). While the overall percentage of respondents at licensed premises who reported at least one sign of intoxication remained steady at 55 per cent, there was a reduction in the percentage who reported three or more signs of intoxication, from 19 per cent in 2002 to 15 per cent in 2006. Notably, among patrons who reported three or more signs of intoxication, the provision of one of the seven RSA responses by licensed premises staff increased significantly from 12 per cent to 28 per cent. There had clearly been some improvement in RSA practice between 2002 and 2006. However it remained the case that over 50 per cent of patrons who reported showing three or more signs of intoxication continued to be served alcohol at licensed premises.

Since 2006 there has been increased enforcement activity on licensed premises by the NSW Police Force and the Office of Liquor, Gaming and Racing (OLGR). In March 2008, BOCSAR released a running 12 month list of the top 100 licensed premises for assault incidents. The NSW Premier announced the imposition of licence restrictions on the top 48 licensed premises in late 2008. In the 12 month period after March 2008, there was a decline in assault incidents in the top 100 licensed premises for assaults listed on the BOCSAR website (Moffatt, Mason, Borzycki, & Weatherburn, 2009). Subsequent research suggested that this declining trend had extended to licensed premises outside of the top 100 list (Moffatt & Weatherburn, 2011). While it is difficult to infer causation from these studies, they suggest that publication of the list of licensed premises that have high numbers of assaults produced significant reductions in alcohol-related assaults across all licensed premises.

The mechanism underpinning the decrease in alcohol-related assaults is not known. There are many possible explanations for the observed crime drop but two are empirically testable given the baseline data collected by BOCSAR in 2002 and 2006. One possibility is that young people are, for whatever reason, less likely to drink to excess when drinking on licensed premises. Another possibility is that licensed premises have improved their RSA practices in response to the increased enforcement activity outlined above. The aim of the current investigation, therefore, was to repeat the previous two intoxication surveys carried out by BOCSAR in 2006 and 2002 on a sample of young adults in 2011 and examine whether: (1) the prevalence of intoxication among young adults drinking at licensed premises has decreased in 2011 compared with the previous surveys and; (2) whether the provision of RSA initiatives to intoxicated young adults in 2011 has increased.

## METHOD

The methodology used in the current survey was essentially identical to that used in the 2002 survey (Donnelly & Briscoe, 2002, 2003) and the 2006 survey (Scott et al., 2007). The 2011 survey was conducted over the period February through April, while the 2006 and 2002 surveys were conducted over the period December through February. For convenience of expression in this bulletin, the baseline survey conducted over the period December 2001 to February 2002 is referred to as the 2002 survey. The second survey conducted over the period December 2005 through February 2006 is referred to as the 2006 survey. The third survey conducted over the period February through April 2011 is referred to as the 2011 survey. The 2002 survey was part of an omnibus<sup>1</sup> Computer Assisted Telephone Interviewing (CATI) survey, while both the 2006 and 2011 surveys were conducted as stand-alone CATI surveys.

## QUESTIONNAIRE

The questionnaire conducted in 2011 employed the same items to quantify degree of intoxication and the provision of RSA as was used in the 2002 and 2006 surveys. This questionnaire is shown in Appendix A. The definition of intoxication used in the 2002 and 2006 surveys was based on the National Health and Medical Research Council's (NHMRC) Australian alcohol guidelines in 2001 (NHMRC, 2001). These guidelines distinguished *acute* risks of alcohol from *chronic* risks of alcohol. As the acute harms from alcohol related to assault, injury and poisoning, the acute risk levels were highly relevant in terms of measuring intoxication at licensed premises. The 2001 NHMRC guidelines defined acute risk as more than six standard drinks for males and more than four standard drinks for females. Therefore in both the 2002 and 2006 surveys, respondents were identified as having consumed alcohol at an acute-risk level during the previous 12 months based on the 2001 NHMRC guidelines. The prevalence questions were taken directly from the 1998 National Drug Strategy Household Survey (NDSHS) (Adhikari & Summerill, 2000).

In 2009, the NHMRC revised their guidelines for alcohol consumption (NHMRC, 2009). The acute risk level was renamed the *risk of injury on a single occasion of drinking*. The 2009 NHMRC definition now had a single level of this risk for both males and females which was no more than four standard drinks (Chikritzhs, 2011). Despite the change in the NHMRC risk levels for males in 2009, it was decided to employ the same 2001 NHMRC acute risk levels in the 2011 survey which were used in the 2002 and 2006 surveys. The reason for persisting with these separate definitions for male and female respondents was to preserve the repeat cross-sectional nature of the design. It was important to ensure that in measuring changes in the provision of RSA to intoxicated patrons, that intoxication was defined the same way on all three survey occasions. The 2011 survey also asked those male respondents who reported that they had never consumed more than six standard drinks in the previous year if they had consumed more than four standard drinks. Extra analyses conducted using this sub-group of males which were defined in terms of the new 2009 NHMRC guidelines, showed that this definition would not have increased the total number of males who were drinking at licensed premises by very much.<sup>2</sup>

Respondents who indicated that they had consumed alcohol beyond the acute-risk guidelines at least once were then asked how many standard drinks they had consumed on the last such drinking occasion and where this drinking location was. Subsequent questions concerning signs of intoxication were restricted to those respondents who had been drinking beyond the acute-risk guidelines at a licensed premises on the last occasion in 2002 and beyond the acute-risk guidelines at any location on the last occasion in 2006 and 2011. Thus, eligible respondents were asked to indicate whether they showed any of the following five signs of intoxication: (1) *loss of coordination*; (2) *slurred speech*; (3) *staggering or falling over*; (4) *spilling drinks* and (5) *loud or quarrelsome behaviour*. The rationale for using these indicators of intoxication is provided in more detail in Donnelly and Briscoe (2002).

Those patrons who indicated that they had shown at least one of the five signs at a licensed premises were then asked how the licensed premises staff had responded to these observable signs of intoxication. The following staff reactions were asked and again the respondent could indicate more than one of these responses where appropriate: (1) *they refused to serve me any more alcoholic drinks*; (2) *they asked me to leave the premises*; (3) *they called the police*; (4) *they suggested I buy low- or non-alcoholic drinks*; (5) *they suggested that I buy some food*; (6) *they advised me on or organised transport home*; (7) *they suggested that I stop drinking* and, (8) *they continued to serve me alcoholic drinks*. Items one through seven for this question were rotated across respondents; however item eight (relating to the continual service of alcohol) was always asked last. Items one through three were included because the *Liquor Act 1982*, *Registered Clubs Act 1976* and *Liquor Act 2007* define these as 'reasonable steps' to prevent intoxication (Donnelly & Briscoe, 2002; NSW OLGR, 2008).

Those respondents who indicated that they were not showing any of the five signs of intoxication while drinking at the licensed premises were asked if they had seen any other patrons showing these signs and, if so, whether they had seen any of the above eight staff reactions to these intoxicated persons. In the 2006 and 2011 surveys, respondents who were at a licensed premises on the last occasion were asked how crowded the premises was. Also those intoxicated patrons at licensed premises who reported that they did not receive any of the seven RSA initiatives from staff and also were not continued to be served alcohol were asked about other things which may have happened. These included: (1) *you decided to stop drinking yourself*; (2) *you decided to go home* and, (3) *someone else was buying your alcoholic drinks*.

## SAMPLE SIZE AND CHARACTERISTICS

In order to ensure that the study had adequate statistical power to detect a difference in the provision of RSA measures, the sample size was increased from 1,090 in 2002 to 2,427 participants in 2006. Details of these sample size calculations were provided in Scott et al. (2007). On the basis of these sample size calculations, 2,503 respondents aged 18 to 39 years were sampled for the 2011

survey. This increase in sample size provides confidence that if a null result is found, it is as a result of no change in the provision of RSA measures over the survey period, rather than a lack of statistical power to detect any change.

In the 2011 survey, a total of 19,109 calls were made to valid 'in scope' numbers.<sup>3</sup> Of these, 10,554 reported that their household contained no members in the required age range. Of the remaining 8,555 numbers, 5,478 (64.0%) refused to participate and 421 (4.9%) had language difficulties that prevented the interview from proceeding. In 2,503 (29.3%) cases, an interview was conducted. If we assume that all the calls where language difficulties were encountered had at least one eligible respondent (in terms of age and sex), the response rate was 29.3 per cent. If none of these households had a potentially eligible member, then the response rate would have been 30.8 per cent. The response rate achieved in the 2011 survey was much better than that achieved in the 2006 survey, which was around 19 per cent.<sup>4</sup>

Because the sampled participants in the 2002, 2006 and 2011 surveys were not randomly selected, the socio-demographics of each sample were compared and are shown in Appendix B. There was no difference between the three samples in terms of their gender and location breakdowns (see Table B1). However there were differences in terms of age group, educational attainment, marital status and work status. The 2006 and 2011 samples had a smaller percentage of 18-19 year olds and a larger percentage of 30-34 year olds than did the 2002 sample. The 2006 and 2011 samples also had a higher percentage of respondents with a university education, a higher percentage of respondents who were married or in a de facto relationship and also a slightly higher percentage of persons in part time/casual work.

As most of the analyses of interest relate to those respondents whose last drinking occasion was at a licensed premises, Table B2 compares the three samples in relation to this sub-group of respondents. There is no evidence to suggest any statistically significant difference in the sub-groups of the three samples in terms of gender. The 2006 and 2011 licensed premises sub-samples contained a higher percentage of respondents from country areas than did the 2002 sample and also had a higher percentage of respondents with a university education. The percentage of the licensed premises sub-sample with married/de facto respondents increased across each of the 2006 and 2011 surveys, while the percentage who were in full time employment was lower for the 2011 survey. A smaller proportion of this sub-sample was aged 20-24 years in the 2006 survey relative to the other two survey waves.

## STATISTICAL ANALYSES

Given these socio-demographic differences, it was necessary to conduct logistic regression analyses to control for these potentially confounding differences between the three survey samples (Hosmer & Lemeshow, 2000). A manual backward elimination method was used whereby all socio-demographic

variables as well as the variable coding for survey year were initially included in the model. Non-significant terms were then sequentially (and manually) removed until a final model containing only the survey year term(s) and significant covariates were defined. This ensures that any apparent differences between the 2011, 2006 and 2002 samples in terms of reported intoxication levels or RSA provision are not biased by these known socio-demographic differences between the samples. In addition to these socio-demographic variables, the regression analyses also controlled for the number of standard drinks which the intoxicated respondents reported they had consumed. Survey year was initially modelled categorically, with the 2006 sample being compared to each of the 2002 and 2011 samples. This means that as well as measuring changes in the provision of RSA between 2002 and 2006, any changes in RSA which had occurred between 2006 and 2011 are measured. Given the reduction which had occurred in the levels of non-domestic assault in NSW since March 2008 (Moffatt & Weatherburn, 2011), focussing on changes in RSA provision between 2006 and 2011 is appropriate.

As the survey year variable was ordinal scaled, the statistical analyses also tested whether a linear alternative to independence would be appropriate (Agresti, 1996). Where the magnitude of the chi-square statistic with one degree of freedom was almost as large as the chi-square with two degrees of freedom and also statistically significant, the final logistic regression contained a single term for survey trend. Where there was no clear linear trend, the logistic regression model was fitted with two degrees of freedom for survey year with the 2006 sample as the reference year against which the 2002 and the 2011 samples were compared. Also, when measuring signs of intoxication, linear regression was used to assess whether there was a difference between the three surveys in the mean number of signs of intoxication (among those respondents who reported at least one sign of intoxication).

Of the seven RSA measures we used in our survey, three of them were included because the Liquor Act and the Registered Clubs Act had defined them as 'reasonable steps' to prevent intoxication (Donnelly & Briscoe, 2002; NSW OLGR, 2008). These were: '*they refused to serve me any more alcoholic drinks*', '*they asked me to leave the licensed premises*' and '*they called the police*'. Analyses were also conducted to assess if the number of these 'reasonable steps' RSA measures which were reported by a respondent had changed across the three surveys. This was done for intoxicated patrons in terms of the number of 'reasonable steps' they received. It was also done for the non-intoxicated patrons who saw other intoxicated patrons in terms of the number of 'reasonable steps' they saw given to these other patrons. Poisson regression analyses were used because it was the count of these RSA measures which was being assessed. The analysis strategy once again treated the 2006 sample as the referent category and each of the 2002 and 2011 samples were compared with it. The results were expressed as incidence rate ratios (IRRs). Negative binomial analyses were also conducted to check that the variance assumption had been satisfactorily met.

## RESULTS

### PREVALENCE OF DRINKING AT ACUTE-RISK LEVELS

From a total of 2,503 respondents surveyed in 2011, 1,499 (59.9%) reported that they had consumed alcohol at the acute-risk level at least once during the previous 12 months. This was significantly lower than the 66.0 per cent of 2,427 respondents (n=1,601) who were surveyed in 2006 ( $\chi^2_1 = 19.5, p < .001$ ). This prevalence of annual acute-risk drinking among the 2011 sample remained significantly lower than the 2006 prevalence after controlling for age group, location, educational attainment, marital status and work status using logistic regression ( $\chi^2_1 = 14.3, p < .001$ ). The 2011 sample also reported a lower rate of 'at least weekly' acute-risk drinking than did the 2006 sample (20.2% v 25.1%). This lower level of 'at least weekly' drinking was statistically significant both when unadjusted ( $\chi^2_1 = 16.7, p < .001$ ) and also when adjusted for gender, age group, location, educational attainment, marital status and work status using logistic regression ( $\chi^2_1 = 10.9, p = .001$ ).

Among the 1,090 respondents surveyed in 2002, 758 (69.5%) reported that they had consumed alcohol at the acute-risk level at least once during the previous 12 months. Also, 29.4 per cent of respondents in 2002 reported that they were drinking alcohol at the acute-risk level on a weekly basis. These higher rates of annual and weekly acute-risk drinking among the 2002 sample compared with the 2006 sample were not statistically significant after important covariates had been controlled for using logistic regression.

### LAST LOCATION OF DRINKING AT ACUTE-RISK LEVELS

Of the 1,499 respondents in 2011 who reported having consumed alcohol at acute-risk levels during the previous 12 months, 746 (49.8%) reported that a licensed premises was the last place where this had occurred. While slightly lower than the 820 (51.2%) of the 1,601 acute-risk level respondents in 2006, this difference between the percentages was not statistically significant ( $\chi^2_1 = 0.7, p = .419$ ). In the 2002 survey, 412 (54.4%) of the 758 acute-risk level respondents reported a licensed premises as the last place of acute-risk level drinking. However this was not a significantly higher percentage when compared with the 2006 sample ( $\chi^2_1 = 2.0, p = .155$ ).

In 2011, just over half (50.8%) of the 746 respondents who had been drinking at a licensed premises on their last acute-risk drinking episode reported that the type of licensed premises was a hotel. A further 123 (16.5%) stated that they had been drinking at a registered club, 117 (15.7%) stated that they had been drinking at a nightclub, 56 (7.5%) stated that they had been drinking at a licensed restaurant and 71 (9.5%) stated that they had been drinking at some other type of licensed premises. When we compared these results with the type of licensed premises attended by respondents from the 2006 survey, there were some significant differences ( $\chi^2_4 = 11.2, p = .025$ ). The main difference was that more respondents reported having attended

the 'some other type of premises' category (9.5% in 2011 versus 6.5% in 2006). Almost 30 per cent of the 'other premises' group were wedding receptions in 2011 compared with only two per cent in 2006.

The 2011 and 2006 samples were still quite similar in terms of the type of premises attended with just over one half of each group having attended a hotel and between 67 to 72 per cent of each group having attended either a hotel or a registered club. After removing the 'other premises' group from the comparison, there was no longer any significant difference between the 2011 and 2006 survey groups in the types of licence premises which they had attended ( $\chi^2_3 = 6.2, p=.104$ ).

### NUMBER OF STANDARD DRINKS CONSUMED AT LICENSED PREMISES

There was a decline from 2002 to 2011 in the percentage of males at licensed premises who reported that they had consumed 13 or more standard drinks on that occasion. This was from 28.4 per cent in 2002 to 23.1 per cent in 2006 to 19.4 per cent in 2011. This linear decrease in males drinking 13 or more standard drinks was statistically significant ( $\chi^2_1 = 6.2, p=.013$ ). This decline over time remained statistically significant after using logistic regression to control for other important covariates ( $\chi^2_1 = 5.5, p=.018$ ). This analysis included age group (younger males consumed more), education (university educated consumed less) and employment status (full time employed consumed more).

There was no statistically significant change in the percentage of males at licensed premises who reported that they consumed nine or more standard drinks in the 2002 and 2006 surveys (61.8% and 60.4% respectively). While this was followed by a reduction in the percentage of males who reported drinking nine or more standard drinks at licensed premises to 54.4 per cent in 2011, this was not a statistically significant decline ( $\chi^2_1 = 3.0, p=.085$ ).

The number of standard drinks reported by females at licensed premises was a lot less compared with males, though their question did include the 5-6 standard drinks category (consistent with 2001 NHMRC guidelines). There was also a reduction over the period 2002 through 2011 in the percentage of females who reported that they had consumed 13 or more standard drinks at licensed premises. This was from 10.7 per cent in 2002 to 6.3 per cent in 2006 to 3.4 per cent in 2011. This linear decrease was statistically significant ( $\chi^2_1 = 11.3, p=.001$ ). This decline over time remained statistically significant after using logistic regression to control for the effect of university educated respondents having consumed less ( $\chi^2_1 = 9.1, p=.003$ ). There was no change in the percentage of females at licensed premises who reported having consumed nine or more standard drinks across the 2002, 2006 and 2011 surveys with around 20 per cent having done so.

Given that the 2011 survey was conducted during different months of the years (February through April) compared with the two previous surveys (December through February), it is also

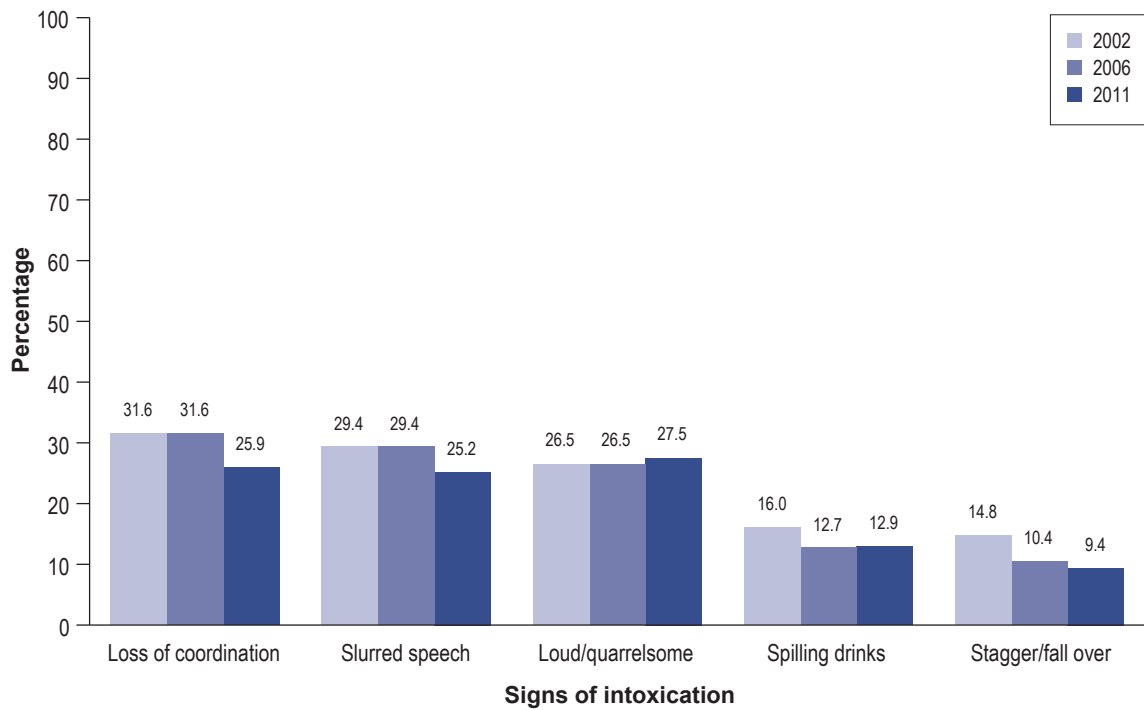
important to consider whether it was during a less busy time for licensed premises. In both the 2006 and 2011 surveys, a question was included to measure how crowded the licensed premises were. The percentages were very similar across the two surveys. In 2006, 12 per cent said the premises were 'overcrowded', 33 per cent 'full', 22 per cent 'three quarters full' and 33 per cent either 'half full' or 'about a quarter full or less'. In 2011, 10 per cent said the premises were 'overcrowded', 31 per cent 'full', 25 per cent 'three quarters full' and 34 per cent either 'half full' or 'about a quarter full or less'. There was not a statistical difference between the 2006 and 2011 in the percentage of respondents who reported that the licensed premises were overcrowded ( $\chi^2_1 = 0.8, p=.369$ ). In 2006, 45 per cent of the respondents reported that the licensed premises were either full or overcrowded while this was the case for 41 per cent of the respondents in 2011. This was not a statistically significant difference ( $\chi^2_1 = 2.4, p=.121$ ).

### SIGNS OF INTOXICATION AT LICENSED PREMISES

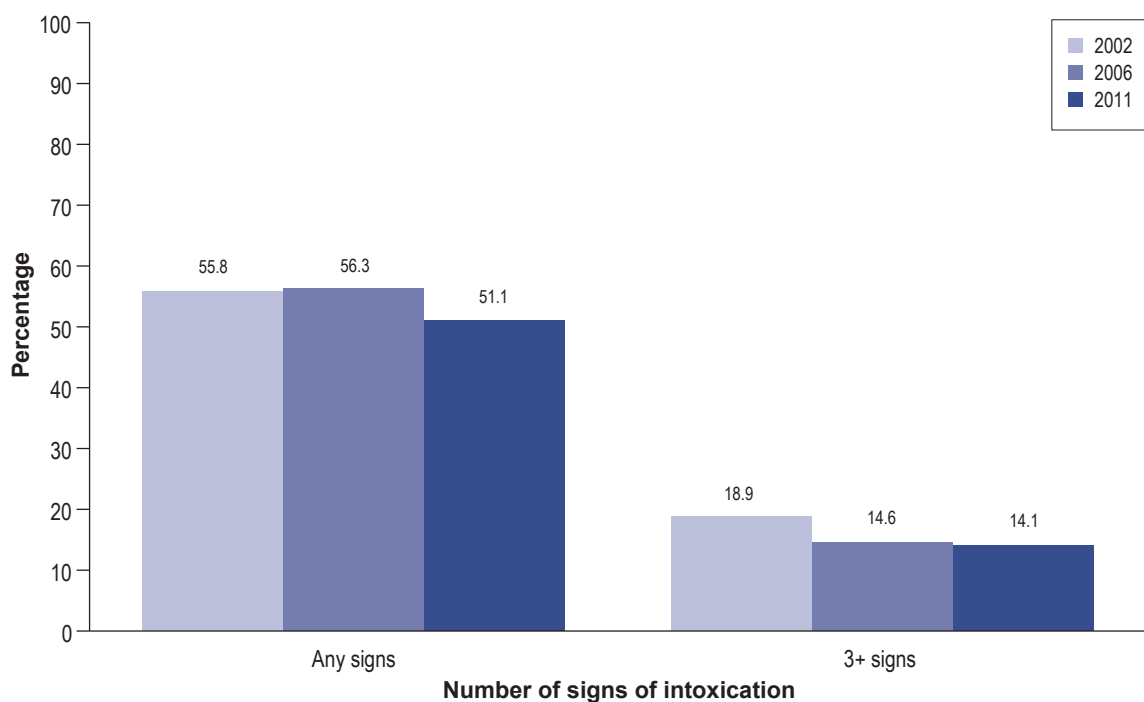
Changes in each of the five signs of intoxication reported by respondents whose last acute-risk drinking occasion occurred in a licensed premises are shown in Figure 1. There was significantly less 'loss of coordination' among the 2011 sample (25.9%) compared with the 2006 sample (31.6%). This effect was statistically significant, adjusting for age group and gender ( $\chi^2_1 = 6.3, p=.012$ ). The percentage of respondents reporting 'loss of coordination' did not change between 2002 and 2006. While there was a lower rate of 'slurred speech' among the 2011 sample (25.2%) compared with the 2006 sample (29.4%), this was not a statistically significant difference ( $\chi^2_1 = 2.7, p=.100$ ). There was no significant change between the 2006 and 2011 surveys in the percentage of respondents who reported 'loud/quarrelsome behaviour' (26% - 27%) or 'spilling drinks' (13% - 16%). The percentage of respondents who reported 'staggering/falling over' was very similar for the 2006 and 2011 surveys at around 10 per cent. However there was a significant decline in 'staggering/falling over' from 14.8 per cent in 2002 to 10.4 per cent in 2006 ( $\chi^2_1 = 4.5, p=.033$ ).

Figure 2 shows the percentage of respondents reporting any of the five signs of intoxication at a licensed premises and the percentage showing three or more signs of intoxication at a licensed premises across the three surveys. In 2002, 230 (55.8%) of the 412 respondents at licensed premises were showing at least one sign of intoxication. In 2006, 462 (56.3%) of the 820 respondents were showing at least one sign, while in 2011, 381 (51.1%) of the 746 respondents were showing at least one sign. There was a significant decline in the percentage of respondents showing at least one sign of intoxication at a licensed premises from 56.3 per cent in 2006 to 51.1 per cent in 2011 ( $\chi^2_1 = 4.8, p=.028$ ). This effect remained significant after adjusting for other important covariates such as age group (younger age groups reported more intoxication) and gender (males reported more intoxication).

*Figure 1. Changes in the percentage reporting each sign of intoxication when drinking at acute-risk levels at a licensed premises*



*Figure 2. Changes in the number of signs of intoxication reported when drinking at licensed premises between 2002, 2006 and 2011*



In 2002, 78 (18.9%) of the 412 respondents at licensed premises were showing three or more signs of intoxication. In 2006, 120 (14.6%) of the 820 respondents were showing three or more signs and in 2011, 105 (14.1%) of the 746 respondents were showing at three or more signs. There was a decline in the percentage of respondents reporting three or more signs of intoxication in 2006 relative to 2002 but this difference was not statistically significant ( $\chi^2_1 = 3.5, p=.063$ ). There was no change from 2006 to 2011 in the percentage of respondents reporting three or more signs of intoxication ( $\chi^2_1 = 0.1, p=.792$ ). Age group and gender were again significant covariates in the logistic regression modelling.

There was also no change in the mean number of signs of intoxication reported among those respondents who reported at least one sign of intoxication. In 2002, the mean number of signs of intoxication among this group was 2.12, in 2006 it was 1.96 and in 2011 it was 1.97. Linear regression analyses which controlled for age group and gender showed that the difference between the 2002 and 2006 samples was not significantly different ( $t = 1.4, p=.158$ ), nor was the difference between the 2011 and 2006 samples ( $t = 0.1, p=.964$ ). Overall these analyses show that while there was a lower percentage of respondents at licensed premises showing any signs of intoxication in 2011 compared with 2006, amongst those who showed any signs of intoxication, the mean number of signs of intoxication was not greater in 2011.

**RELATIONSHIP BETWEEN NUMBER OF STANDARD DRINKS CONSUMED AND SIGNS OF INTOXICATION AT LICENSED PREMISES**

Across each of the three surveys there was a very strong relationship between the number of standard drinks consumed and signs of intoxication reported by respondents at licensed premises. Figure 3 shows this effect in terms of respondents having reported that they were showing any of the five signs of intoxication. While just over one third of respondents who reported consuming five or six standard drinks also reported showing at least one sign of intoxication, this increased to over one half of those who consumed seven to eight standard drinks, around 60-65 per cent of those who consumed nine to 12 standard drinks and around three quarters of those who consumed 13 or more standards drinks. This was consistent across the three surveys, with statistically significant linear effects for the 2002 sample ( $\chi^2_1 = 34.0, p<.001$ ), the 2006 sample ( $\chi^2_1 = 60.4, p<.001$ ) and the 2011 sample ( $\chi^2_1 = 48.8, p<.001$ ).

**REACTIONS OF LICENSED PREMISES STAFF TO RESPONDENTS SHOWING SIGNS OF INTOXICATION**

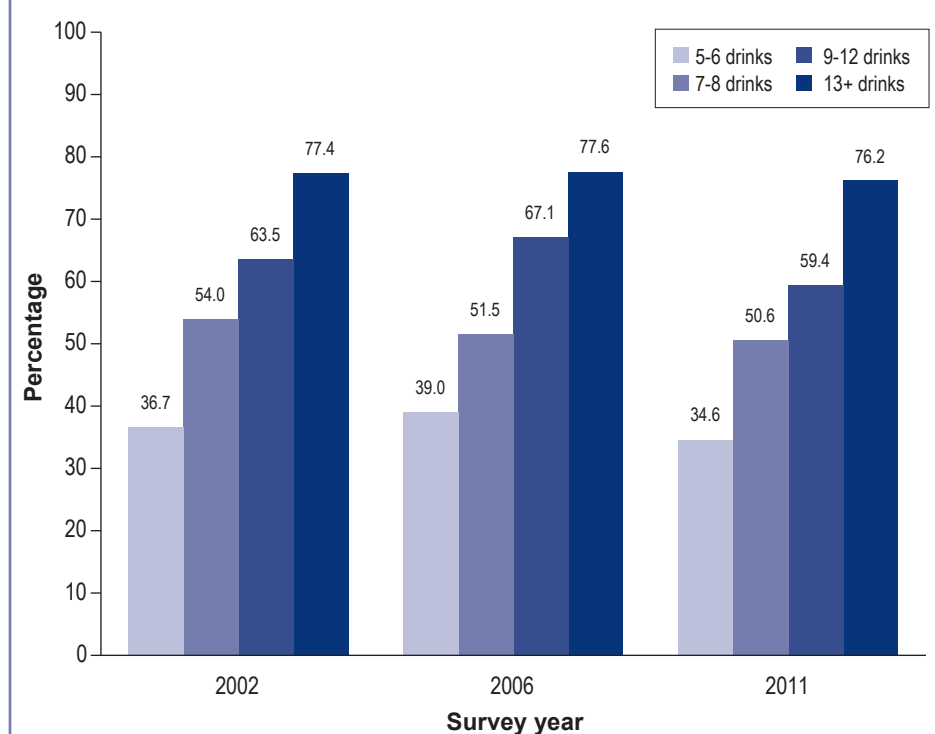
**RSA to respondents showing at least one sign of intoxication**

Respondents who reported at least one sign of intoxication were also asked how the licensed premises staff had reacted while they were showing these signs. Table 1 shows the RSA initiatives experienced by patrons in 2011 compared with 2006 and 2002. There was a linear increase in service refusal from 2.2 per cent in 2002 to 5.2 per cent in 2006 and 7.1 per cent in 2011. This linear increase was statistically significant after adjusting for age group, gender and location using logistic regression ( $\chi^2_1 = 6.9, p=.009$ ). Higher levels of service refusal were found for younger age groups, males and country respondents respectively.

There was a non-significant decline in intoxicated respondents being asked to leave the licensed premises from 3.5 per cent in 2002 to 1.7 per cent in 2006 ( $\chi^2_1 = 0.8, p=.366$ ). This was subsequently followed by a significant increase in being asked to leave the premises from 1.7 per cent in 2006 to 4.2 per cent in 2011 ( $\chi^2_1 = 5.3, p=.021$ ). Higher levels of being asked to leave the licensed premises were found among respondents who were educated at the high school level only and those who had consumed more standard drinks of alcohol.

There was a significant linear increase in the proportion of respondents reporting that they buy low or non-alcoholic drinks from 2.2 per cent in 2002 to 4.8 per cent in 2006 and to 7.3 per cent in

*Figure 3. Percentage of respondents who reported showing any signs of intoxication at a licensed premises by number of standard drinks consumed*



2011 ( $\chi^2_1 = 9.6, p=.002$ ). The suggestion that they buy some food also showed a significant linear increase, from 1.7 per cent in 2002 to 3.0 per cent in 2006 and then 5.2 per cent in 2011 ( $\chi^2_1 = 7.0, p=.008$ ). The increases in each of these two RSA behaviours remained statistically significant after adjusting for gender (males received more of each of these two RSA measures) and education (high school educated only received more of each of these two RSA measures) using logistic regression.

There was a significant increase in the percentage of intoxicated patrons reporting that they were asked to stop drinking from 3.5 per cent in 2002 to 7.1 per cent in 2006 controlling for age group and gender using logistic regression ( $\chi^2_1 = 4.3, p=.038$ ). There was, however, no significant change from 2006 to 2011 (where 6.6 per cent reported that it was suggested to them that they stop drinking;  $\chi^2_1 = 0.0, p=.833$ ). There were no significant changes across the three surveys in the percentage of intoxicated respondents advised to organise transport home, or the percentage reporting that police were called to deal with them. Nor were there any significant changes in the percentage (54%) of these who continued to receive alcohol.

Across the three surveys, the category in Table 1 called 'none of the above' was where the intoxicated respondent did not indicate that they received one of the seven RSA measures but also did not respond that they continued to be served alcohol. This varied from 37.0 per cent in 2002 to 35.1 per cent in 2006 to 33.3 per cent in 2011, however there was no statistically significant difference between the surveys ( $\chi^2_2 = 0.8, p=.655$ ). In 2006 and 2011, this group of respondents were also asked some further questions, including: whether they decided to stop drinking themselves, they decided to go home or that someone else was buying their drinks. It was found that there was a significant increase in the proportion of intoxicated patrons who decided to stop drinking themselves from 11.0 per cent in 2006 to 18.4 per cent in 2011. This increase was statistically significant

**Table 1. Changes in the reactions of licensed premises staff to respondents who reported at least one sign of intoxication**

Staff reaction when showing any signs of intoxication	Survey year			Statistical significance
	2002 (n=230)	2006 (n=462)	2011 (n=381)	
Refused to serve me any more alcoholic drinks	2.2	5.2	7.1	* linear
Asked me to leave the premises	3.5	1.7	4.2	* 2011 v 2006
They called the police	0.4	0.4	0.0	
Advised me on or organised transport home	4.8	6.7	5.0	
Suggested I buy low or non-alcoholic drinks	2.2	4.8	7.3	* linear
Suggested I buy some food	1.7	3.0	5.2	* linear
Suggested that I stop drinking	3.5	7.1	6.6	* 2002 v 2006
They continued to serve me alcoholic drinks	54.8	53.9	53.5	
None of the above	37.0	35.1	33.3	
Respondent refused to answer question	0.9	0.4	0.0	

\*  $p < .05$

**Table 2. Changes in how many different types of 'reasonable steps' RSA measures respondents with at least one sign of intoxication received: negative binomial regression**

Covariates	IRR (95% CI)	p-value
Survey year		
2002 vs. 2006	0.76 (0.35, 1.67)	.497
2011 vs. 2006	1.64 (1.01, 2.65)	.045*
Age group		
18-19 yrs vs. 30+ yrs	2.81 (1.34, 5.91)	.006*
20-24 yrs vs. 30+ yrs	1.76 (0.88, 3.51)	.111
25-29 yrs vs. 30+ yrs	1.17 (0.52, 2.65)	.701
Standard alcoholic drinks		
5-6 drinks vs. 13+ drinks	0.14 (0.05, 0.40)	<.001*
7-8 drinks vs. 13+ drinks	0.48 (0.26, 0.89)	.002*
9-12 drinks vs. 13+ drinks	0.72 (0.40, 1.28)	.264

\*  $p < .05$

Note. IRR = incidence rate ratio, CI = confidence interval



( $\chi^2_1 = 9.1, p=.003$ ). There was no change in the percentage who decided to go home themselves with 13.4 per cent in 2006 and 12.1 per cent in 2011 ( $\chi^2_1 = 0.3, p=.560$ ). Someone else buying their drinks was very rare with only 3.2 per cent in 2006 and 2.9 per cent in 2011 with no change between the two surveys ( $\chi^2_1 = 0.1, p=.764$ ).

Analyses were also conducted to see if the combination (or counts) of the three 'reasonable steps' RSA responses had changed over time among patrons who reported any signs of intoxication. In 2002, 95.7 per cent of the intoxicated patrons reported that none of the three 'reasonable steps' RSA measures had been used with them. In 2006 this declined to 93.5 per cent and, again, to 90.3 per cent in 2011. The percentage who reported receiving one of the reasonable steps RSA measures increased from 3.0 per cent in 2002 to 5.8 per cent in 2006 and to 8.1 per cent in 2011. Results from the negative binomial regression analyses of these changes are shown in Table 2.

The IRR for 2002 versus 2006 (IRR=0.76) was not statistically significant. However the IRR for 2011 versus 2006 was statistically significant (IRR=1.64) and showed that intoxicated respondents were more likely to receive some combination (or counts) of the 'three reasonable steps' RSA measures in 2011. Table 2 also shows that respondents aged 18-19 years were more likely to receive some combination of these three RSA measures, as were those who consumed 13 or more standard drinks compared to those who had consumed smaller amounts of alcohol.

Figure 4 shows the percentage of respondents showing any signs of intoxication and three or more signs of intoxication who received any of the seven RSA measures. Over the three surveys there was an increase in the percentage of intoxicated patrons who reported at least one of the seven RSA initiatives from 10.4 per cent in 2002 to 15.4 per cent in 2006 and to 18.9 per cent in 2011. This linear increase was statistically significant ( $\chi^2_1 = 11.1, p=.001$ ), controlling for other significant predictors, including education (high school educated got more RSA) and the number of standard drinks of alcohol consumed (more RSA for those who had consumed more standard drinks).

**RSA to respondents showing three or more signs of intoxication**

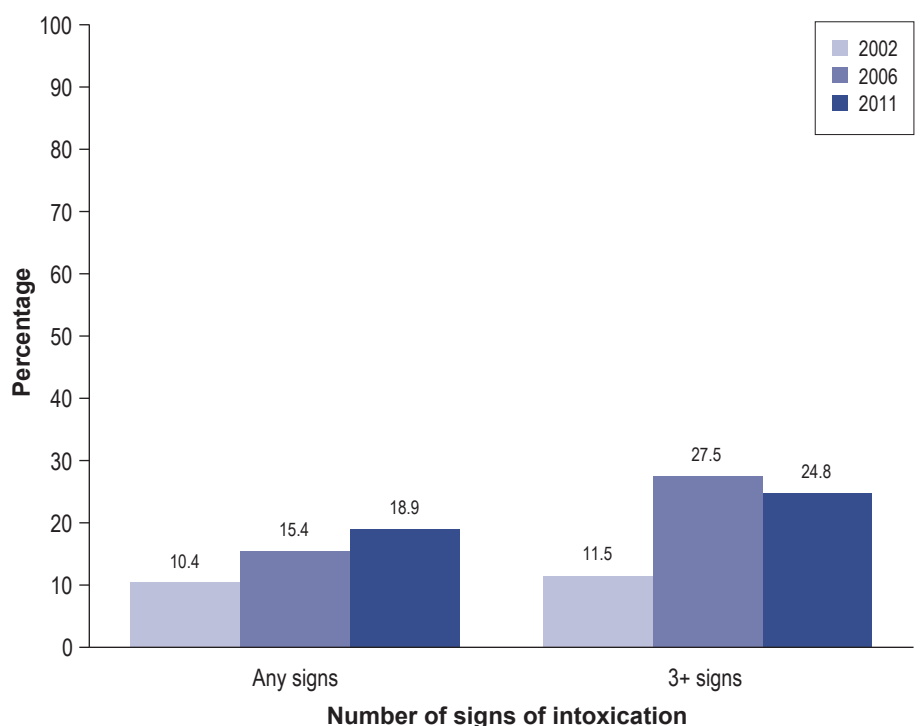
Table 3 provides a more detailed breakdown of the reaction of licensed premises staff to that subgroup of

respondents who reported three or more signs of intoxication across the surveys conducted in 2002, 2006 and 2011. By focussing on specific RSA initiatives, it is useful to measure whether any specific RSA approach had changed across the surveys among the more intoxicated group of patrons.

The refusal of service to patrons who reported showing three or more signs of intoxication increased from 3.8 per cent in 2002 to 11.7 per cent in 2006 and then stabilised at 11.4 per cent in 2011. Adjusting for location and age group, the increase from 2002 to 2006 was not statistically significant ( $\chi^2_1 = 2.9, p=.089$ ). Service refusal was more likely amongst more intoxicated patrons aged 18-19 and those from country areas. Table 3 also shows that, among these more intoxicated patrons, being asked to leave the licensed premises reduced from 6.4 per cent in 2002 to 4.2 per cent in 2006 and then increased to 12.4 per cent in 2011. The increase in these more intoxicated patrons being asked to leave the licensed premises from 2006 to 2011 was statistically significant ( $\chi^2_1 = 4.7, p=.030$ ).

There was also a significant linear increase in the percentage of these more intoxicated patrons being advised by licensed premises staff to buy low or non-alcoholic drinks. This advice increased from 2.6 per cent in 2002 to 5.8 per cent in 2006 and to 10.5 per cent in 2011. The change was statistically significant after adjusting for educational status ( $\chi^2_1 = 4.5, p=.033$ ). There was a significant increase in the percentage of licensed premises staff suggesting to more intoxicated patrons that they stop

**Figure 4. Changes in percentage of intoxicated respondents receiving RSA measures by number of signs of intoxication reported**



**Table 3. Changes in the reactions of licensed premises staff to respondents who reported three or more signs of intoxication**

Staff reaction when showing three or more signs of intoxication	Survey year			Statistical significance
	2002 (n=78)	2006 (n=120)	2011 (n=105)	
Refused to serve me any more alcoholic drinks	3.8	11.7	11.4	
Asked me to leave the premises	6.4	4.2	12.4	* 2011 v 2006
They called the police	1.3	1.7	0.0	
Advised me on or organised transport home	6.4	9.2	2.9	* 2011 v 2006
Suggested I buy low or non-alcoholic drinks	2.6	5.8	10.5	* linear
Suggested I buy some food	2.6	3.3	7.6	
Suggested that I stop drinking	3.8	15.0	10.5	* 2002 v 2006
They continued to serve me alcoholic drinks	65.4	54.2	54.3	
None of the above	26.9	26.7	23.8	
Respondent refused to answer question	0.0	0.8	0.0	

\*  $p < .05$ 

drinking, from 3.8 per cent in 2002 to 15.0 per cent in 2006 ( $\chi^2_1 = 5.3, p=.021$ ). This was followed by a decline in this advice from 15.0 per cent in 2006 to 10.5 per cent in 2011, however this reduction was not statistically significant ( $\chi^2_1 = 1.0, p=.315$ ).

There was also a decline in the percentage of these more intoxicated patrons being advised to organise transport home, from 9.2 per cent in 2006 to 2.9 per cent in 2011, which was statistically significant after adjusting for age group ( $\chi^2_1 = 3.9, p=.047$ ). There were no changes over the three surveys in suggestions by licensed premises staff that the patrons should buy some food, or in the percentage of cases where police were called. In 2006, 54.2 per cent of patrons who reported that they were showing three or more signs of intoxication also reported that they continued to be served alcohol at the licensed premises. While this had declined from 65.4 per cent in 2002, this was not a statistically significant reduction ( $\chi^2_1 = 2.4, p=.118$ ) and it remained stable in 2011 where 54.3 per cent reported that they continued to be served alcohol ( $\chi^2_1 = 0.0, p=.986$ ).

There was no statistically significant change across the three surveys in the proportions responding 'none of the above' to the RSA measures ( $\chi^2_2 = 0.3, p=.854$ ). The 'none of the above' category in Table 3 varied from 26.9 per cent in 2002 to 26.7 per cent in 2006 to 23.8 per cent in 2011. There was no significant change in the percentage of more intoxicated patrons who decided

to stop drinking themselves with 8.3 per cent having done so in 2006 and 11.4 per cent in 2011 ( $\chi^2_1 = 0.6, p=.435$ ). There was no significant change in the per cent who decided to go home themselves with 5.8 per cent in 2006 and 12.4 per cent in 2011 ( $\chi^2_1 = 3.0, p=.085$ ). Someone else buying their drinks was also very rare with only 2.5 per cent in 2006 and 2.9 per cent in 2011 and there was no significant change between the two surveys ( $\chi^2_1 = 0.0, p=.868$ ).

Analyses were conducted to see if the combination (or counts) of the three 'reasonable steps' RSA responses had changed over time among patrons who reported showing three or more signs of intoxication. In 2002, 93.6 per cent of the intoxicated patrons reported that none of the three 'reasonable steps' RSA measures had been used with intoxicated patrons. In 2006 this declined to 85.0 per cent and again to 81.9 per cent in 2011. The percentage who reported receiving one of the RSA measures increased from 2.6 per cent in 2002 to 13.3 per cent in 2006 and 12.4 per cent in 2011. The percentage who received either two or three of the RSA measures declined from 3.9 per cent in 2002 to 1.6 per cent in 2006 and then increased to 5.7 per cent in 2011. When these changes were analysed using negative binomial regression, the IRR for 2002 versus 2006 was 0.62 but was not statistically significant ( $z = -0.9, p=.391$ ) and the IRR for 2011 versus 2006 was 1.49 but was not statistically significant ( $z = 1.2, p=.213$ ). Important covariates in this regression model included age group

**Table 4. Changes in the reactions of licensed premises staff to patrons who were observed by other non-intoxicated patrons to be intoxicated**

Staff reaction to others showing signs of intoxication	Survey year			Statistical significance
	2002 (n=100)	2006 (n=227)	2011 (n=222)	
Refused to serve them any more alcoholic drinks	31.0	22.9	29.3	
Asked them to leave the premises	24.0	22.5	30.6	* 2011 v 2006
They called the police	3.0	3.5	3.2	
Advised them on or organised transport home	6.0	14.1	14.0	* 2002 v 2006
Suggested they buy low or non-alcoholic drinks	7.0	7.9	7.7	
Suggested they buy some food	3.0	4.8	3.2	
Suggested that they stop drinking	18.0	18.9	20.7	
They continued to serve them alcoholic drinks	26.0	23.8	23.9	
None of the above	29.0	32.2	28.8	
Respondent refused to answer question	0.0	0.4	0.5	

\*  $p < .05$

with 18-19 year olds and respondents who had consumed more standard drinks reporting more 'reasonable steps' RSA measures. When the term for survey year was modelled as a single linear trend term, the IRR was 1.10 which was not statistically significant ( $z = 1.9, p=.056$ ) but had a 95 per cent confidence interval in the range 1.00 - 1.21.

Figure 4 also shows changes in the provision of any of the seven RSA initiatives across the three surveys to those patrons who reported that they were showing three or more signs of intoxication. In 2002 only 11.5 per cent of these more intoxicated patrons received at least one RSA initiative. In 2006 this increased to 27.5 per cent and in 2011 it decreased slightly, to 24.8 per cent. Logistic regression analysis found that the increase in RSA from 2002 to 2006 was statistically significant ( $\chi^2_1 = 7.3, p=.007$ ), while the slight decrease from 2006 to 2011 was not significant ( $\chi^2_1 = 0.2, p=.674$ ). This regression analysis controlled for other significant predictors including education (high school educated got more RSA) and location (country respondents got more RSA).

### OBSERVATIONS OF NON-INTOXICATED PATRONS

Of the 746 respondents who reported drinking at a licensed premises on their last acute-risk drinking occasion in 2011, 365 (48.9%) reported that they did not show any of the five signs

of intoxication. In 2006, 358 (43.7%) of the 820 respondents at licensed premises reported they were not showing signs of intoxication as did 182 (44.2%) of the 412 respondents at licensed premises in 2002. These groups of 'non-intoxicated' patrons were then asked whether they were aware of any other people on the licensed premises who were exhibiting signs of intoxication. Of the 365 non-intoxicated patrons in the 2011 survey, 222 (60.8%) reported that they did see other patrons showing signs of intoxication. This was lower than the 227 (63.4%) of the 358 non-intoxicated patrons in 2006 who reported seeing other intoxicated patrons in 2006. However the difference between these percentages was not statistically significant ( $\chi^2_1 = 0.6, p=.421$ ). In 2002, 100 of the 182 (54.9%) non-intoxicated patrons reported that they saw other patrons who were showing signs of intoxication. The lower percentage of non-intoxicated patrons seeing other intoxicated patrons in 2002 compared with 2006 (54.9% v 63.4%) was found to be statistically significant in a logistic regression which included age group and marital status ( $\chi^2_1 = 4.8, p=.029$ ).

Those respondents, who did not report any of the five signs of intoxication but did observe at least one of the five signs in other patrons, were asked how the licensed premises staff had reacted to these other 'intoxicated' patrons. The frequencies and percentages of each of the individual reactions for the 2002, 2006 and 2011 surveys are shown in Table 4. While there

appeared to be a reduction in the percentage of non-intoxicated respondents who saw intoxicated patrons refused alcohol service from 31.0 per cent in 2002 to 22.9 per cent in 2006, this decrease was not statistically significant ( $\chi^2_1 = 2.8, p=.092$ ). Similarly, the apparent increase in service refusal to 29.3 per cent in 2011 was not statistically significant ( $\chi^2_1 = 1.9, p=.173$ ).<sup>5</sup>

Between 2002 and 2006, the percentage of non-intoxicated respondents who reported that they had seen intoxicated patrons being asked by staff to leave the licensed premises declined slightly from 24.0 per cent in 2002 to 22.5 per cent in 2006. This small change was not statistically significant ( $\chi^2_1 = 0.0, p=.957$ ). This was, however, followed by a significant increase in non-intoxicated respondents reporting that intoxicated patrons had been asked by staff to leave the licensed premises from 22.5 per cent in 2006 to 30.6 per cent in 2011 ( $\chi^2_1 = 4.1, p=.044$ ).<sup>6</sup>

There was a significant increase in the percentage of non-intoxicated respondents who reported that intoxicated patrons had been advised about transport home by licensed premises staff from 6.0 per cent in 2002 to 14.1 per cent in 2006 ( $\chi^2_1 = 4.5, p=.034$ ). There was no change in this transport advice between 2006 and 2011, as the percentage remained at the 14.0 per cent level.<sup>7</sup> There were no significant changes across the three surveys in non-intoxicated respondents reporting the extent to which licensed premises staff used the other RSA measures in response to intoxicated patrons. These included: (i) suggesting that they buy low or non-alcoholic drinks (7% - 8%), (ii) suggesting that they buy some food (3% - 5%) or, (iii) suggesting that they stop drinking alcohol (18% - 21%). There were also no significant changes in non-intoxicated respondents reporting that the police were called in by licensed premises staff in relation to intoxicated patrons (around 3%). In terms of continued alcohol service to intoxicated patrons, non-intoxicated respondents reported less of this in 2006 (23.8%) than in 2002 (26.0%). However this change was not statistically significant, nor was the very small change in continued service between 2006 and 2011 (23.9% v 23.8%).

In terms of non-intoxicated patrons having observed any of the seven RSA initiatives, the percentages were very similar across the surveys (50.0% in 2002, 47.6% in 2006 and 51.8% in 2011). The small change between 2002 and 2006 was not statistically significant ( $\chi^2_1 = 0.2, p=.688$ ), nor was the small change between 2006 and 2011 ( $\chi^2_1 = 0.5, p=.493$ ).<sup>8</sup>

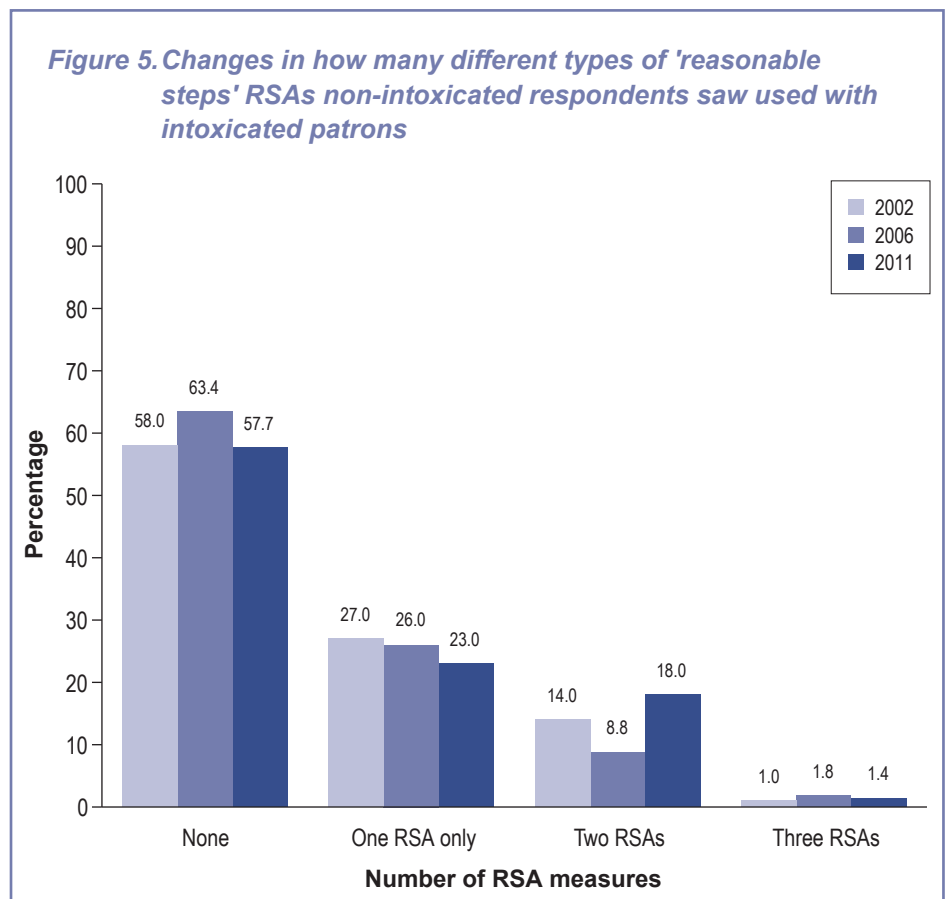
Analyses were conducted to see if the combination (or counts) of the three 'reasonable steps' RSA responses had changed over time. These data are shown in Figure 5 in terms of how

many of these three 'reasonable steps' were reported by non-intoxicated respondents with respect to how licensed premises staff responded to other intoxicated patrons. In 2002, 58.0 per cent of non-intoxicated patrons reported that none of the three 'reasonable steps' RSA measures had been used with intoxicated patrons. In 2006 this lack of use of any of these RSA measures had risen to 63.4 per cent but had then declined again to 57.7 per cent in 2011. At the other end of the spectrum, 14.0 per cent of non-intoxicated patrons in 2002 reported that two of the three 'reasonable steps' RSA measures had been used with other intoxicated patrons. This decreased to 8.8 per cent in 2006 but then increased to 18.0 per cent in 2011.

Poisson regression analyses were conducted to assess whether the counts (numbers) of 'reasonable steps' RSA measures had changed between 2002 and 2006 and also whether it had changed between 2006 and 2011. These analyses found that the decline in the counts of these RSA measures was not significant between 2002 and 2006 ( $z = 0.9, p=.392$ ). There was, however, a significant increase in the number of 'reasonable steps' RSA measures reported between 2006 and 2011 ( $z = 2.0, p=.044$ ). The IRR for 2011 versus 2006 was 1.29 (95% CI: 1.01, 1.66).<sup>9</sup>

## DISCUSSION

There were two main aims of the 2011 survey. The first aim was to measure whether the prevalence of intoxication among young adults at licensed premises in NSW had changed. The second aim was to measure whether the level and type of RSA provision has changed among young adults who drink to a point



of intoxication at licensed premises in NSW. In terms of the first aim, there was a significant decline in the percentage of respondents who reported that they were showing at least one sign of intoxication at a licensed premises from 56 per cent in 2006 to 51 per cent in 2011. This decline in intoxicated drinking is consistent with the most recent NDSHS, which found declines in the prevalence of at least yearly single occasion risky alcohol consumption (Australian Institute of Health and Welfare, 2011). While overall levels of intoxication at licensed premises appears to have declined in 2011 in terms of the percentage reporting at least one sign of intoxication, it was not the case that those who were intoxicated in 2011 were more intoxicated than they were in 2006. This was because the mean number of signs of intoxication among this group was around two in both 2006 and 2011. It was also the case that the percentage reporting three or more signs of intoxication at a licensed premises remained stable between 2006 and 2011 at around 14 per cent, though it was higher at 19 per cent in 2002.

In terms of the second aim, the results from the 2011 survey provided very useful information about the extent to which RSA has been implemented in NSW licensed premises compared with previous surveys. Firstly, improvements occurred over the period 2002 through 2011 in the provision of RSA by licensed premises staff to patrons who reported showing at least one sign of intoxication. There was a significant linear increase in the provision of at least one of the seven RSA measures from 10 per cent in 2002 to 15 per cent in 2006 to 19 per cent in 2011. In terms of specific RSA categories, there was a linear increase in service refusal (from 2% to 7%), the suggestion of buying low or non-alcoholic drinks (from 2% to 7%) and the suggestion of buying food (from 2% to 5%). There was a significant increase in intoxicated patrons having been asked to leave the premises, from two per cent in 2006 per cent to four per cent in 2011.

Importantly, it was found that there was a consistent increase in the provision of the three 'reasonable steps' RSA measures which included service refusal, being asked to leave the licensed premises and calling the police. Across each of the three surveys, these were more likely to be used in combination by licensed premises staff with respect to those patrons showing any signs of intoxication. Specifically, the increase between 2006 and 2011 was statistically significant and took account of the fact that younger patrons and those who had consumed more standard alcoholic drinks were more likely to receive these 'reasonable steps' RSA measures.

Among those respondents at licensed premises who reported showing three or more signs of intoxication, there was a significant increase in them having received at least one of the seven RSA initiatives, from 12 per cent in 2002 to 28 per cent in 2006. There was then no significant change in these more intoxicated patrons having received any of the seven RSA initiatives between 2006 and 2011 (where it was 25%). When the analyses of each individual RSA response was conducted, it was found that while the overall level of RSA did not change between 2006 and 2011, certain types of RSA did change. There was a linear increase in these more intoxicated patrons having been

advised by staff to buy low or non-alcoholic drinks, from three per cent in 2002 to six per cent in 2006 to 11 per cent in 2011. There was also a significant increase in the percentage of these more intoxicated patrons being asked by staff to leave the premises, from four per cent in 2006 to 12 per cent in 2011. At the same time there was a significant decrease in this more intoxicated group being advised about transport home, from nine per cent in 2006 to three per cent in 2011.

An important component of the survey was that non-intoxicated patrons at licensed premises provided information about what RSA measures other patrons who were intoxicated at the licensed premises received from staff. In terms of non-intoxicated patrons having observed any of the seven RSA initiatives in other intoxicated patrons, the percentages were very similar across all three surveys (around 50%). Importantly, however, it was found that there was a significant increase in the percentage of non-intoxicated respondents who reported that they saw intoxicated patrons asked by staff to leave the premises, from 23 per cent in 2006 to 31 per cent in 2011. Further, it was found that the count of the number of the three 'reasonable steps' RSA measures taken directly from the legislation had significantly increased from 2006 to 2011. This indicated that the measures of service refusal and asking the intoxicated patron to leave the licensed premises were more likely to occur together in 2011.

While there has clearly been an improvement in the RSA received by intoxicated patrons between 2006 and 2011 (as reported by intoxicated patrons and also by non-intoxicated patrons), it was still the case in 2011 that over half of the more intoxicated patrons reported that they were continued to be served alcohol by staff. It was also still the case that almost one quarter of non-intoxicated patrons reported that other intoxicated patrons were continued to be served alcohol. Another positive finding, however, was there was a statistically significant increase in the percentage of intoxicated respondents who reported that they decided to stop drinking themselves from 11 per cent in 2006 to 18 per cent in 2011.

Costello, Robertson, and Ashe (2011) reported the findings from a qualitative survey of 141 licensed premises staff in Western Australia. Almost 75 per cent of the respondents were female, 85 per cent were from a metropolitan area and 80 per cent had training in RSA. When asked what had the biggest influence on whether they served intoxicated patrons, overall most licensed premises staff reported that it was their 'own judgement'. Among non-metropolitan staff, however, the influence of other management and staff was also important. When asked why staff continued to serve intoxicated patrons, many respondents cited negative responses from the patron, as well as it being difficult to detect that a patron actually was intoxicated. Economic reasons for continued service were also cited by some licensed premises staff. Importantly, in terms of the issue of why an intoxicated patron had been refused service, negative behaviour by the patron including aggression and verbal abuse were key points made by licensed premises staff. Costello et al. (2011) concluded that there was need for RSA training requirements to be standardised throughout Australia. Also, patron management techniques should be an important component of RSA training.

Hawkins, Sanson-Fisher, Shakeshaft, and Webb (2009) conducted surveys with police, liquor licensees and the general public in rural NSW to measure to extent to which these groups agreed about different strategies to reduce alcohol-related harms. High levels of agreement were found among all three groups in terms of proof of age checks on patrons, refusing entry to the licensed premises to intoxicated persons and not serving intoxicated persons. While police and the general public strongly supported the strategy in which licensed premises and security staff receive more training in identifying signs of intoxication and the associated responsible service of alcohol, there was a lower level of support for this among liquor licensees (90% versus 70%). Also while almost 90 per cent of police supported visible checks of RSA practices at licensed premises, this measure was only supported by around 60 per cent of licensees.

The issue of the importance of regulatory efforts to promote RSA has been supported by the RSA survey conducted in NSW in 2011. Since 2008, the increased enforcement activity by the NSW Police Force and OLGR with respect to licensed premises was associated with reduced levels of non-domestic assault in NSW (Moffatt & Weatherburn, 2011). The finding that the provision of any RSA to intoxicated patrons also increased over the same time period in which the increased enforcement occurred is positive. Importantly, the finding that intoxicated patrons were also more likely to have been asked to leave the licensed premises shows another benefit of RSA practice. Furthering the gains received from the effectiveness and implementation of RSA training and practice among licensed premises staff is clearly indicated.

## ACKNOWLEDGEMENTS

Taverner Research are thanked for conducting the survey fieldwork in 2011. I gratefully acknowledge Suzanne Poynton for the important contribution that she made to the development of the survey instrument and methodology. Sincere thanks to Don Weatherburn, Craig Jones and the two external reviewers for the advice they provided on an earlier version of this paper.

## NOTES

- 1 An omnibus survey is one which includes research questions from a variety of different organisations. The 2002 survey was conducted by AC Nielsen.
- 2 With respect to the licensed premises location, defining males from the 2011 sample in terms of the 2009 NHMRC guidelines would only have added an extra 30 to the 746 respondents who were defined as intoxicated under the 2001 NHMRC definition. As males who had only consumed five or six standard drinks were not included in the 2002 or 2006 samples, it was better to ensure that the level of intoxication reported by males was consistent when measuring how the provision of RSA to them changed across the three surveys.

- 3 Of the 29,953 randomly generated telephone numbers that were dialled during the survey period, contact was made with 19,109 (63.8%) households. Of the 10,844 numbers where no contact was made, 5,512 (50.8%) was because the number was invalid, 386 (3.6%) was because the number was either a fax or a business and 4,946 (45.6%) was because the number was unsuccessful after five attempts.
- 4 Both the 2011 and 2006 surveys were conducted by Taverner Research.
- 5 This logistic regression also contained location as a significant predictor variable, with higher levels of observed service refusal reported by non-intoxicated respondents from country areas.
- 6 This logistic regression also contained marital status as a significant predictor variable, with higher levels of other intoxicated patrons asked to leave the licensed premises reported by non-intoxicated respondents who were either divorced, separated or widowed.
- 7 This logistic regression also contained location, education and employment status as significant predictor variables. A higher percentage of transport advice was reported by country respondents, high school educated respondents and casual/part-time employed respondents respectively.
- 8 This logistic regression also contained age group as a significant predictor variable, with higher levels of any observed RSA reported by non-intoxicated respondents aged 18-19 years. Location was a near-significant predictor with higher levels of any observed RSA reported by non-intoxicated respondents from country areas.
- 9 This poisson regression model also contained marital status as a significant predictor variable, with higher levels of reported counts of these RSA measures among divorced/widowed non-intoxicated respondents. This model also contained age group as a significant predictor, with higher levels of reported counts of these RSA measures among non-intoxicated respondents aged 18-19 years.

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## APPENDIX A

### ALCOHOL QUESTIONNAIRE

**Q.1a** (asked only of male respondents).

In the last 12 months how often did you drink more than 6 standard alcoholic drinks in one day? By a standard drink, I mean the equivalent of a middy of full strength beer, a schooner of light beer, a small glass of wine, a glass of port or a nip of spirits.

**Response options:**

- Every day
- 4 to 6 days a week
- 2 to 3 days a week
- About 1 day a week
- 2 to 3 days a month
- About 1 day a month
- Less often
- Never
- Refused.

**Q.1b** (asked only of female respondents).

In the last 12 months how often did you drink more than 4 standard alcoholic drinks in one day? By a standard drink, I mean the equivalent of a middy of full strength beer, a schooner of light beer, a small glass of wine, a glass of port or a nip of spirits.

**Response options:**

- Every day
- 4 to 6 days a week
- 2 to 3 days a week
- About 1 day a week
- 2 to 3 days a month
- About 1 day a month
- Less often
- Never
- Refused.

**Q.2a** (asked only of male respondents who had drunk more than 6 standard drinks at least once in the last 12 months).

On the last occasion you drank more than 6 standard drinks in one day, how many standard drinks did you actually have?

**Response options:**

- 7 to 8
- 9 to 12
- 13+
- Refused.

**Q.2b** (asked only of female respondents who had drunk more than 4 standard drinks at least once in the last 12 months).

On the last occasion you drank more than 4 standard drinks in one day, how many standard drinks did you actually have?

**Response options:**

- 5 to 6
- 7 to 8
- 9 to 12
- 13+
- Refused.

**Q.3** (asked only of male respondents who had drunk more than 6 standard drinks at least once in the last 12 months and female respondents who had drunk more than 4 standard drinks at least once in the last 12 months).

On this occasion where was the last place you were drinking?

**Response options:**

- Pub/hotel/tavern
- Registered club
- Licensed restaurant
- Nightclub
- Other licensed premises (specify)
- Not on a licensed premises (specify).

**Q.4** (asked only of respondents whose last place of drinking was a licensed premises)

Still thinking about this last occasion, can you tell me how crowded the licensed premises was on this occasion? Was it

**Response options:**

- About a quarter full or less
- Half full
- Three quarters full
- Full
- Overcrowded
- Don't know.

**Q.5** (asked only of all male respondents who had drunk more than 6 standard drinks at least once in the last 12 months and all female respondents who had drunk more than 4 standard drinks at least once in the last 12 months. Response options 1-5 rotated)

Still thinking about this last occasion, can you tell me whether you were showing any of the following signs of intoxication?

**Response options:**

- Loss of coordination (yes or no)
- Slurred speech (yes or no)
- Staggering or falling over (yes or no)
- Spilling drinks (yes or no)
- Loud or quarrelsome behaviour (yes or no)
- None of the above
- Refused.



**Q.6** (asked only of respondents whose last place of drinking was a licensed premises and who answered 'yes' to at least 1 of the signs of intoxication response options in Q.5. Response options 1-7 rotated).

On this occasion, when you were showing these signs of intoxication, which of the following ways, if any, did the staff of the licensed premises react?

**Response options:**

- They refused to serve me any more alcoholic drinks (yes or no)
- They asked me to leave the premises (yes or no)
- They advised me on or organised transport home (yes or no)
- They suggested I buy low- or non-alcoholic drinks (yes or no)
- They suggested that I buy some food (yes or no)
- They suggested that I stop drinking (yes or no)
- They called the police (yes or no)
- They continued to serve me alcoholic drinks (yes or no)
- None of the above
- Refused.

**Q.7** (asked only of respondents who answered 'None of the above' to Q.6)

Was this because

**Response options:**

- You decided to stop drinking yourself? (yes or no)
- You decided to go home? (yes or no)
- Someone else was buying your alcoholic drinks? (yes or no)
- Other (specify).

**Q.8** (asked only of respondents whose last place of drinking was a licensed premises and who answered 'no' to all 5 of the signs of intoxication response options in Q.5. Response options 1-5 rotated).

Were you aware of any other people on the licensed premises who were showing the following signs of intoxication?

**Response options:**

- Loss of coordination (yes or no)
- Slurred speech (yes or no)
- Staggering or falling over (yes or no)
- Spilling drinks (yes or no)
- Loud or quarrelsome behaviour (yes or no)
- None of the above
- Refused.

**Q.9** (asked only of respondents answering 'yes' to at least 1 of the signs of intoxication response options in Q.8. Response options 1-7 rotated).

Were you aware of the staff of the licensed premises reacting to these people in any of the following ways?

**Response options:**

- They refused to serve them any more alcoholic drinks (yes or no)
- They asked them to leave the premises (yes or no)
- They advised them on or organised transport home (yes or no)
- They suggested they buy low- or non-alcoholic drinks (yes or no)
- They suggested that they buy some food (yes or no)
- They suggested that they stop drinking (yes or no)
- They called the police (yes or no)
- They continued to serve them alcoholic drinks (yes or no)
- None of the above
- Refused.

## APPENDIX B

## COMPARISON OF THE 2002, 2006 AND 2011 SAMPLES ON SOCIO-DEMOGRAPHIC CHARACTERISTICS

Table B1. Socio-demographic variables compared across the three survey samples for all respondents

Variable	Category	Survey year			p-value
		2002	2006	2011	
<b>Location</b>	City	69.0%	67.9%	68.6%	.762
	Country	31.0%	32.1%	31.4%	
<b>Gender</b>	Males	51.4%	49.9%	49.3%	.531
	Females	48.6%	50.1%	50.7%	
<b>Age</b>	18-19	11.0%	8.7%	8.6%	.018*
	20-24	22.0%	20.3%	21.9%	
	25-29	22.9%	22.4%	21.6%	
	30-34	18.9%	24.3%	23.7%	
	35-39	25.1%	24.3%	24.1%	
<b>Highest level of education</b>	Below HSC	21.4%	15.1%	11.6%	<.001*
	HSC	31.8%	27.8%	26.7%	
	Trade or other certificate	21.1%	20.2%	26.6%	
	University degree	25.7%	36.9%	35.1%	
<b>Marital status</b>	Single	44.1%	40.5%	35.7%	<.001*
	Married/de facto	50.7%	55.8%	61.8%	
	Divorced/widowed	5.1%	3.7%	2.5%	
<b>Work status</b>	Full-time	56.2%	55.8%	50.6%	<.001*
	Part-time/casual	21.7%	25.1%	26.8%	
	Unemployed	4.3%	3.4%	3.2%	
	Student	8.6%	6.0%	9.0%	
	Other	9.2%	9.7%	10.5%	

\* Indicates a significant difference between 2002, 2006 and 2011 samples ( $p < .05$ ).

**Table B2. Socio-demographic variables compared across the three survey samples for those respondents whose last acute-risk drinking occasion was at a licensed premises**

Variable	Category	Survey year			p-value
		2002	2006	2011	
Location	City	72.3%	65.0%	66.8%	.034*
	Country	27.7%	35.0%	33.2%	
Gender	Males	54.6%	53.3%	49.1%	.119
	Females	45.4%	46.7%	50.9%	
Age	18-19	12.6%	12.0%	12.2%	.041*
	20-24	32.0%	28.3%	31.4%	
	25-29	21.8%	22.4%	22.5%	
	30-34	13.1%	21.3%	17.0%	
	35-39	20.4%	16.0%	16.9%	
Highest level of education	Below HSC	17.7%	13.3%	9.7%	<.001*
	HSC	32.5%	30.1%	31.5%	
	Trade or other certificate	21.1%	20.5%	26.7%	
	University degree	28.6%	36.1%	32.2%	
Marital status	Single	54.9%	52.4%	49.7%	.026*
	Married/de facto	39.8%	43.8%	47.7%	
	Divorced/widowed	5.3%	3.8%	2.5%	
Work status	Full-time	63.3%	62.5%	56.9%	.007*
	Part-time/casual	22.1%	23.4%	24.8%	
	Unemployed	4.1%	3.1%	3.4%	
	Student	8.0%	6.0%	11.0%	
	Other	2.4%	5.0%	3.9%	

\* Indicates a significant difference between 2002, 2006 and 2011 samples ( $p < .05$ ).

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