The prevalence of alcohol-related injury amongst patients presenting with injury to Emergency Departments in south western Sydney

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Danielle Weber, Bin Jalaludin, John Crozier

April 2009

Funded by

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NSW HEALTH

Williams M, Mohsin M, Weber D, Jalaludin B, Crozier J. ‘The prevalence of alcohol-related injury amongst patients presenting with injury to Emergency Departments in South Western Sydney’.

ISBN: 978-0-9805109-0-4

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Acknowledgements

The authors gratefully acknowledge the Alcohol Education and Rehabilitation Foundation for providing the funding for this research.

Research Staff

The research authors would particularly like to acknowledge the contribution of the Senior Research Officer, Jan Gregory (August 2005 to 1st June 2007) for this project.

Emergency Departments within Sydney South West Area Health Service & Interviews

Steven Stranks, EDIS Specialist Support, Information Services Department

We would like to thank the emergency department staff at each participating hospital (Bankstown, Bowral, Campbelltown, Fairfield, Liverpool and Royal Prince Alfred), especially the Directors of Emergency, Nurse Unit Managers and Shift Team Leaders, for their advice and support during the design and implementation of this study and also the many research assistants who were integral in the success of the data collection phase of this project.

Akshat Sehgal
Alan Lam
Amos Lau Suang Kiat
Andrew Ng
Angela Kow
Angelica Ly
Anna Sov
Arige Sukkarieh
Assad Zahid
Brian Zemin Low
Carlos El-Haddad
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Elsie Ng
Elspett Carson
Emma Hanks
Eun-Ae Cho
Frances Tan
Gail Ormsby
Ho Cheong Kwok
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Kylie Woods
Leah Park
Linda Xu
Marlene Andrew
Mayuran Sutherson
Mohammed Baba
Mahd Assad Zahid
Munish Raj Krishnan
Mustafa Alttahir
Rahul Sud
Rina Mukherjee
Sam Adie
Samriti Sood
Shi-Nan Luong
Shirley Ly
Simon Tang
Sonayana (Sue) Patel
Sue Pember
Suza Trajkovski
Sylvia Ham
Titus Kwok
Vi Nguyen
Xuan Phuong Nguyen
Yoon Leng Ooi
Zilficor Yassine

Administrative and IT Support

We also thank Sue Pember, Therese Vella, Simone Roberts, Tracey Coles and Rose Avery for administrative support and Steve Shranks for EDIS IT support for the duration of the study.

Permission to replicate aspects of other studies

We also thank Tim Stockwell and Daniel Vinson for permission to replicate aspects of their earlier studies.

Executive Summary

Aim of the study

Each year, in Australia, approximately 3,000 people die as a result of excessive alcohol consumption and around 65,000 people are hospitalised. The annual cost to the Australian community of alcohol-related social problems is estimated to be $7.6 billion. Research regarding alcohol and injury is scarce in Australia and mostly related to road deaths and injuries due to alcohol. The National Alcohol Strategy 2006-2009, published by the Australian Commonwealth Department of Health and Aged Care, identified the need for additional research including exploring opportunities for the collection of local data related to alcohol for use in targeted interventions and policy.

The main social and cultural factors that increase alcohol consumption include unemployment, low socio-economic status (SES), low educational attainment and country of birth. Sydney South West Area Health Service (SSWAHS) has a lower SES than other New South Wales (NSW) metropolitan health services and a greater proportion of people speaking a language other than English at home.

This study replicates aspects of previous studies in both the United States and Australia but will provide unique Australian data examining the association between alcohol consumption and injury specific to a low socioeconomic community with a high proportion of non-English speaking residents.

The aims of the study were to:

1. Determine the prevalence of alcohol-related injury amongst all patients presenting with injury to SSWAHS Emergency Departments (EDs) who report consuming alcohol in the six hours prior to injury.
2. Explore the contribution of contextual factors and setting on the association between alcohol and injury.
3. Estimate the risk of sustaining an injury if consuming alcohol in the six hours prior to injury.
4. Examine associations between level of alcohol consumed six hours prior to the injury and injury type.
5. Examine associations between level of alcohol consumed six hours prior to the injury and injury severity.

Materials and Methods

The study was undertaken in emergency departments of six hospitals in SSWAHS between November 2005 and October 2006 and used a case-crossover design. For each subject, alcohol consumption, in the six hour period prior to injury was reported. Alcohol intake for the same six hour period one day, two days and seven days prior to the injury was also recorded, thus resulting in three controls for every subject and increasing the power of the study. As each case serves as his/her own referent in the case crossover design, potential confounders such as smoking, age, sex and socio-economic status are controlled for- by design rather than by statistical modelling. Additionally, if attendees had presented to a SSWAHS ED with an injury in any of the three time period windows, they were deemed ineligible for inclusion in the study as their own controls for that period.

Attendees were patients with an injury presenting to the EDs of selected hospitals in the SSWAHS. Potential participants were included in the study if they were aged over 14 years, injured in the 24 hours prior to presentation to the ED and spoke one of five identified languages i.e., Arabic, Cantonese, English, Mandarin, and Vietnamese. Participants also needed to give informed consent to be interviewed, have their medical records accessed and undertake a breath test. Consent was gained from a guardian or parent if the potential subject was aged between 14 and 16 years of age.

A single questionnaire in four sections was developed for this study. The questionnaire included a:

- General section which contained screening and socio-demographic questions and questions on events related to the nature and circumstances of the injury. A history of alcohol use, as defined by the CAGE questionnaire, and a breath test reading and rating of the subject's injury severity were also obtained.
- Case section which included questions related to drinking and drug use in the six hours before injury and interviewer and interviewee feedback on responses.
- Control section which included questions on drinking and drug use for three time periods viz; 24 hours before the injury, 48 hours before the injury and seven days before the injury.
- Final section which contained questions on general drinking patterns for males and females, ED outcome data and subjective measures of alcohol use.

The questionnaire was also administered in four other community languages - Cantonese, Mandarin, Vietnamese and Arabic. These four languages are the main community languages spoken in the SSWAHS after English.

Overall, 2492 attendees in the emergency departments of six SSWAHS hospitals were eligible for the study. Of these, 1599 completed a questionnaire giving a response rate of 64.2%. Those who did not complete a survey were missed, refused or admitted to the ward and were not able to be followed up. The response rate was highest at Royal Price Alfred (RPA) hospital (78.2%) and lowest at Campbelltown and Bowral hospitals (48.4% and 48.1% respectively) for that time period.

Results

Subject Characteristics

Most attendees were male (62.4%), slightly more than half had never been married and were employed either full or part time. A third (32.1%) were aged between 14–24 years old and almost 40% were 25–44 years of age.

A third of those interviewed were born overseas and 40% spoke a language other than English at home. These statistics closely reflect cultural demographic data for the SSWAHS. Nearly all respondents spoke English (99.6%) and were able to complete the questionnaire in English. Aboriginal people accounted for 3.2% (n=51) of those interviewed.

Injury Characteristics

Falls were the main cause of injury in a third of the cases, followed by "being hit against something" and "being cut or pierced". Ten percent of cases indicated the injury was intentional, being caused by another person (7.1%) or due to self harm (2.7%).

Most injuries were categorised as either potentially serious (46.7%) or potentially life threatening (33.0%). There was little difference between the categories of injury severity for males and females. Nearly three quarters of attendees were discharged from EDs, while 11% were admitted to hospital.

A greater proportion of English speakers described their injury as being intentionally caused by another compared with LOTE speakers (8.1% vs 5.8%), but the percentage describing the intentional injury as being due to self harm was the same for both groups (2.7%).

Description of setting at the time of injury

The majority of injuries (39.6%) had been sustained at home or in other accommodation, and the injured person had been alone (38.2%) or with family (22.5%) or friends (25.9%). A third of injuries had occurred in public locations, namely the street or highway (18.5%) or a recreation area (14.5%). Only 5% of cases had been injured in a licensed premise.

Distribution of alcohol use amongst the injured

Of the 1599 respondents, 17% stated they had been drinking in the six hours prior to their injury. Just under 50% had been drinking at home, 30% in their own home and 17.4% in another home or other accommodation (17.4%). Fifteen percent had been drinking at a hotel.

Nearly twice as many men (20.2%) compared with women (12.3%) were drinking prior to their injury. A greater proportion of those who spoke English at home compared with those who spoke other languages at home drank prior to their injury (20% vs.13%).

Although numbers were small, proportionally twice as many attendees from an Aboriginal background drank alcohol in the six hours prior to injury compared with attendees from a non Aboriginal background. Of the nine where data was collected regarding quantity of alcohol consumed, six were drinking at levels defined by the National Health and Medical Research Council (NHMRC) as risky (61-100g alcohol for males).

Measures of alcohol use

Breath test results revealed that 89% of cases recorded a negative reading, whilst nearly 10% had a positive reading. Of these, 5.7% (n=61) had a reading above 0.1g/dl. However, over 33.5% of cases did not have a clearly defined or stated breath test reading. Nearly 10% of the study population can be regarded as abusing alcohol as they answered “yes” to two or more questions in the CAGE questionnaire.

Levels of alcohol consumed

In each subgroup of alcohol quantity consumed more males were represented than females. This was more pronounced as alcohol quantity consumed increased, with almost four times more males drinking 91g or more alcohol than females (6.5% males vs 1.8% females).

Nearly three times as many males as females drank at levels defined by the National Health and Medical Research Council (NHMRC) as risky and high risk on a weekly, and a monthly, basis but interestingly, more males than females stated they never drank at these levels.

Age also influenced the quantity of alcohol consumed. Those in the 14-24 year age group were more likely to drink at higher levels whilst those in the 25-64 year age group were more likely to drink either at low levels (≤30 grams alcohol (10.1%)) or very high levels (>90grams alcohol (9%)). Attendees drinking more than 90 grams were more likely to be male, aged between 14 and 25 years and to be Australian born.

Those born overseas and speaking a language other than English at home were more likely to drink at lower levels than their Australian born counterparts. Three times as many Australian born cases drank above 90 grams compared with those born overseas (6.2% vs 1.7%).

Injury severity did not increase with quantity of alcohol consumed. Those at greatest risk of injury were drinking at low levels (<=30g of alcohol) or very high levels (>90g of alcohol) and experienced an injury of any severity.

Drug use in the injured

At least 20% of those interviewed reported taking drugs or medication prior to their injury. More than half (56.4%) stated the medication was prescribed by their doctor and nearly 10% reported using social and recreational drugs.

Self report and interview validation

When questioned, most participants felt very confident in the accuracy of their responses to questions regarding their injury (93.8%), alcohol use (95.2%) and drug use (96.1%).

There was little difference in responses between attendees that were questioned alone about drinking prior to the injury and those that were questioned in front of another (18.8% vs 16.6%).

The association of self-reported alcohol consumed and breath test reading showed that more than 90% of those who did not drink alcohol six hours prior to injury had a breath test reading of 0g/dl. A similar consistent association was also observed for those who had been drinking six hours prior to injury with 91.8% of attendees having a breath test reading of 0.1 g/dl or more. These crossover results indicate that the self reported results found in this study are very reliable.

The effect of alcohol use on the chances of sustaining an injury

Those who consumed alcohol in the six hours prior to their injury were 1.42 times more likely to be injured compared to those who drank no alcohol (95% CI: 1.26-1.64). The risk of sustaining an injury was also greater when high levels of alcohol were consumed. When 61-90 grams of alcohol was consumed the risk of injury was one and a half times greater than when no alcohol was consumed (OR: 1.52, 95% CI: 1.05-2.20) and almost two times the risk when 91 grams or more was consumed (OR: 1.86, 95% CI: 1.48-2.35).

There was no difference in injury risk between males and females drinking at high risk levels (Males OR: 1.88, 95% CI: 1.46-2.42; females OR: 1.89, 95% CI: 1.04-3.43)

Drinking at a licensed premise such as a hotel, tavern, nightclub or sports club increased the risk of injury by over 50% when compared to those who did not drink. Those who consumed alcohol alone (OR: 1.36, 95% CI: 1.04-1.77, $p < 0.05$) or in the company of others (OR: 1.49, 95% CI: 1.26-1.76, $p < 0.05$) were more likely to sustain an injury than those who did not drink.

The effect of drug use on the chances of sustaining an injury

Overall, risk of injury varied by drug use prior to injury and only prescribed medicine was found to be statistically significant. Those who used prescribed medicine were less likely to be injured compared to those who did not (OR: 0:82, 95% CI: 0.71-0.95).

Conclusion

This case crossover study contributes to Australian research on alcohol and injury and particularly provides valuable data on drinking prevalence and risk in a multicultural population. Like other Australian and overseas studies, most of the study population was young, male, single and had a low education level. Seventeen percent of the study population reported drinking alcohol in the six hours prior to their injury. Compared to other Australian studies, this prevalence is lower and may be partly explained by the multicultural diversity of the study population

The risk of sustaining an injury was 1.42 times greater among those who had consumed alcohol than among those who had not. At high levels of alcohol intake (>90g) the risk of injury was doubled and was similar at these levels for both males and females.

Contextual factors that contributed to alcohol intake and injury included drinking alone or in a group of people, with higher levels of alcohol being consumed when males were present in a group. Drinking in a hotel type environment also increased the risk of sustaining an injury by 52%. Those born overseas and speaking a language other than English at home were more likely to drink less than their Australian born counterparts.

The results of this study are consistent with other studies, which show that alcohol intake increased the risk of injury from falls, violence and motor vehicle collisions (MVC). However, there was no association between increasing alcohol intake and injury severity. Injury severity was greatest at low levels of alcohol intake (<= 30g) or at very high levels of intake (> 90g).

Introduction

This study provides unique Australian data quantifying the association between alcohol consumption and injury specific to a low socioeconomic community with a high proportion of non-English speaking residents. In addition to these socio-cultural factors, injury related to alcohol consumption within different settings will be examined [1].

Public Health Impact of Alcohol Consumption and Acute Harm

Alcohol contributes to traumatic outcomes that kill or disable at a relatively young age, resulting in disability or the loss of many years of life [2]. Harm from alcohol consumption can result from chronic (eg cirrhosis of the liver) or acute alcohol use (intentional and unintentional injury). Chikritzhs [3] [4] estimated that alcohol-related injuries resulted in the loss of over 12,000 lives in the 10 years to 2001, and the hospitalisation of over 250,000 people in the eight years between 1993/94 and 2000/01.

The National Alcohol Strategy 2006-2009 [5] was developed as a response to the patterns of high risk alcohol consumption that are prevalent in Australia. Each year approximately 3,000 people die as a result of excessive alcohol consumption and around 65,000 people are hospitalised. The annual cost to the Australian community of alcohol-related social problems is estimated to be $7.6 billion [6]. Social and personal costs of alcohol dependence or acute alcohol use include: assaults, domestic violence, accidents, injury, property damage, offensive behaviour and serious crime. All have a major impact on individuals, families and local communities [6].

The association between alcohol consumption and injury risk is well established, specifically for motor vehicle [7] and motorcycle accidents [8] falls [9], intentional self-harm, assault/interpersonal violence and drowning [10]. The main social and cultural factors that increase alcohol consumption include unemployment, low socio-economic status (SES), low educational attainment and country of birth [11] [12].

In Australia, acute alcohol-related harm collectively contributes to nearly half of all alcohol-related deaths, and two-thirds of all alcohol-related person years of life lost (PYLL) [10]. Specifically, the primary types of traumatic injury and death attributed to alcohol in Australia include: road transport injuries 43%, fall injuries 34%, fire injuries 44%, drowning 32%, assault 47%, and self-harm 14% [13]. In the State of NSW, over the ten year period 1992 to 2001, there were nearly 5300 deaths attributed to risky and high risk drinking, which were due to road traffic accidents 30%, suicide 15%, homicide 10% and poisoning 5% [3] [4].

Research regarding alcohol and injury is scarce in Australia and mostly related to road deaths and injuries. The relevance of developing area specific alcohol-related data has been recognised. Previous Australian studies have utilised EDs as a source of more localised data on alcohol-related injury [14]. Roche [14] reported 29% of injuries in Queensland EDs to be alcohol-related. McLeod [15] determined that consuming more than 60g of alcohol within a six hour period increased the risk of injury by more than three times. This risk was substantially higher for women compared to men.

Alcohol policy in Australia is now focused on the impact of acute alcohol-related harm. The Australian Commonwealth Department of Health and Aged Care published its National Alcohol Strategy 2006-2009 [5] identifying the need for additional research including:

- Exploring opportunities for data collection by hospitals and emergency departments in relation to alcohol-related presentations and admissions, including place of last alcohol drink.

- Developing an understanding of the extent of alcohol-related harm by supporting better collection and integration of data from a range of sources.
- Exploring opportunities for the collection of local data related to alcohol for use in targeted interventions and policy.

In NSW, the State Government conducted a NSW Alcohol Summit in August 2003 resulting in a Summit Communiqué that also identified the need for further research [16]. The NSW Government has provided a detailed response to each of these recommendations as outlined in *Outcomes of the NSW Summit on Alcohol Abuse 2003: Changing the Culture of Alcohol Use in New South Wales, May 2004* [6].

In the Sydney South West Area little research has been undertaken regarding alcohol prevalence and injury risk. This study, therefore, explores the association between alcohol consumption and all causes of injury of patients presenting to six emergency departments in the Sydney South West Area Health Service (SSWAHS). The study quantifies the relationship and examines contextual factors such as place of alcohol consumption and risk of injury.

The region serviced by Sydney South West Area Health Service is characterised by its multicultural composition (nearly 40% speak a language other than English at home) and by its relative socio-economic disadvantage. Compared to NSW overall, SSWAHS has a higher unemployment rate and lower income and education levels. The Local Government Areas (LGAs) of Fairfield, Liverpool and Canterbury, within SSWAHS, are ranked as some of the poorest in NSW according to the Socio Economic Indicators for Area (SEIFA) Index with higher levels of unemployment and more people dependent on welfare [17].

The western sector of SSWAHS has a relatively young population, while in the Eastern sector, large numbers of elderly people reside, particularly in Bankstown, Fairfield and Canterbury LGAs. Over 13,000 (1.07%) people in Sydney South West identify themselves as Aboriginal and many reside in the LGAs of South Sydney and Campbelltown close to Royal Prince Alfred (RPA) and Campbelltown hospitals respectively.

Liverpool and RPA hospitals are principal referral and teaching hospitals and designated major trauma services. Bankstown, Fairfield and Campbelltown provide urban trauma services and Bowral provides trauma services to a semi rural population. The RPA and Liverpool hospitals have EDs that rate as some of the busiest in NSW.

Project goals

This study ‘The prevalence of alcohol-related injury amongst patients presenting with injury to Emergency Departments in South Western Sydney’ was designed to:

1. Determine the prevalence of alcohol-related injury amongst all patients presenting with injury to SSWAHS Emergency Departments who report consuming alcohol in the six hours prior to injury.
2. Explore the contribution of contextual factors and setting on the association between alcohol consumption and injury.
3. Estimate the risk of sustaining an injury if consuming alcohol in the six hours prior to injury.
4. Examine associations between the level of alcohol consumed six hours prior to the injury and injury type.
5. Examine associations between level of alcohol consumed six hours prior to the injury and injury severity.

Materials and Methods

Setting and Time Frame

The study was undertaken in emergency departments of six hospitals in SSWAHS and data were collected in two data collection waves. The first wave commenced on 28th November 2005 and ended on 2nd April 2006. The second wave commenced on 10th July 2006 and ended on 9th October 2006.

Research design

This study used a case-crossover design to determine acute effects of alcohol consumption on ED visits for injuries. The case-crossover design is being increasingly used in epidemiological studies investigating acute effects of risk factors for disease. The case-crossover design obviates the need for adjusting for long and medium term time varying covariates as well as for autocorrelation in the time series. As each case serves as his/her own referent, this design also has the ability to control for short-term time invariant potential confounders (like smoking, age, sex, socio-economic status) by design rather than by statistical modelling. A case-crossover design therefore overcomes control selection and information bias and increases efficiency [18] [19].

In a specific comparison of the case-control and case-crossover research designs, no significant difference in the odds ratio for risk of injury was found between the two research design methodologies [20].

In this study, alcohol consumption, for each case, in the same six hour period one day, two days and seven days prior to the injury is reported [21]. This results in three controls for every case and potentially increases the power of the study.

Injury definition

The definition of an injury stated by Harrison [22] is used in this study. An injury is defined as 'A disruption of the structure or function of the human organism, resulting from exposure to excessive or deficient energy. This energy exchange includes:

- Chemical: poisoning or burn
- Heat: burns or scalds
- Mechanical: hit by something/falls (bruising, crushing and fractures)
- Electrical: burns or damage as a result of electrical current
- Radiant burns: sunburn
- Lack of essentials for survival such as oxygen and water - drowning.'

The National Data Standards for Injury Surveillance (NDSIS) [23] identifies eight major categories of injury causation: vehicle accidents, poisoning, burns/smoke related, falls, animal causes, drowning or near drowning, struck/cut/pierced and other. Poisoning includes that from medication, alcohol, drugs, and other substances. Thus medical events such as an infection, which may have resulted from a cut hand three days previously, would not be deemed an injury." [24] [22]. However, a spider bite would be an injury/poisoning under this definition.

Questionnaire

A single questionnaire in four sections was developed for this study including a:

General section which contained screening and socio-demographic questions and questions on events related to the nature and circumstances of the injury. A Whole of Life Alcohol Use History using the CAGE questionnaire [25] and a breath test reading and rating of the subject's injury severity were also obtained.

Case section which included questions related to drinking and drug use patterns in the six hours before injury and interviewer and interviewee feedback on responses.

Control section which included questions on drinking and drug use patterns for three time periods viz; 24 hours before the injury, 48 hours before the injury and seven days before the injury.

Final section which contained questions on general drinking patterns for males and females, ED outcome data, and subjective measures of alcohol use.

The control section of the questionnaire initially determined whether the case had reported to a SSWAHS ED with an injury during each of the case-crossover time periods (that is, 24-hours before the injury, 48-hours before the injury and seven days before the injury), thus determining each case's eligibility to be included as his/her own control for each of the time period. Where a case had reported to a SSWAHS ED with an injury in any of the three time period windows, they were deemed ineligible for inclusion in further data collection for that particular time period window.

After determining the attendees' eligibility to be recruited as controls, the questionnaire replicated the case section questions for antecedent events for the time period 24-hours, 48-hours and seven-days before injury.

If a case had abstained from alcohol use in the past twelve months [26] they were coded as a non-drinker and the questionnaire took about 10 minutes to complete. If the case had used alcohol in the past twelve months, they were coded as a drinker and the questionnaire took 20-25 minutes to administer.

The questionnaire was also administered in four other community languages - Cantonese, Mandarin, Vietnamese and Arabic. These four languages are the main community languages spoken in the SSWAHS after English. Patients who presented at EDs with injuries who spoke Cantonese, Mandarin, Vietnamese or Arabic were provided with a translated study information sheet and consent form. Those who provided written consent were contacted within eight days and interviewed via telephone.

The questionnaire was piloted before data collection commenced and the interview staff were trained in administering the questionnaire prior to data collection. The full questionnaire is reproduced in Appendix A.

Questions were replicated with permission from previous alcohol studies from McLeod [24], Vinson [20], and from the NSW Health Department's ongoing population health surveys [11] to allow comparisons where relevant.

Questionnaire details

The breakdown of the questionnaire (74 questions) is as follows.

General Section

1. Language screening:
   Each potential participant was screened for his/her preferred language. If English was not spoken, potential participants were asked if they spoke Cantonese, Mandarin, Vietnamese or Arabic.

2. Participant screening questions:
   Each potential participant was initially screened using a structured question set that ensured compliance with NHMRC Ethics Handbook [27]. If eligible, potential participants were asked if they wished to participate in the study and confidentiality was explained. Written consent was then obtained before proceeding with the questionnaire. For children aged 14-16 years consent was obtained from the participant and a parent/guardian.

3. Demographic data:
   Questions were asked about age, gender, citizenship/residential status, arrival in Australia, language usage, marital status, education and employment status and income.

4. Verbatim description of injury event and environment:
   Participants were asked to describe exactly how they had been injured and interviewers wrote down the details verbatim. This question provided the participant with an opportunity to describe the injury event in his or her own words. This information formed the basis for more directed questioning in subsequent sections of the questionnaire about antecedent events and the injury event outcome.

5. Injury in the preceding 12 months:
   Participants were asked if they had presented to an ED in SSWAHS in the past 12 months with an injury.

6. Nature and circumstances of injury:
   These questions were consistent with the McLeod study [24] to enable comparison and included closed/single response descriptive questions on the nature and circumstances of the injury. Questions were asked regarding the cause of injury, the nature of the injury event, the people involved in the injury event and their relationship to the injured person. Participants were also asked about their role in the injury event, the reason they had presented to the ED and a physical description of the injury.

7. Breath test:
   Where the participant had consented to a breath test as part of the participant screening questions, this was conducted using a calibrated Alcolizers Models HH-1 & HH-2 from Alcolizer Technology. Alcolizers were re-calibrated in accordance with the manufacturer's specifications.

8. Participant status in relation to alcohol use for 12 months prior to injury

   Using the World Health Organisation's definition of abstainer [26], participants were asked if they had used alcohol during the 12 months prior to the date of injury. If yes, participants were asked questions about the date and time of their last alcoholic drink, whether it was before or after the date and time of injury, whether it was the only alcoholic drink they had had before the injury event, and lastly, within the same drinking session, what was the date and time of their first alcoholic drink.

9. Whole of life alcohol use history:

   Vinson and colleagues [20] noted a difference in the association between alcohol use and injury depending on whether the participant was alcohol dependent (that is, long-term exposure to heavy drinking) or an acute user of alcohol (that is, short-term exposure). Therefore, all participants were screened for alcohol dependence using the CAGE questionnaire [25]. The questionnaire is scored by allocating one point to each 'yes' answer. Total scores of two or above are clinically significant and may indicate alcohol dependence. The CAGE questionnaire has been validated as an effective, efficient and easy to administer.

10. Rating of injury severity

    Severity of Injury was rated using a proxy measure of the Australasian Triage Scale used in emergency Departments [29]. As defined by this scale:

    Immediately life-threatening are conditions that are threats to life (or imminent risk of deterioration) and require immediate aggressive intervention, e.g. cardiac arrest.

    Imminently life-threatening is when the patient's condition is serious enough or deteriorating so rapidly that there is the potential of threat to life, or organ system failure, if not treated within ten minutes of arrival, e.g. chest pain of likely cardiac nature.

    Potentially life-threatening is when the patient's condition may progress to life or limb threatening, or may lead to significant morbidity, if assessment and treatment are not commenced within thirty minutes of arrival, e.g. chest pain likely non-cardiac and moderate severity.

    Potentially serious is when the patient's condition may deteriorate, or adverse outcome may result, if assessment and treatment is not commenced within one hour of arrival in ED. Symptoms are moderate or prolonged, e.g. chest injury without rib pain or respiratory distress.

    Less urgent conditions are chronic or minor enough that symptoms or clinical outcome will not be significantly affected if assessment and treatment are delayed up to two hours from arrival, e.g. minor symptoms of existing stable illness.

Case Section

1. Drinking and drug use patterns in the six hours before injury:

   This section included questions on legal and illegal alcohol and drug use in the six hours before injury and are based on the questions used in the study conducted by McLeod [24].

2. Feedback on responses:

   This set of questions recognises the limitations of the self-report technique and the questions were used as an opportunity to review case and control responses by both the interviewee and interviewer.

Control Section

1. Control time period eligibility:

   Case crossover data was obtained using the Time Line Follow-Back (TLFB) [30] technique. This technique involves assisting the participant's recall with visual mapping of their last seven days through use of the TLFB personal calendar, which was drawn up by the interviewer as each time period window was discussed with the interviewee. The calendar records key events to assist participant recall of alcohol consumption. Each participant was screened for presentation to a SSWAHS ED with an injury in the same six hours for the time periods 24 hours, 48 hours and seven days before injury. Where a case had reported to an SSWAHS ED with an injury in any of the three time period windows, they were ineligible for inclusion as a control for that particular time period.

2. Drinking and drug use patterns in the same six hour period 24 hours, 48 hours and seven days before Injury:

   These questions replicated the case questions for legal and illegal alcohol and drug use in the six hours before injury for the time periods 24 hours, 48 hours and seven days before injury. The participant's recall was enabled by visually mapping the attendees' last seven days through use of the TLFB personal calendar, which was drawn up by the interviewer as each time period window was discussed with the interviewee. A blank calendar is at Appendix B.

Final section

1. Feedback on responses:

   This set of questions recognises the limitations of the self-report technique and they were used as an opportunity to review case and control responses by both the interviewee and interviewer.

2. General drinking patterns:

   The questions in this section enable comparison with other studies also acknowledge different definitions of types of drinkers.

3. Outcome data:

   The outcome of the participant's presentation at ED was recorded from patient data on the Emergency Department Information System (EDIS).

4. Subjective measure of alcohol use:

   The final question was completed by the interviewer after each interview. The question is a subjective measure of alcohol use similar to that used by staff in the hospitality industry to identify patrons who may have had too much alcohol to drink.

Interview Training

The pool of interviewers was made up mainly of medical students in their fourth, fifth or sixth year of study from the South Western Clinical School, Liverpool Hospital. The remaining interviewers came from other health services professions, for example, ambulance officers, nursing staff and other health services students.

There were three key components to interviewer training before an interviewer was rostered for a shift on his/her own.

Firstly, interviewing staff were trained in the background and objectives of the study, the research methodology, and questionnaire administration including role-plays of an actual interview. Staff were also briefed on security arrangements and how to manage aggressive participants. Training sessions were conducted as and when required at either the Health Promotion Unit, Liverpool Hospital or at one of the participating hospitals.

Secondly, staff attended mandatory child protection training run by Liverpool Health Service because study participants could be aged as young as 14 years.

Thirdly, each interviewer was rostered for a minimum of two shifts under the supervision of either a chief investigator (first four weeks of data collection) or the senior research officer (throughout the 24 weeks of data collection) or an experienced interviewer (throughout the 14 weeks of the second data collection wave). Once an interviewer indicated he/she was comfortable with the study protocols and administering the questionnaire in a fully operational ED, they were rostered for shifts on his/her own. A copy of the study protocol is found in Appendix C.

In addition to the comprehensive training given, it was stressed to the interviewers that at all times the interpersonal relationships were primary and they were to be respected and supported in word and action by them. Specifically, the relationships between the interviewer and the participant and the participant's family members; the interviewer and hospital staff at all levels (within the hospital, the ED and the ward); the interviewer and other interviewers; and the interviewer and research project staff. In addition, for management purposes, throughout the 24 weeks of data collection, interviewing staff fell under the operational control of the ED shift Team Leader to whom each interviewer was held accountable for his/her interactions with ED patients and staff. As a result, where an interviewer was advised not to approach a patient or requested to forego completing an interview for any reason, the interviewers were to take that advice or accede to that request.

Throughout the 24 weeks of data collection, interviewing staff were supported by documentation (interview protocols both in the ED and on the Ward, process changes, newsletters, descriptive statistics), accountable processes (sign-on, sign-off, participant handover, equipment handover, specific message handover), email and 24-hour telephone support.

Selection of attendees

Attendees were patients with an injury presenting to the ED of selected hospitals in the SSWAHS. The selected hospitals were Bankstown Hospital, Bowral Hospital, Campbelltown Hospital, Fairfield Hospital, Liverpool Hospital and the Royal Prince Alfred Hospital. Camden Hospital was also initially selected for inclusion in the study. However, the ED of Camden Hospital was closed down prior to the commencement of the study and was therefore excluded from the study. Royal Prince Alfred Hospital was then added to the study.

Attendees were identified through the EDIS system after presentation at a participating ED. Potential participants were approached if:

1. They spoke one of the five identified languages i.e., Arabic, Cantonese, English, Mandarin, and Vietnamese;
2. They were a patient aged 14 years or over, presenting to a participating ED i.e. Bankstown Hospital, Bowral Hospital, Campbelltown Hospital, Fairfield Hospital, Liverpool Hospital or Royal Prince Alfred Hospital;
3. They were injured in the 24 hours prior to presentation to the ED as confirmed by the participating hospital's triage process;

4. They were prepared to give informed consent and to participate in the interview.

Attendees were interviewed by trained staff that had been supervised initially by either a Chief Investigator, the senior research officer or other experienced interviewing staff. Subsequently, interviewing staff were supported by telephone or call-out as required. Data were reconciled daily with the study logs and EDIS by the senior research officer or Health Promotion Service staff. Any interview or process problems were reviewed and resolved in consultation with interviewing staff and, where necessary, determinations were promulgated verbally and in writing at the point of shift handover and followed up on email.

Interview procedure

People presented to the ED of participating hospitals and their personal details were taken by clerical staff of the ED and then entered into EDIS. A triage nurse would then review each patient and enter details about the patient's presenting problem into EDIS and complete a mandatory field that identified that the patient had sustained an injury. At this point, interviewing staff were able to identify potential participants and their details were noted in the study log (see Appendix D).

Potential participants were then approached, as soon as practicable after presentation, given an information sheet about the study (Appendix E) and then asked if they would like to participate in the study. Research staff approached potential participants in the order they presented (and were written up in the study log) to the ED in order to overcome selection bias where there was more than one potential participant waiting for medical attention. Potential participants were then asked if they wished to participate in the study and if so, were asked to consent in writing to participating in the interview (Appendix F). Consent was gained for:

1. participation in the interview
2. accessing medical records
3. the breath test.

The breath test was conducted during the interview. However there may have been substantial delays in the time between injury and breath test reading caused by the time taken for the person to present to the Emergency Department (up to 24 hours) or the interview not being able to be conducted until the person had received treatment.

Where a young person (between 14 and 16 years of age) was a potential participant, the approach process was the same but the consent process involved gaining their consent as well as the consent of their guardian/parent. Where a participant preferred to communicate in one of the languages of interest other than English, their consent was gained for:

a) participation in the interview by telephone with a community-based interpreter within eight days of their presentation to ED
b) accessing medical records
c) the breath test, which if agreed, was conducted at the time of consent.

Similarly, where a young person was a potential participant but they preferred to communicate in one of the languages of interest, the approach process was the same but the consent process involved gaining their consent as well as the consent of their guardian/parent. Language specific documentation was developed for each of the four languages of interest, see Appendix E. Where a potential participant could not sign a consent form, e.g. because of injury to a hand, a witness could sign for them. Interviewers noted on the consent form that verbal consent had been given and that a witness has signed on their behalf. Potential participants who refused or were ineligible to participate in the interview, were noted in the study log as having refused or as ineligible so they were not approached a second time. In support of the study, posters were located around the ED after approval by the director of each ED and information pamphlets were placed around each waiting room for people to review.

Every attempt was made to interview the participant on his/her own in as private a location as possible within the ED or the ED waiting room. However, where this was not possible, the presence of a third party was noted on the questionnaire and if it was not possible to interview a participant in a private location, the questionnaire was administered in the waiting room away from other patients. Patients admitted to a ward were subject to specific protocols and followed up on the ward; see relevant documentation at Appendix G. After completing the interview, each questionnaire was completed and checked against EDIS then stored in a locked filing cabinet, separate from the consent forms.

Data collection

Data were collected over 24 weeks in two data collection waves, 24 hours per day, seven days per week. The first data collection wave ran for a total period of ten weeks during summer/early autumn (excluding the Christmas period from 15th December 2005 to 31st January 2006). During the period between 28th November and 14th December 2005, two weeks of data were collected continuously at each of Liverpool and Fairfield hospitals. During the six weeks period from 8th February to 31st March 2006, two weeks of data were collected continuously from each of Bankstown, Campbelltown and Bowral hospitals. The second data collection wave ran during winter/early spring for a total period of 14 weeks between the 10th July – 9th October 2006 with a one week break between 10th and 16th September 2006 to suit Royal Prince Alfred Hospital. Data were collected continuously for two weeks each at Liverpool, Bankstown, Fairfield, Campbelltown and Bowral hospitals in each data collection wave, and for a continuous four week period at Royal Prince Alfred Hospital in the second data collection wave. Throughout the 24 week data collection period, only 11 interview shifts out of 3160 shifts (<0.4%) were unable to be filled. Ten of these shifts were full shifts at Bowral Hospital during the second data collection wave because of unavailability of interviewing staff and one was a half shift for a ward follow-up at Royal Prince Alfred Hospital.

The majority of the 39 interviewers trained initially at the end of 2005 and who were expected to participate throughout the 24 weeks of data collection became unavailable to complete the first data collection wave after the first four weeks of data collection for various reasons. As a result, a continual process of recruiting and training staff was undertaken to meet staffing requirements specific to each hospital. This secondary process resulted in a “core group” of interviewers that travelled to each of the participating hospitals as required and completed the majority of the interviews throughout the remaining 20 weeks of data collection in 2006.

Data management

A Microsoft Access database was developed specifically for the study. Data entry followed data collection by several months in the first data collection wave because the database had not been developed. In the second data collection wave, data were entered in a more timely manner and only lagged behind data collection by several weeks. Data were entered by one health promotion staff member over several months with all data entry related questions documented and data entry discrepancies noted in an accountable data entry log. This log was reviewed at each project management meeting with appropriate solutions to problems implemented.

Institutional ethics approval

The research project was approved by both the SSWAHS Human Research Ethics Committee (Western zone) and the Royal Prince Alfred Hospital Ethics Committee. Interview protocols developed by the research project team were also approved by the SSWAHS Human Research Ethics Committee (Western zone) and the Royal Prince Alfred Hospital Ethics Committee, the Director of each ED, the Director of Nursing for each participating hospital and the Nursing Unit Manager of each ED.

Statistical Analysis

Statistical analyses were carried out using SPSS for Windows (Version 15.1). Because of the structure of the study questionnaire, six different 'Microsoft Access data entry templates' with unique identification were used to enter the data (e.g. demographics, nature and circumstances of injury, drinking patterns in six hours before injury, drinking patterns in the same six hour period, 24 hours, 48 hours and seven days before injury, drug use in the same six hours before injury, 24 hours, 48 hours and seven days ago, counter medication history and general drinking patterns). Once all survey data had been entered, all the 'Microsoft Access data entry templates' were converted into SPSS and merged them into a single dataset (except the consent information and data entry log). To check the inconsistency of the data (skip errors, missed answers, values outside the range), frequency distribution for all question items were checked and corrected (if required). Some cross tabulations were also carried out particularly to look at 'skip questions'. Once all the errors had been corrected, data were saved as a new master file for statistical analyses.

The amount of alcohol consumed in the same six hour period, 24 hours, 48 hours and seven days prior to injury were collected by specific types of alcohol consumed [i.e. beer (full strength/medium/light), wine (sizes of glass and bottles), spirits etc.] [31]. Specific details on the amount and type of alcohol consumed were collected [i.e. beer (full strength/medium/light), wine (sizes of glass and bottles), spirits etc] and using Australian standard drink guidelines, were converted to standard number of drinks and grams of alcohol (1 standard drink= 10 grams of pure alcohol) [see Appendix H].

Bivariate (cross-tabulations) analyses were used to explore the association of alcohol consumption and injury patterns with socio-demographic/behavioural characteristics of the respondents. For interpretation purposes and to get meaningful results some of the questionnaire items were grouped into broad categories (age, usual occupation, level of education, income etc.). The results of bivariate analyses were expressed as percentage and chi-square tests were used to examine group differences. In the case-crossover analysis, the participant was used as the matching factor, and the set of follow-up intervals from that participant (e.g. drinking patterns in the same six hour period, 24 hours, 48 hours and seven days prior to injury) constituted the observations within each matched stratum. Conditional logistic regression analysis [32] was employed to explore the independent contribution of each potential explanatory variable on risk of injury adjusting for other variables. Adjusted odds ratios (OR) from logistic regression analysis with their associated 95% confidence intervals (95% CI) express the likelihood of injury for each explanatory variable adjusted for the effects of other variables. Only those variables found significant in bivariate analyses were included in the logistic regression model. To avoid multi-colinearity, highly correlated variables were excluded from the logistic regression model.

Response Rate

Overall, 2492 patients in the emergency departments of six SSWAHS hospitals were eligible for the study. Of these, 1599 completed a questionnaire giving a response rate of 64.2%. Those who did not complete a survey were either missed, refused or admitted to the ward (and were not able to be followed up).

The response rate was highest at RPA hospital (78.2%) and lowest at Campbelltown and Bowral hospitals (48.4% and 48.1% respectively). Bankstown, Fairfield and Liverpool hospitals had response rates of 65.4%, 60.9% and 67.3% respectively (Table 1.1). Lower response rates at Campbelltown and Bowral hospitals were due to a higher proportion of missed attendees (nearly 30%) and attendees who refused to participate.

Table 1.1: Response rate by hospitals in SSWAHS

Hospital	Target sample number	Completed Questionnaires	Response rate %
Bankstown	341	223	65.4
Bowral	241	116	48.1
Campbelltown	417	202	48.4
Fairfield	253	154	60.9
Liverpool	606	408	67.3
RPA	634	496	78.2
Total	2492	1599	64.2

Subject Characteristics

Tables 2.1 to 2.5 describe the study population.

Most patients were male (62.4%) and young, and slightly more than half had never been married and were employed either full or part time (Tables 2.1 and 2.2). A third (32.1%) were aged between 14–24 years old and almost 40% were 25–44 years of age. Most injuries were categorised as either potentially serious (46.7%) or potentially life threatening (33.0%). Only five people had an injury that was immediately life threatening (Table 2.1).

Table 2.1: Distribution of ED attendees by hospital, age at visits, gender and triage code (severity of urgency)

Variable		*ED Attendees (n=1599)*	
		n	*%*
Hospital	Bankstown	223	13.9
	Bowral	116	7.3
	Campbelltown	202	12.6
	Fairfield	154	9.6
	Liverpool	408	25.5
	RPA	496	31.0
Age at ED visits (years)	14-24	513	32.1
	25-44	588	36.8
	45-64	308	19.3
	65 and above	181	11.3
	Age missing	9	0.6
Gender	Male	998	62.4
	Female	601	37.6
Triage Code	Immediately life-threatening	5	0.3
	Imminently life-threatening	123	7.7
	Potentially life-threatening	528	33.0
	Potentially serious	746	46.7
	Less urgent	197	12.3

High school was the highest qualification for almost 50% of patients and nearly 40% were currently unemployed. Just over 20% had an annual income greater than $60,000 but 14% earned less than $10,000 with 28% of patients refusing to answer this question (Table 2.2).

Table 2.2: Distribution of ED attendees by selected socio-demographic characteristics

Selected socio-demographic characteristics		*ED Attendees n=(1599)*	
		n	*%*
Usual Activity	Home duties	136	8.5
	Student	245	15.3
	Retired	104	6.5
	An invalid pensioner	42	2.6
	Other pensioner	88	5.5
	Looking for work	68	4.3
	Working	876	54.8
	Other	38	2.4
	Do not know/refused	2	0.1
Highest qualification completed	Completed Primary School	72	4.5
	Year 7 to HSC	752	47.0
	TAFE[1] Certificate or Diploma	309	19.3
	Uni CAE[2] or tertiary degree or higher	288	18.0
	Others	178	11.1
Annual household income before tax last year	Up to $10,000	222	13.9
	$10001 - $20000	119	7.4
	$20001 - $40000	232	14.5
	$40001 - $60000	238	14.9
	More than $60000	343	21.5
	Do not know/refused	445	27.8
Australian resident	Australian citizen	1431	89.5
	Permanent resident	112	7.0
	Neither resident or citizen	56	3.5
Country of birth	Born in Australia	1067	66.7
	Born overseas	519	32.5
	Do not know/refused	13	0.8
Language other than English spoken at home	Yes	634	39.6
	No	953	59.6
	Do not know/refused	12	0.8
Language usually spoken at home	Arabic	101	6.3
	Cantonese	12	0.8
	Mandarin	12	0.8
	Vietnamese	32	2.0
	Other	336	21.0
	Do not know/refused	153	9.6
	English	953	59.6

…Continued

Table 2.2 (*continued*)

Selected socio-demographic characteristics		*ED Attendees n=(1599)*	
		n	*%*
Aboriginal Status Islander Origin	Non Aboriginal	1500	93.8
	Aboriginal Status Islander	51	3.2
	Do not know/refused	48	3.0
Current formal marital status	Married	542	33.9
	Widowed	77	4.8
	Separated/Divorced	140	8.8
	Never Married	828	51.8
	Do not know/refused	12	0.8
Employment status in the last week	Full-time/Part-time employed	884	55.3
	Self-employed	97	6.1
	Unemployed	606	37.9
	Do not know/refused	12	0.8

[1] TAFE – Technical and Further Education Colleges provide vocational training at certificate or diploma level.
[2] CAE – College of Advanced Educations provide tertiary level studies.

Age of attendees (Table 2.3)

At Bowral and Campbelltown hospitals, the majority of patients were aged in the 14-24 age group (44% and 44.1% respectively)

At Fairfield and RPA hospitals, more patients were aged in the 25–44 year age group (39% and 44.8% respectively), whilst at Liverpool hospital a third each of patients were aged in the 14 – 24 and 25–44 year age groups.

Although most patients at Bankstown hospital were aged between 25–44 years, the distribution between the other age groups was more evenly spread (24.2% for 14-24 years; 21.1% for 45–64 years and 21.5% in the 65 years and over age group).

Of all the hospitals, Bankstown had the highest proportion of patients aged 65 years and over attending ED with an injury. Proportionally twice as many patients in this age group (21.5%) attended Bankstown hospital as attended RPA hospital (10.7%).

Table 2.3: Age distribution of the ED attendees by Hospital

Hospital		*Age at ED visits*					*Total*
		14-24	*25-44*	*45-64*	*65 and above*	*Age missing*	
Bankstown	Number	54.0	74.0	47.0	48.0	0.0	223
	%	24.2	33.2	21.1	21.5	0.0	100
Bowral	Number	51.0	27.0	21.0	17.0	0.0	116
	%	44.0	23.3	18.1	14.7	0.0	100
Campbelltown	Number	81.0	68.0	37.0	16.0	0.0	202
	%	40.1	33.7	18.3	7.9	0.0	100
Fairfield	Number	45.0	60.0	31.0	18.0	0.0	154
	%	29.2	39.0	20.1	11.7	0.0	100
Liverpool	Number	140.0	137.0	96.0	29.0	6.0	408
	%	34.3	33.6	23.5	7.1	1.5	100
RPA	Number	142.0	222.0	76.0	53.0	3.0	496
	%	28.6	44.8	15.3	10.7	0.6	100
Total	Number	513.0	588.0	308.0	181.0	9.0	1599
	%	32.1	36.8	19.3	11.3	0.6	100

Ethnicity

A third of those interviewed were born overseas and 40% spoke a language other than English at home (Table 2.2). Nearly all respondents spoke English (99.6%) and were able to complete the questionnaire in English. Only six attendees needed a translated questionnaire (Data not shown). The language most commonly spoken at home, after English (59.6%), was Arabic (6.3%) and 21% of ED attendees spoke “other languages”. One hundred and fifty three (9.6%) attendees refused to answer this question (Table 2.2).

Aboriginal peoples accounted for 3.2% (n=51) of those interviewed.

Nearly 20% of clients had been to a hospital ED in the last 12 months with an injury and 5% stated they had been drinking alcohol at the time.

Table 2.4: Distribution of ED attendees with an injury in the past 12 months

Hospital ED attendees		*n*	*%*
Injured in the past 12 months	No	1297	81.1
	Yes	296	18.5
	Do not know/Refused	6	0.4
	Total	1599	100.0
Alcohol consumed prior to injury	No	1406	87.9
	Yes	73	4.6
	Do not know/Refused	120	7.5
	Total	1599	100.0

Gender

Comparing genders (Table 2.5), more males than females attended ED in the younger age groups and this difference was more pronounced in the youngest age group (35.8% vs 26%) than in the 25–44 year age group (39.1% vs 32.9%). However, in the older age groups, more females presented to the ED department than males, particularly in the 65 years and over age group (17.6% vs 7.5%).

There was little difference between the categories of injury severity between males and females with the majority of injuries in both genders being rated as potentially life threatening or potentially serious.

At each hospital female attendees had both a higher mean and median age than males, with an average overall mean of 42.6 years for females (S.D +/- 21.1 years) vs 35.3 years for males (S.D +/-17.2 years) and a median of 37.2 years for females (range: 14.1 to 96.1 years) vs 30.6 years for males (range: 14.0- 94.2 years). Differences in mean and median ages were more apparent at Bankstown, Bowral, Campbelltown and Fairfield hospitals (data not shown).

Table 2.5: Distribution of ED attendees by Age, Triage Code and Gender

Variable		*Gender*				*Total*	
		Male		*Female*			
		n	*%*	*n*	*%*	*n*	*%*
Age at ED visits (years)	14-24	357	35.8	156	26.0	513	32.1
	25-44	390	39.1	198	32.9	588	36.8
	45-64	174	17.4	134	22.3	308	19.3
	65 and above	75	7.5	106	17.6	181	11.3
	Age missing	2	0.2	7	1.2	9	0.6
Triage Code	Immediately life-threatening	3	0.3	2	0.3	5	0.3
	Imminently life-threatening	83	8.3	40	6.7	123	7.7
	Potentially life-threatening	314	31.5	214	35.6	528	33.0
	Potentially serious	473	47.4	273	45.4	746	46.7
	Less urgent	125	12.5	72	12.0	197	12.3

Descriptive Statistics

Injury Characteristics

Table 3.1 compares injury cause and intention in all subjects, and between English speakers and those speaking a language other than English at home. It also identifies the cause of the injury and whether it was intentional or not. Falls were the main cause of injury in a third of the subjects, followed by "being hit against something" and "being cut or pierced". Ten percent of subjects indicated the injury was intentional, being caused by another person (7.1%) or due to self harm (2.7%).

Table 3.1: Nature and circumstances of injury (cause, intention, action) by language other than English (LOTE) spoken at home

	Speaks a language other than English (LOTE) at home							
	Speaks a LOTE at home		*English speakers*		*Don't know /inadequate/ Refused*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Main cause of injury								
Being a motor vehicle driver	54	8.5	41	4.3	0	0.0	95	5.9
Being a motor vehicle passenger	21	3.3	16	1.7	0	0.0	37	2.3
Being on a bicycle or motorcycle	21	3.3	42	4.4	4	33.3	67	4.2
Being a pedestrian (being hit by a car)	10	1.6	7	0.7	0	0.0	17	1.1
A fall	211	33.3	319	33.5	5	41.7	535	33.5
A drowning or near drowning	1	0.2	1	0.1	0	0.0	2	0.1
Suffocation	1	0.2	0	0.0	0	0.0	1	0.1
Flames, fire smoke	6	0.9	9	0.9	0	0.0	15	0.9
A hot object (steam, liquid, stove, heater)	6	0.9	12	1.3	0	0.0	18	1.1
Medication (with no other injury)	3	0.5	8	0.8	0	0.0	11	0.7
Alcohol (with no other drugs)	1	0.2	5	0.5	0	0.0	6	0.4
Non-prescribed drugs (with no other injury)	2	0.3	4	0.4	0	0.0	6	0.4
Other poisoning incident	2	0.3	9	0.9	0	0.0	11	0.7
Being cut or pierced	113	17.8	135	14.2	1	8.3	249	15.6
An animal caused incident (incl. insects)	14	2.2	28	2.9	0	0.0	42	2.6
Being hit by or hit against something	109	17.2	239	25.1	2	16.7	350	21.9
Some other cause	53	8.4	67	7.0	0	0.0	120	7.5
Don't know/inadequate/refuse	6	0.9	11	1.2	0	0.0	17	1.1
Grouped major categories of injury								
A transport incident	106	16.7	106	11.1	4	33.3	216	13.5
A fall	211	33.3	319	33.5	5	41.7	535	33.5
Being hit by or hit against something	109	17.2	239	25.1	2	16.7	350	21.9
Being cut or pierced	113	17.8	135	14.2	1	8.3	249	15.6
A poisoning incident	8	1.3	26	2.7	0	0.0	34	2.1
All other causes	87	13.7	128	13.4	0	0.0	215	13.4
Total	634	100.0	953	100.0	12	100.0	1599	100.0
Type of injury event								
Unintentional Injury	576	90.9	843	88.5	12	100	1431	89.5
Intentional harm by another	37	5.8	77	8.1	0	0	114	7.1
Intentional self harm	17	2.7	26	2.7	0	0	43	2.7
Don't know/inadequate/refuse	4	0.6	7	0.7	0	0	11	0.7
Total	634	100.0	953	100.0	12	100	1599	100.0

Of those who spoke a language other than English at home and had been injured (n=634), a third had sustained the injury through a fall (33.3%), more than 15% (16.7%) had been involved in a transport accident, i.e. motor vehicle, bicycle, pedestrian hit by a car, and eight (1.3%) had had a poisoning incident, i.e. involving medication, alcohol, non prescribed drugs or other (Table 3.1).

In comparison with those who spoke English at home, a greater proportion of LOTE attendees had sustained an injury through a transport accident (16.7% vs 11.1%; $p<0.05$) and by being cut or pierced (17.8% vs 14.2%). However, a greater proportion of English language speakers had injuries due to being hit by or against something (25.1% vs 17.2%; $p<0.05$) and through poisoning (2.7% vs 1.3%) compared with those who were LOTE speakers.

Nearly the same proportion of English (33.5%) and LOTE (33.2%) speakers had sustained an injury through a fall.

A greater proportion of English speakers described their injury as being intentionally caused by another compared with LOTE speakers (8.1% vs 5.8%), but the percentage describing the intentional injury as being due to self harm was the same for both groups (2.7%). There was little difference in the proportion of English and LOTE speakers reporting unintentional injuries (90.9% LOTE vs 88.5% English).

Table 3.2: Nature and circumstances of injury (cause, intention, action) by the highest level of education completed

	Highest level of education completed											
	Completed Primary School		*Year 7 to HSC*		*TAFE Certificate of Diploma*		*Uni CAE or tertiary degree or higher*		*Others*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Grouped major categories of injury												
A transport incident	9	12.5	103	13.7	36	11.7	51	17.7	17	9.6	216	13.5
A fall	39	54.2	242	32.2	78	25.2	96	33.3	80	44.9	535	33.5
Being hit by or hit against something	8	11.1	182	24.2	70	22.7	59	20.5	31	17.4	350	21.9
Being cut or pierced	6	8.3	117	15.6	63	20.4	40	13.9	23	12.9	249	15.6
A poisoning incident	3	4.2	14	1.9	7	2.3	5	1.7	5	2.8	34	2.1
All other causes	7	9.8	94	12.5	55	17.7	37	12.8	22	12.4	215	13.4
Total	72	100.0	752	100.0	309	100.0	288	100.0	178	100.0	1599	100.0
Type of injury event												
Unintentional Injury	65	90.3	661	87.9	286	92.6	260	90.3	159	89.3	1431	89.5
Intentional harm by another	4	5.6	65	8.6	14	4.5	21	7.3	10	5.6	114	7.1
Intentional self harm	2	2.8	24	3.2	8	2.6	4	1.4	5	2.8	43	2.7
Don't know/inadequate/refuse	1	1.4	2	0.3	1	0.3	3	1.0	4	2.2	11	0.7
Total	72	100.0	752	100.0	309	100.0	288	100.0	178	100.0	1599	100.0

Table 3.2 considers the effect of education on injury cause and circumstance. Overall, no clear trends can be seen between injury cause and educational level.

A much greater proportion of attendees who had completed school to primary level were injured by a fall (54%) compared with those who completed secondary, TAFE or University education (32.2%, 25.2% and 33.3% respectively). However, the subgroup of those who had only completed primary education was small (n=72) and therefore caution is needed in interpreting these results.

Attendees who had completed University level education were more likely to have an injury from a transport incident than those attendees who had attained primary, secondary or TAFE level education (17.7% vs 12.5%, 13.7% and 11.7% respectively).

Interestingly, injuries from intentional harm by another were highest in both secondary educated (8.6%) and University educated (7.3%) attendees and lowest in TAFE educated attendees (4.5%).

Unintentional injuries were lowest in secondary educated attendees (87.9%) and highest in TAFE educated attendees (92.6%) but there was little real difference between the various educational subgroups.

Injuries from intentional self harm appeared lower in attendees of University education but numbers in each subgroup were too small to offer meaningful comparison.

Almost a quarter of secondary educated attendees (24.2%) had sustained an injury from "being hit by or against something". This was slightly higher than those who had completed TAFE or University level education (22.7% and 20.5% respectively) but more than twice that of attendees who had only completed primary school (8.3%). However, once again numbers in the primary educated subgroup were small (n=8).

Table 3.3: Nature and circumstances of injury (cause, intention, action) by annual household income (before tax)

	Annual household income before tax													
	Up to $10,000		*$10001 - $20000*		*$20001 - $40000*		*$40001 - $60000*		*More than $60000*		*Don't know/ refused*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Grouped major categories of injury														
A transport incident	24	10.8	19	16.0	41	17.7	26	10.9	44	12.8	62	13.9	216	13.5
A fall	89	40.1	55	46.2	72	31.0	63	26.5	109	31.8	147	33.0	535	33.5
Being hit by or hit against something	47	21.2	21	17.6	40	17.2	57	23.9	89	25.9	96	21.6	350	21.9
Being cut or pierced	32	14.4	13	10.9	30	12.9	55	23.1	51	14.9	68	15.3	249	15.6
A poisoning incident	5	2.3	3	2.5	6	2.6	3	1.3	4	1.2	13	2.9	34	2.1
All other causes	25	11.2	8	6.8	43	18.6	34	14.3	46	13.4	59	13.2	215	13.4
Total	222	100.0	119	100.0	232	100.0	238	100.0	343	100.0	445	100.0	1599	100.0
Type of injury event														
Unintentional Injury	195	87.8	112	94.1	212	91.4	208	87.4	317	92.4	387	87.0	1431	89.5
Intentional harm by another	17	7.7	4	3.4	12	5.2	24	10.1	18	5.2	39	8.8	114	7.1
Intentional self harm	7	3.2	3	2.5	8	3.4	3	1.3	7	2.0	15	3.4	43	2.7
Don't know/ inadequate/refuse	3	1.4	0	0.0	0	0.0	3	1.3	1	0.3	4	0.9	11	0.7
Total	222	100.0	119	100.0	232	100.0	238	100.0	343	100.0	445	100.0	1599	100.0

In Table 3.3 the effect of annual household income (income) on injury cause is examined. A greater proportion of attendees in the two lowest income groups had suffered an injury as a result of a fall (40.1% and 46.2% respectively) compared with attendees with household incomes above $20,000 (31%, 26.5% and 31.8% respectively). However, once again, these results need to be interpreted with caution due to the small numbers in each subgroup.

Those with an annual household income of $40,001 to $60,000 were up to twice as likely to have an injury caused by "being cut or pierced" than any other income group. However, no clear differences between income groups were apparent for other intentional injuries such as "being hit by or against something". Approximately one quarter of attendees in each income group had suffered an injury from being hit (range 17.2% to 25.9%). Numbers were again small in each sub group.

There was little difference between income groups in the overall incidence of unintentional injury. The proportion of attendees suffering from an unintentional injury was lowest in the $40,001 to $60,000 income range (87.4%) and highest in the $10,001 to $20,000 income group (94.1%).

Table 3.4: Nature and circumstances of injury - result of injury

	ED Attendees (n=1599)	
Reason for attending ED	*n*	*%*
Superficial (excluding eye)	176	11.0
Open wound (excluding eye)	267	16.7
Fracture (excluding tooth)	181	11.3
Dislocation	44	2.8
Sprain or strain	214	13.4
Crushing	52	3.3
Injury to muscle/tendon	116	7.3
Injury to internal organ	8	0.5
Burn or corrosion	26	1.6
Dental injury (incl. fractured tooth)	4	0.3
Eye injury (excl. foreign body in external eye)	34	2.1
Foreign body in external eye	14	0.9
Poisoning, toxic effects excluding bites	36	2.3
Bites, including envenomations	20	1.3
Intracranial injury (incl. concussion)	20	1.3
Injury of unspecified nature	167	10.4
OR Multiple injuries of more than one nature	180	11.3
Don't know/inadequate/refused	40	2.5

Table 3.4 shows that patients sought treatment at ED for a variety of injuries, the main ones being an open wound (*excluding eye*), a sprain or strain, multiple injuries, or a fracture (*excluding tooth*)

In Table 3.5 the outcomes of attendance at ED are examined and reveal that the proportion of English speakers not waiting for treatment was nearly double that of LOTE speakers (2.4% vs 1.3%) although numbers for comparison were small (23 vs 8). A slightly greater proportion of English speakers were treated and discharged home compared with LOTE speakers (75% vs 71.9%) and slightly more LOTE speakers were admitted to hospital compared with English speakers (12.6% vs 10.1%). However, none of these results were statistically significant.

Table 3.5: Outcomes of attendance at ED by language other than English (LOTE) spoken at home

	Speaks a language other than English (LOTE) at home							
Outcomes of attendance at ED	*LOTE spoken at home*		*English speakers*		*Don't know /inadequate/ refused*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Did not wait	8	1.3	23	2.4	0	0.0	31	1.9
No treatment required	5	0.8	8	0.8	0	0.0	13	0.8
Treated and discharged	456	71.9	715	75.0	8	66.7	1179	73.7
Admitted to hospital	80	12.6	96	10.1	1	8.3	177	11.1
Don't know/Refusal/Not applicable	85	13.4	111	11.6	3	25.0	199	12.4
Total	634	100.0	953	100.0	12	100.0	1599	100.0

Description of setting at the time of injury

The majority of injuries (39.6%) had been sustained at home or in other accommodation e.g. friend's house, and the injured person had been alone (38.2%) or with family (22.5%) or friends (25.9%). A third of injuries had occurred in public locations, namely the street or highway (18.5%) or a recreation area (14.5%). Only 5% of attendees had been injured in a licensed premise (Table 3.6).

Table 3.6: Nature and Circumstances of Injury (setting, company, activity at time)

Variable		*ED Attendees (n=1599)*	
		n	*%*
Location at time of injury	Home or in accommodation	633	39.6
	School/college or in Office	124	7.8
	Recreation area	232	14.5
	Street or highway	296	18.5
	Licensed premise	81	5.1
	Industrial/construction site; mine/quarry	94	5.9
	Farm/station/property	18	1.1
	Don't know/inadequate/refused	121	7.6
Company at time of injury	With family	360	22.5
	With friends	414	25.9
	Acquaintances/strangers/work mates	190	11.9
	I was on my own	611	38.2
	Don't know/inadequate/refused	24	1.5
Activity at time of injury	Participating in organised/social sports	312	19.5
	Household chores	233	14.6
	Participating in games and relaxing	199	12.4
	Driving/Travelling	228	14.3
	Working for an income	224	14.0
	Attending an entertainment/Attending a social gathering	99	6.2
	Don't know/inadequate/refused	304	19.0

There was little difference between English speakers and LOTE speakers and location of injury. There were only slight differences in injured ED attendees who had sustained their injury in a public place. A slightly greater proportion of LOTE speakers had been in the street or highway compared with English speakers (20.3% vs 17.2%) whilst a greater proportion of English speakers were in a recreational area (16.3% vs 11.7%) (Table 3.5)

Slightly more LOTE speakers were with family compared with English speakers (24.6% vs 21.0%) at the time of the injury with more English speakers being in the company of friends compared with LOTE speakers (28.1% vs 22.4%). Similar proportions of English and LOTE speakers were alone at the time of their injury. (Table 3.7)

Activities at the time of the injury were almost evenly spread between organised sport, household chores, driving/travelling or working. However, 19% of those interviewed refused to answer this question or gave an inadequate answer (Table 3.6).

English speakers were more likely to be injured participating in organised sports, games or attending a social event than their LOTE speaking counterparts, whilst LOTE speakers were more likely to be at work or driving/travelling when their injury occurred (Table 3.7).

Table 3.7: Nature and Circumstances of Injury (setting, company, activity at time) by language other than English (LOTE) spoken at home

	Speaks a language other than English (LOTE) at home							
	LOTE spoken at home		*English speaker*		*Don't know /inadequate/ refuse*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Location at time of injury								
Home or in accommodation	247	39.0	382	40.1	4	33.3	633	39.6
School/college or in Office	47	7.4	77	8.1	0	0.0	124	7.8
Recreation area	74	11.7	155	16.3	3	25.0	232	14.5
Street or highway	129	20.3	164	17.2	3	25.0	296	18.5
Licensed premise	32	5.0	49	5.1	0	0.0	81	5.1
Industrial/construction site; mine/quarry	37	5.8	56	5.9	1	8.3	94	5.9
Farm/station/property	8	1.3	10	1.0	0	0.0	18	1.1
Don't know/inadequate/refused	60	9.5	60	6.3	1	8.3	121	7.6
Company at time of injury								
With family	156	24.6	200	21.0	4	33.3	360	22.5
With friends	142	22.4	268	28.1	4	33.3	414	25.9
Acquaintances/strangers/Work mates	81	12.8	107	11.2	2	16.7	190	11.9
I was on my own	246	38.8	363	38.1	2	16.7	611	38.2
Don't know/inadequate/refused	9	1.4	15	1.6	0	0.0	24	1.5
Activity at time of injury								
Participating in organised/social sports	113	17.8	196	20.6	3	25.0	312	19.5
Household chores	101	15.9	130	13.7	2	16.7	233	14.6
Participating in games and relaxing	65	10.3	133	14.0	1	8.3	199	12.5
Driving/Travelling	105	16.6	120	12.6	3	25.0	228	14.3
Working for an income	102	16.1	121	12.7	1	8.3	224	14.0
Attending an entertainment/Attending a social gathering	30	4.7	69	7.3	0	0.0	99	6.2
Don't know/inadequate/refused	118	18.6	182	19.1	2	16.7	304	18.9
Total	634	100.0	951	100.0	12	100.0	1597	100.0

Measures of alcohol use

Of those who had a breath test result, 89% of attendees did not record any alcohol breath testing, 2.6% (n=28) had a reading between 0.01g/dl and 0.04g/dl; 2.7% (n=29) had a reading of 0.05g/dl to less than 0.1g/dl and 5.7% (n=61) recorded a reading above 0.1g/dl. However, 33.5% of attendees did not have a clearly defined or stated breath test reading (Table 3.8).

Table 3.8: Breath Test reading

Breath Test Reading (g/dl)	*Frequency*	*%*
0	947	88.9
0.01 to <0.05	28	2.6
0.50 to <0.10	29	2.7
0.10 or more	61	5.7
Total	1065	100.0

*Not stated/not clear/not applicable=534

As observed by the interviewer 2% of patients showed signs of loss of coordination; 4% had slurred speech; just over 1% (n=23) were staggering and 7% had alcohol smell on their breath. Six percent of those interviewed had one sign of intoxication and just over 3% had two or more signs of intoxication (data not shown).

Life Time Alcohol Use

The CAGE questionnaire defines alcohol dependence as answering "yes" to two or more questions regarding alcohol intake and attitudes to drinking habits. Results (not shown) to individual questions in the CAGE questionnaire reveal that 14.3% felt they should cut down on drinking, 8.8% reported being annoyed by family/friends criticising their drinking; 5% claimed to have had a drink first thing in the morning and 8.4% stated they felt guilty about their drinking. Twice as many males as females (17.9 vs 8.2%) felt they should reduce their alcohol intake. As Table 3.9 shows nearly 10% of the study population answered "yes" to two or more questions and can therefore be regarded as being alcohol dependent.

Table 3.9: Distribution of alcohol abuse as defined by the CAGE questionnaire

Number of affirmative answers to CAGE questions (out of 4)	*n*	*%*
None	1278	79.9
At least one question	169	10.6
Two or more questions	152	9.5
Total	1599	100.0

Drinking Patterns

The main reasons cited by attendees for drinking alcohol were to celebrate an occasion (33.5%) and because they found drinking an enjoyable activity (26.9%). Just over 10% stated that drinking helped them to relax and 5% drank because their friends did (Table 3.10).

Table 3.10: Reasons cited for drinking alcohol

Description	*n*	*%*
I drink to enjoy myself	329	26.9
Drinking alcohol helps me to relax	135	11.0
To celebrate an occasion	410	33.5
My friends drink so I drink	66	5.4
I drink to cope with problems	18	1.5
No particular reason	83	6.8
I usually drink on this day of the week at this time	33	2.7
Other reason (specify)	85	7.0
Not stated	64	5.2
Total	1223	100.0

Distribution of alcohol use amongst the injured

Of the 1599 respondents, 17% stated they had been drinking in the six hours prior to their injury. Just under 50% had been drinking at home - 30% in their own home and 17.4% in another home or other accommodation (17.4%). Fifteen percent had been drinking at a hotel.

Table 3.11: Drinking Patterns in the six hours before injury

Drinking patterns		*ED Attendees*	
		n	*%*
Drinking alcohol in the six hours prior to injury (n=1599)	Yes	270	16.9
	No	1295	81.0
	Not applicable/Don't know	34	2.1
Location where alcohol was consumed (n=270)	Hotel	40	14.8
	Tavern	22	8.1
	Night Club	17	6.3
	Sports Club	9	3.3
	Restaurant/Café	6	2.2
	Licensed Function	5	1.9
	In the vicinity of a licensed premise	2	0.7
	Own Home	81	30.0
	Other home/accommodation	47	17.4
	School/College	3	1.1
	At work	7	2.6
	Sporting Area	1	0.4
	Street or highway	8	3.0
	Farm/station/property	1	0.4
	Recreation area/park/by the water	13	4.8
	Other specified site	8	3.0

Twenty percent of those in the 25–44 year age category and 17.4% in the 14–24 year age category were drinking six hours prior to their injury. Figures in the other age groups were slightly less (15% for 45–64 year olds and 14% for those aged 65 years and over) (Table 3.12).

Nearly twice as many men (20.2%) compared with women (12.3%) were drinking prior to their injury. Around 20% in each of the immediately life threatening, imminently life threatening and less urgent injury severity categories had drunk prior to injury, though numbers in some categories were small (Table 3.12).

A greater proportion of those who spoke English at home compared with those who spoke other languages at home drank prior to their injury (20% vs 13%). Numbers in each of the key community groups who drank alcohol (Arabic, Cantonese/Mandarin and Vietnamese) were too small to draw any decisive conclusions about drinking patterns in these communities.

Almost two thirds of Aboriginal attendees and 17% of non Aboriginal attendees drank prior to their injury although 39 people did not know or refused to state whether they were of Aboriginal origin. Numbers in the Aboriginal category were small (n=50) (Table 3.12).

Educational level and employment status had no significant effect on drinking habits in the six hours prior to injury (Table 3.12).

Table 3.12: Drinking Patterns in the six hours before injury by age, gender and ethnicity

Socio-demographic characteristics		*Drinking alcohol in the six hours prior to injury*				*Total*
		Yes		*No*		
		n	*%*	*n*	*%*	*Count*
Age at ED visit	14-24	87	17.4	413	82.6	500
	25-44	112	19.4	466	80.6	578
	45-64	45	15.0	255	85.0	300
	65 and above	25	14.0	153	86.0	178
	Age missing	1	11.1	8	88.9	9
Gender	Male	198	20.2	782	79.8	980
	Female	72	12.3	513	87.7	585
Country of birth	Born in Australia	204	19.5	841	80.5	1045
	Born in overseas	64	12.6	444	87.4	508
	Do not know/refused	2	16.7	10	83.3	12
Language other than English spoken at home	Yes	81	13.1	535	86.9	616
	No	189	20.1	749	79.9	938
	Do not know/refused			11	100.0	11
Language usually spoken at home	English	189	20.1	749	79.9	938
	Arabic	7	7.3	89	92.7	96
	Cantonese/Mandarin	1	4.2	23	95.8	24
	Vietnamese	4	12.9	27	87.1	31
	Other	41	12.3	291	87.7	332
	Do not know/refused	28	19.4	116	80.6	144
Aboriginal status	Non Aboriginal	247	16.7	1229	83.3	1476
	Aboriginal	16	32.0	34	68.0	50
	Do not know/refused	7	17.9	32	82.1	39
Triage Code	Immediately life-threatening	1	20.0	4	80.0	5
	Imminently life-threatening	25	20.8	95	79.2	120
	Potentially life-threatening	89	17.1	432	82.9	521
	Potentially serious	116	16.0	609	84.0	725
	Less urgent	39	20.1	155	79.9	194
Employment Status	Working	176	18.4	781	81.6	957
	Unpaid Work	0	0.0	13	100.0	13
	Looking For Work	89	15.7	479	84.3	568
	Other	5	18.5	22	81.5	27
Highest Educational Achievement	Y10 or Less	105	18.3	469	81.7	574
	HSC – Leaving Y12	45	19.3	188	80.7	233
	TAFE/Diploma	40	13.1	265	86.9	305
	Tertiary Degree or Higher	41	14.4	243	85.6	284
	Other	39	23.1	130	76.9	169
	Total	270	17.3	1295	82.7	1565

Alcohol use in six hours 24 hours, 48 hours and seven days prior to injury

Of those drinking alcohol in the six hours prior to their injury, around 51–56% had also been drinking in the same six hour period 24 hours, (56.3%), 48 hours (51%) and seven days (56.1%) prior to the injury (Table 3.13).

Table 3.13: Drinking in the six hours before injury compared with drinking in the same six hour period, 24 hours, 48 hours and seven days before injury

Alcohol consumption in the same six hour period prior to injury		*Alcoholic drinks consumed in the six hours before injury?*					
		Yes		*No*		*Total*	
		n	*%*	*n*	*%*	*n*	*%*
24 hours ago	Yes	98	56.3	76.0	43.7	174	100
	No	162	12.0	1193.0	88.0	1355	100
48 hours ago	Yes	78	51.0	75.0	49.0	153	100
	No	182	13.2	1196.0	86.8	1378	100
7 days ago	Yes	111	56.1	87.0	43.9	198	100
	No	149	11.2	1184.0	88.8	1333	100

Levels of alcohol consumed

Table 3.14 examines the relationship between characteristics of attendees and the quantity of alcohol consumed prior to injury.

In each subgroup of alcohol quantity consumed there were more males represented than females. This was more pronounced as the quantity of alcohol consumed increased, with almost four times more males drinking 91g or more of alcohol than females (6.5% males vs 1.8% females)

Age

A greater proportion of those in the younger age groups (14-24 years and 25-44 years) drank at higher levels (61g alcohol and above) compared with the older age groups (45-64 years and 65 years and above). This difference was again more pronounced in the subcategory of those drinking 91g or more of alcohol. Only two people (1.1%) aged 65 years and above drank at this level prior to injury compared with 30 (5.8%) in the youngest age group (14-24 years).

Those in the 14-24 year age group were more likely to drink at higher levels – only five attendees (1%) in this age group drank less than 30g prior to injury but 30 (5.8%) drank more than 90 grams.

Interestingly, in the 25-64 year age group range, attendees were more likely to drink at either very low levels ($\leq$ 30 grams alcohol (10.1%)) or very high levels (>90grams alcohol (9%))

Table 3.14: Distribution of attendees' characteristics by quantity of alcohol consumed six hours prior to injury

Variables	*Quantity of alcohol consumed six hours prior to injury*										
	0		*0.01 - 30g*		*31 - 60g*		*61-90g*		*91g +*		*Total*
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*
All	1389	86.9	68	4.3	37	2.3	29	1.8	76	4.8	6235
Gender											
Male	837	83.9	47	4.7	28	2.8	21	2.1	65	6.5	998
Female	552	91.8	21	3.5	9	1.5	8	1.3	11	1.8	601
Age at ED visits (years)											
14-24	453	88.3	5	1.0	13	2.5	12	2.3	30	5.8	513
25-44	496	84.4	33	5.6	14	2.4	13	2.2	32	5.4	588
45-64	272	88.3	14	4.5	8	2.6	3	1.0	11	3.6	308
65 and above	160	88.4	16	8.8	2	1.1	1	0.6	2	1.1	181
Country of Birth											
Australia	906	84.9	43	4.0	27	2.5	25	2.3	66	6.2	1067
Overseas	471	90.8	25	4.8	10	1.9	4	0.8	9	1.7	519
Speak LOTE at home											
Yes	572	90.2	29	4.6	9	1.4	8	1.3	16	2.5	634
No	805	84.5	39	4.1	28	2.9	21	2.2	60	6.3	953
Language usually spoken at home											
English	805	84.5	39	4.1	28	2.9	21	2.2	60	6.3	953
Arabic	95	94.1	2	2.0	1	1.0	2	2.0	1	1.0	101
Cantonese/Mandarin	24	100.0	0	0.0	0	0.0	0	0.0	0	0.0	24
Vietnamese	28	87.5	2	6.3	2	6.3	0	0.0	0	0.0	32
Other	306	91.1	19	5.7	5	1.5	2	0.6	4	1.2	336
Do not know/refused	131	85.6	6	3.9	1	0.7	4	2.6	11	7.2	153
Aboriginal status											
Non Aboriginal	1303	86.9	66	4.4	34	2.3	27	1.8	70	4.7	1500
Aboriginal	42	82.4	1	2.0	2	3.9	2	3.9	4	7.8	51

Note: In Aboriginal attendees the discrepancy in numbers between tables 3.12 and 3.14 is due to subjects not stating their drinking status or aboriginal status. In Table 3.14 all unclear cases regarding quantity of alcohol drink were considered as '0'.

Ethnicity

Those born overseas and speaking a language other than English at home were more likely to drink at lower levels than their Australian born counterparts (Table 3.14).

Five percent of those born overseas drank less than 30 grams of alcohol prior to injury compared with 4% of Australian born attendees. However, three times as many Australian born attendees drank above 90 grams compared with those born overseas (6.2% vs 1.7%).

In examining particular languages spoken at home and quantities of alcohol drunk, numbers were too small to draw any firm conclusions. The apparent trend in Cantonese, Arabic and Vietnamese speakers respectively appeared to mimic the overall finding that those speaking LOTE at home drank at lower levels (Table 3.14).

Aboriginal Status

Only sixteen attendees from Aboriginal background reported drinking in the six hours prior to their injury. Compared with attendees from a non Aboriginal background, proportionally twice as many drank prior to injury (Table 3.12). Of the nine where data was collected regarding quantity of alcohol consumed, most (6) were drinking at risky or high risk levels (>61g) (Table 3.14).

Injury cause

In Table 3.15 the major causes of injury are examined in relation to alcohol consumption in the four time periods prior to injury. Of those drinking in the six hours prior to their injury, 35% had suffered a fall, nearly 8% had been involved in a transport accident and 18 attendees (1.8%) had been poisoned. These figures are similar for the other three time periods.

Table 3.15: Major causes of injury by drinking alcohol prior to Injury

Drinking prior to injury		*A transport incident*		*A fall*		*A poisoning incident*		*All other causes*		*Total n*
		n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	
6 hrs ago	No	187	14.4	431	33.3	18.0	1.4	659	50.9	1295
	Yes	21	7.8	95	35.2	16.0	5.9	138	51.1	270
24 hrs ago	No	188	13.8	450	33.0	27.0	2.0	698	51.2	1363
	Yes	18	10.3	62	35.4	7.0	4.0	88	50.3	175
48 hrs ago	No	192	13.9	453	32.7	31.0	2.2	710	51.2	1386
	Yes	15	9.7	60	39.0	3.0	1.9	76	49.4	154
7 days ago	No	188	14.0	440	32.8	27.0	2.0	686	51.2	1341
	Yes	18	9.0	73	36.7	7.0	3.5	101	50.8	199

Injury Severity

Overall, most attendees (46.7%) had an injury severity rating of “potentially serious” or “potentially life threatening” (33.0%) and there was little difference in injury severity rating with the amount of alcohol consumed (Table 3.16). For example, approximately 50% of attendees had a “potentially serious” injury whether 0 grams, 31-60 grams or 61-90 grams of alcohol was consumed. Only when very low (0.1 to 30g) or very high (more than 90g) levels of alcohol were consumed did injury rating increase. For attendees consuming less than 30 grams of alcohol, most injuries were classified as either “potentially life threatening” (36.8%) or “imminently life threatening” (14.7%) with only 30% being deemed “potentially serious”. When more than 90 grams of alcohol was consumed, although numbers were small, injury severity rating was higher in the potentially “life threatening” and “imminently life threatening” categories and lower in the “potentially serious” category compared with attendees who drank moderate amounts of alcohol (31-90g).

Table 3.16: Distribution of severity of injury by quantity of alcohol consumed six hours prior to injury

Triage category (severity of urgency)	*Quantity of alcohol consumed six hours prior to injury*											
	0g		*0.1-30g*		*31-60g*		*61-90g*		*91g+*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Immediately Life-threatening	5	0.4	0	0.0	0	0.0	0	0.0	0	0.0	5	0.3
Imminently Life-threatening	106	7.6	10	14.7	1	2.7	1	3.4	5	6.6	123	7.7
Potentially Life-threatening	458	33.0	25	36.8	13	35.1	6	20.7	26	34.2	528	33.0
Potentially serious	659	47.4	21	30.9	19	51.4	15	51.7	32	42.1	746	46.7
Less urgent	161	11.6	12	17.6	4	10.8	7	24.1	13	17.1	197	12.3
Total	1389	100.0	68	100.0	37	100.0	29	100.0	76	100.0	1599	100.0

Comparison of levels of alcohol intake for males and females

The NHMRC has established safe drinking guidelines for short-term health for males and females [1] and they are as follows:

- No alcohol, low risk (Females: $\leq$ 40g; Males: $\leq$ 60g),
- Risky (Females: 41-60g; Males: 61-100g),
- High risk (Females: 60g+; Males: 100g+).

Table 3.17 shows the numbers of males and females drinking at low risk, risky and high risk levels as defined by the NHMRC for short term health. Thirty percent of males compared with only 12% of females drank at or below the low risk guidelines, an average of three days a week. Half as many females (7.1%) compared with males (14.8%) were drinking at this level, on average, two days a month. A slightly greater proportion of males (13.2%) compared with females (10.5%) stated that they never drank at this level.

Likewise, nearly three times as many males as females drank at risky levels on a weekly basis (males 12.5% vs females 4.1%) and a monthly basis (males 10.8% vs females 3.3%) but interestingly, more males than females stated they never drank at these levels (males 35.5% vs females 23.6%). For high risk drinking levels, the categories were split into two sections: Level 1 being 70 grams of alcohol for women and 110 grams of alcohol for men and Level 2 being 140 grams of alcohol for females and 280 grams of alcohol for males. As for risky drinking levels, in both categories, three times as many males drank at high risk levels than women, but again more men (45.1% and 54.7% respectively) than women (27.5% and 29.7% respectively) stated they never drank at these levels, though numbers were small for high risk Level 2.

Table 3.17: Low risk, risky and high risk alcohol intakes over time for both males and females

Gender	*Drinking Frequency*	*NHMRC Low risk levels: Females <= 40g alcohol, Males <= 60g alcohol*	
		n	*% of Total n*
Male	Weekly*	344	30.5
	Monthly^	167	14.8
	Annually~	78	6.9
	Never drink that much	149	13.2
	Total	738	65.4
Female	Weekly*	139	12.3
	Monthly^	80	7.1
	Annually~	52	4.6
	Never drink that much	119	10.5
	Total	390	34.6
Total	Weekly*	483	42.8
	Monthly^	247	21.9
	Annually~	130	11.5
	Never drink that much	268	23.8
	Total	1128	100.0
		NHMRC Risky levels: females 41-60g alcohol, males 61-100g alcohol	
Male	Weekly*	141	12.5
	Monthly^	122	10.8
	Annually~	77	6.8
	Never drink that much	401	35.5
	Total	741	65.6
Female	Weekly*	46	4.1
	Monthly^	37	3.3
	Annually~	39	3.5
	Never drink that much	267	23.6
	Total	389	34.4
Total	Weekly*	187	16.5
	Monthly^	159	14.1
	Annually~	116	10.3
	Never drink that much	668	59.1
	Total	1130	100.0
		High Risk Level 1: females >70g, males >110g	
Male	Weekly*	88	7.8
	Monthly^	64	5.7
	Annually~	79	7.0
	Never drink that much	509	45.1
	Total	740	65.5
Female	Weekly*	30	2.7
	Monthly^	23	2.0
	Annually~	26	2.3
	Never drink that much	310	27.5
	Total	389	34.5
Total	Weekly*	118	10.5
	Monthly^	87	7.7
	Annually~	105	9.3
	Never drink that much	819	72.5
	Total	1129	100.0

…continued

TABLE 3.17 **(*continued*)**

Gender	*Drinking Frequency*	*NHMRC Low risk levels: Females <= 40g alcohol, Males <= 60g alcohol*	
		n	*% of Total n*
		High Risk Level 2: females ≥140g, males ≥280g	
Male	Weeks per month	91	8.5
	Weeks per year	29	2.7
	Never drink that much	585	54.7
	Total	705	65.9
Female	Weeks per month	35	3.3
	Weeks per year	11	1.0
	Never drink that much	318	29.7
	Total	364	34.1
Total	Weeks per month	126	11.8
	Weeks per year	40	3.7
	Never drink that much	903	84.5
	Total	1069	100.0

* Weekly – drinking at least once a week
^ Monthly – not weekly but at least once a month
~ Annually – not monthly but at least once a year
# Weeks per month – at least one week per month
Weeks per year – at least one week per year

Drug use in the injured

At least 20% of those interviewed reported taking drugs or medication prior to their injury. More than half (56.4%) stated the medication was prescribed by their doctor, while just over 20% used over the counter medication (Table 3.18)

Nearly 10% reported using social and recreational drugs but at least 14% of those surveyed were unsure of the social and recreational drugs taken. In addition, 10% of attendees felt the drugs had made them feel sleepy.

Table 3.18: Drug use in six hours before injury

Drug use		*ED Attendees*	
		n	*%*
During the six hours before injury (n=1599)	Yes	326	20.4
	No	1242	77.7
	Don't know	31	1.9
Prescribed medication taken in the six hours before injury (n=413)	Yes	233	56.4
	No	129	31.2
	Don't know	51	12.3
Over-the-Counter medications taken in the six hours before injury (n=412)	Yes	88	21.4
	No	264	64.1
	Don't know	60	14.6
Social and recreational drugs taken in the six hours before injury (n=414)	Yes	39	9.4
	No	316	76.3
	Don't know	59	14.3

Of those taking drugs or medication in the six hours prior to their injury, around 20% had also taken drugs or medication in each of the 24 hour, 48 hour and seven day time periods prior to the injury. Over 50% had taken prescribed medication in the three time periods prior to injury and 5% had taken social or recreational drugs (Table 3.19 overleaf).

Table 3.19: Drug Use in the same six hours before Injury, 24 hrs, 48 hrs and seven days ago

Drugs or medications taken		*ED Attendees*	
		n	*%*
24-hours ago (n=1599)	Yes	332	20.8
	No	1220	76.3
	Don't know	47	2.9
48-hours ago (n=1599)	Yes	325	20.3
	No	1224	76.5
	Don't know	50	3.1
7-days ago (n=1599)	Yes	325	20.3
	No	1226	76.7
	Don't know	48	3.0
Prescribed medications taken			
24-hours ago (n=532)	Yes	288	54.1
	No	189	35.5
	Don't know	55	10.3
48-hours ago (n=532)	Yes	286	53.8
	No	189	35.5
	Don't know	57	10.7
7-days ago (n=527)	Yes	273	51.8
	No	198	37.6
	Don't know	56	10.6
Over-the-Counter medications taken			
24-hours ago (n=527)	Yes	67	12.7
	No	390	74.0
	Don't know	70	13.3
48-hours ago (n=526)	Yes	57	10.8
	No	397	75.5
	Don't know	72	13.7
7-days ago (n=522)	Yes	60	11.5
	No	393	75.3
	Don't know	69	13.2
Social and recreational drugs taken			
24-hours ago (n=525)	Yes	27	5.1
	No	420	80.0
	Don't know	78	14.9
48-hours ago (n=522)	Yes	24	4.6
	No	418	80.1
	Don't know	80	15.3
7-days ago (n=522)	Yes	33	6.3
	No	411	78.7
	Don't know	78	14.9

Table 3.20 shows drug use by selected characteristics such as age, gender, severity of injury, aboriginal status and LOTE spoken at home.

More than half of the 65 years and older age group had taken drugs or medicines six hours prior to their injury, whereas only 14% in the 14 – 24 year age group and 15% in the 25 – 44 year age group had.

Twenty 6% of females compared with 18% of males had taken drugs prior to their injury. Of the 50 people who stated they were of Aboriginal origin, 20% had taken drugs or a medicine, which was a similar proportion to those who were not of Aboriginal origin (1477).

Twenty 3% of English speakers compared with 17% of those who spoke a language other than English at home reported taking drugs prior to their injury.

Just over a quarter (26.4%) of those with an injury classified as "potentially" life threatening had taken drugs in the six hour period prior to injury.

Table 3.20: Drug use in the six hours before injury by selected characteristics [age, gender, severity of injury (triage category), Aboriginal status, language spoken at home]

		Drugs taken during the six hours before injury					
		Yes		*No*		*Total*	
Selected characteristics		*n*	*%*	*n*	*%*	*n*	*%*
Age at ED visits (years)	14-24	70	13.9	434.0	86.1	504	100
	25-44	85	14.7	492.0	85.3	577	100
	45-64	70	23.3	230.0	76.7	300	100
	65 and above	99	55.6	79.0	44.4	178	100
	Age missing	2	22.2	7.0	77.8	9	100
Gender	Male	172	17.6	805.0	82.4	977	100
	Female	154	26.1	437.0	73.9	591	100
Triage Category	Immediately life-threatening	0	0.0	5.0	100.0	5	100
	Imminently life-threatening	22	18.3	98.0	81.7	120	100
	Potentially life-threatening	136	26.4	380.0	73.6	516	100
	Potentially serious	137	18.8	593.0	81.2	730	100
	Less urgent	31	15.7	166.0	84.3	197	100
LOTE at home	Yes	108	17.4	513.0	82.6	621	100
	No	218	23.3	719.0	76.7	937	100
	Do not know/refused		0.0	10.0	100.0	10	100
Aboriginal Status	No	308	20.9	1169.0	79.1	1477	100
	Do not know/refused	8	19.5	33.0	80.5	41	100

Self report and Interview Validation

Self reported accuracy

When questioned, most participants felt very confident in the accuracy of their responses to questions regarding their injury (93.8%), alcohol use (95.2%) and drug use (96.1%) (Table 4.1).

Table 4.1: Participant feedback on responses to questions about the six hours prior to Injury

Participant feedback		*ED Attendees*	
		n	*%*
Alcohol as a contributing factor of injury (n=1599)	Yes	136	8.5
	No	1403	87.7
	Unsure	34	2.1
	Don't know	26	1.6
Possibility of avoiding injury by not consuming alcohol (n=292)	Yes	82	28.1
	No	117	40.1
	Unsure	45	15.4
	Don't know	48	16.4
Confidence about the accuracy of responses given concerning injury (n=1599)	Very confident	1500	93.8
	Moderately confident	49	3.1
	Not very confident	15	0.9
	Not confident	8	0.5
	Don't know	27	1.7
Confidence about the accuracy of responses given concerning alcohol use in the last six hours before injury (n=1599)	Very confident	1523	95.2
	Moderately confident	36	2.3
	Not very confident	10	0.6
	Not confident	3	0.2
	Don't know	27	1.7
Confidence about the accuracy of responses given concerning drug use in the last six hours before injury (n=1599)	Very confident	1536	96.1
	Moderately confident	21	1.3
	Not very confident	11	0.7
	Not confident	3	0.2
	Don't know	28	1.8

Just under 10% felt alcohol was a contributor to their injury and almost 30% of attendees felt their injury could have been avoided if they had not been drinking. However, more than 30% were unsure or did not know if drinking had been a cause of their injury (Table 4.1).

Alcohol use response bias due to presence of another during the interview.

Table 4.2: Influence of others present when reporting drinking prior to injury

Other person present at the time of interview	*Drinking alcohol in the six hours before injury*				*Total*
	Yes		*No*		
	n	*%*	*n*	*%*	*n*
No	150	18.8	646	81.2	796
Yes	120	15.6	649	84.4	769
Total	270	17.3	1295	82.7	1565

As Table 4.2 shows, there was little difference in responses between attendees that were questioned alone about drinking prior to the injury and those that were questioned in front of another (18.8 % vs 16.6%). The results of Chi-square test also showed that response rates do not differ significantly.

Correlation of self reported alcohol use, BAC and observer rating of intoxication

Table 4.3 shows comparisons between breath test readings and reported alcohol intake.

Table 4.3: Breath test reading compared with self reported alcohol intake in the previous six hours

	Consumption of alcoholic drinks in the six hours before injury				
	Yes		*No*		*Total*
Breath Test Reading	*n*	*%*	*n*	*%*	*n*
0	88	9.4	851	90.6	939
0.01 to <0.05	21	75.0	7	25.0	28
0.05 to <0.10	29	100.0	0	0.0	29
0.10 or more	56	91.8	5	8.2	61
Not stated/not clear	76	15.0	432	85.0	508
Total	270	17.3	1295	82.7	1565

The association of self-reported alcohol consumed and breath test reading showed that more than 90% of those who did not drink alcohol six hours prior to injury had a breath test reading of 0g/dl. A similar consistent association was also observed for those who had drinks six hours prior to injury, 91.8% of attendees had a breath test reading of 0.1 g/dl or more (Table 4.3). Of those with a breath test reading of 0.01 to less than 0.05g/dl, nearly two third showed no signs of intoxication. On the other hand more than two thirds of the patients with a breath test reading greater than 0.05g/dl showed at least one or more signs of intoxication (Table 4.4). These crossover results indicate that the self reported results found in this study are very reliable.

Table 4.4: Cross over window - breath test reading compared with number of signs of intoxication

	No signs		*One sign*		*Two or more signs*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Breath Test Reading								
0	921	97.3	18	1.9	8	0.8	947	100
0.01 to <0.05	18	64.3	8	28.6	2	7.1	28	100
0.05 to <0.10	9	31.0	14	48.3	6	20.7	29	100
0.10 or more	11	18.0	29	47.5	21	34.4	61	100
Not stated / not clear / Not applicable	490	91.8	27	5.1	17	3.2	534	100
Consumption of alcohol prior to injury								
Yes	155	57.4	71	26.3	44	16.3	270	100
No	1261	97.4	25	1.9	9	0.7	1295	100
Total	1449	90.6	96	6.0	54	3.4	1599	100

Correlation between self reported use and observer rating of intoxication

As observed by the interviewer 2% of patients showed signs of loss of coordination; 4% had slurred speech; just over 1% (n=23) were staggering, and in 7% of attendees, alcohol could be smelt on their breath.

Six percent of those interviewed had one sign of intoxication and just over 3% had two or more signs (Tables not shown).

Table 4.5: Interviewer rating of person's intoxication - no. of signs

	ED Attendees (n=1599)	
Variable	*n*	*%*
No signs	1449	90.6
One sign	96	6.0
Two or more signs	54	3.4
Total	1599	100.0

Of those attendees who reported that they had not been drinking, 25 (1.9%) were observed to have one sign of intoxication and nine (0.7%) had two or more signs of intoxication (Table 4.4).

Summary of validation and reliability checks

As reported elsewhere [33], self reported alcohol intake appears to be a relatively reliable indicator of alcohol use. In attendees with a BAC reading over 0.05 g/dl nearly all stated they had been drinking. Only five people claimed they had not been drinking, yet their BAC results revealed they had been drinking at quite heavy levels (BAC> 0.1 g/dl). However, for patients with a BAC reading less than 0.05g/dl, 25% stated they had not been drinking, indicating that drinking was under-reported at lower levels of alcohol intake.

Observer rating of alcohol intoxication did not appear as a reliable an indicator of alcohol use. Nearly 50% of patients observed showed no visible signs of alcohol use, yet had a BAC reading above 0.05g/dl, with 18% having a reading above 0.1g/dl. (Table 4.4)

The influence of alcohol consumption, drug use and setting variables on injury risk

The impact of individual alcohol use on the risk of sustaining an injury

The effect of frequency of harmful alcohol use and gender on the risk of being injured

Table 5.1 examines the risk of sustaining an injury by the quantity of alcohol consumed and by gender.

The results show that the risk of sustaining an injury is greater when high levels of alcohol are consumed. When 61-90 grams of alcohol was consumed the risk of injury was one and a half times greater than when no alcohol was consumed (OR: 1.52; 95% CI: 1.05-2.20) and almost two times the risk when 91 grams or more was consumed (OR: 1.86; 95% CI: 1.48-2.35).

There was no statistically significant difference in injury risk between males and females with the amount of alcohol consumed (Table 5.1). Only at very high intake levels (> 90g) was the risk of injury statistically significant and was the same for both males and females (males OR: 1.88, 95% CI: 1.46-2.42; females OR: 1.89, 95% CI: 1.04-3.43).

Table 5.1: Risk of injury by quantity of alcohol consumed and gender in the six hours, 24 hours, 48 hours, and seven days before injury:

Using case-crossover design

Quantity of alcohol consumed		*Injured*		*#Adjusted Odds Ratio (95% CI)*
	n	*n*	*%*	
All attendees				
0 (ref category)	5617	1389	24.7	1.00
0.01-30grams	253	68	26.9	1.09 (0.85-1.39)
31-60grams	123	37	30.1	1.22 (0.88-1.69)
61-90grams	77	29	37.7	1.52 (1.05-2.20)*
91grams and more	165	76	46.1	1.86 (1.48-2.35)*
Male				
0 (ref category)	3438	837	24.3	1.00
0.01-30grams	157	47	29.9	1.23 (0.92-1.65)
31-60grams	101	28	27.7	1.14 (0.78-1.66)
61-90grams	57	21	36.8	1.51 (0.98-2.33)
91grams and more	142	65	45.8	1.88 (1.46-2.42)*
Female				
0 (ref category)	2179	552	25.3	1.00
0.01-30grams	96	21	21.9	0.86 (0.56-1.34)
31-60grams	22	9	40.9	1.61 (0.84-3.12)
61-90grams	20	8	40.0	1.58 (0.79-3.17)
91grams and more	23	11	47.8	1.89 (1.04-3.43)*

* Adjusted for individual level socio-demographic characteristics

The effect of alcohol use during a six hour period on the risk of being injured

Those who consumed alcohol in the six hours prior to their injury were 1.42 times more likely to be injured compared to those who drank no alcohol (95% CI: 1.26-1.64) (Table 5.2).

Table 5.2: Risk of Injury by Alcohol and Drug use in the six hours, 24 hours, 48 hours, and seven days before injury: Using case-crossover design

Alcohol consumed and Drug use status		*Injured*		*#Adjusted Odds Ratio (95% CI)*
	n	*n*	*%*	
Alcohol consumed prior to injury	6235	1599	25.6	
No (ref category)	5456	1329	24.4	1.00
Yes	779	270	34.7	1.42 (1.25-1.62)*
Alcohol consumed alone or with others				
No drinks (ref category)	5452	1332	24.4	1.00
Was drinking alone	172	57	33.1	1.36 (1.04-1.77)*
Was drinking with one other person	189	56	29.6	1.21 (0.93-1.58)
Was drinking in a group	422	154	36.5	1.49 (1.26-1.76)*
Settings of alcohol consumed				
No drinks (ref category)	5445	1329	24.4	1.00
Hotel/Tavern/Night Club/Sports Club	242	90	37.2	1.52 (1.23-1.89)*
Restaurant/Cafe/Licensed Function	32	11	34.4	1.41 (0.78-2.55)
Own Home/Other home/accommodation	444	128	28.8	1.18 (0.99-1.42)
All others	72	41	56.9	2.33 (1.71-3.18)*
Over the counter medication used prior to injury				
No (ref category)	4939	1273	25.8	1.00
Yes	1296	326	25.2	0.98 (0.86-1.10)
Prescription medication used prior to injury				
No (ref category)	5166	1366	26.4	1.00
Yes	1069	233	21.8	0.82 (0.71-0.95)*
Social and recreational drug used prior to injury				
No (ref category)	6113	1560	25.5	1.00
Yes	122	39	32.0	1.25 (0.91-1.72)
Drug made person drowsy/sleepy				
No (ref category)	6112	1559	25.5	1.00
Yes	123	40	32.5	1.27 (0.93-1.74)

Note: ref category – used as reference category in Cox Regression Analysis.

Alcohol consumed prior injury, settings and consumed alone or with others was highly correlated and due to this reason Odds Ratios were calculated by separate Cox Regression Analysis.

* Significant at $p<0.05$; ns not significant at $p\geq0.05$.

The effect of injury location on the chances of sustaining an injury

Drinking at a licensed premise such as a hotel, tavern, night club or sports club increased the risk of injury by over 50% when compared to those who did not drink. Although the odds ratio for drinking at home was 1.18 (95% CI: 0.99-1.42) and in a licensed restaurant or function centre 1.41 (95% CI: 0.78-2.55), these results were not statistically significant (Table 5.2).

The effect of drug use on the chances of sustaining an injury

Compared to those who had not taken medications or over the counter medications prior to their injury, those who had were 2% less likely to sustain an injury but this was not statistically significant (OR: 0.98; 95%CI: 0.86-1.10) (Table 5.2).

However, taking prescribed medication prior to injury decreased the risk of injury by 8% and was statistically significant (OR 0:82; 95%CI: 0.71-0.95).

The use of social and recreational drugs increased the risk of injury by 25% (OR: 1.25, 95% CI (0.91-1.72)), but this was not statistically significant. Among the social and recreational drugs, marijuana (n=24 cases) was the most common drug, followed by ecstasy (n=4 cases) and heroin or smack (n=4 cases).

Those who had taken drugs or medicine that made them drowsy were 27% more likely to sustain an injury compared to those that had not taken drugs or medicine that made them drowsy but this was not statistically significant (OR: 1.27, 95% CI (0.93-1.74).

Overall, risk of injury varied by use of drug prior to injury and only prescribed medicine was found to have a statistically significant effect on lowering injury risk.

The effect of people present on the risk of sustaining an injury

Those who consumed alcohol alone (OR: 1.36, 95%CI (1.04-1.77) or in the company of others (OR: 1.49, 95% CI (1.26-1.76) were more likely to sustain an injury than those who did not drink (Table 5.2). Furthermore, those who drank in a mostly male group, six hours prior to their injury, drank higher quantities of alcohol compared to those drinking alone or in an all female group. The mean quantity of alcohol drunk in the mostly male group was 126.5 grams (median: 112.5g), whilst in the all female group it was 33.8 grams (median 22.5g) and in those drinking alone the average was 43.5 grams (median 16.0g) (Table 5.3).

Twenty four hours prior to injury, the mean quantity of alcohol consumed was highest in an all male group (91.6g) followed by drinking alone (83.1g) and then mostly male (79.4g) and equal male female ratios in the group (75.6g). The median quantity of alcohol consumed in the 24 hours prior to injury was highest in the mostly male (52.5g) and equal male female groups (51.4g) and lowest in the mostly female group (13.1g). (Table 5.3) Higher mean quantities of alcohol were again consumed by those drinking alone (69.3g) and in an equal male female group (74.5g) in the 48 hours prior to injury but also, interestingly by females drinking in an all female group (55g). However, the median quantity consumed is similar for most groups (~25grams) but higher in equal male female groupings (41g) and all female (55g). (Table 5.3)

Seven days prior to injury, the mean quantity of alcohol consumed in a group setting was highest in an all male group (152.2g) and lowest in an all female group (3.8g) but the median intake was similar for all male (37.5g), mostly male (39.0g) and equal male female groups (41.7g). (Table 5.3)

Table 5.3: Quantity of alcohol consumed by people present at the time of drinking during the six hours, 24 hours, 48 hours and seven days before injury

	6 hours before injury		*24 hours before injury*		*48 hours before injury*		*7 days before injury*	
People present at the time of drinking	*Mean Quantity (g)*	*Median Quantity (g)*	*Mean Quantity (g)*	*Median Quantity (g)*	*Mean Quantity (g)*	*Median Quantity (g)*	*Mean Quantity (g)*	*Median Quantity (g)*
I was drinking alone	43.5	16.0	83.1	26.9	69.3	25.4	60.6	23.3
I was drinking with one other person	59.9	33.5	36.5	22.5	36.7	25.6	45.2	28.1
All male	83.3	56.3	91.6	36.7	43.7	30.0	62.7	37.5
Mostly male	126.5	112.5	79.4	52.5	35.2	24.0	152.2	39.0
Equal male/female	85.7	60.0	75.6	51.4	74.5	41.0	82.1	41.7
Mostly female	56.6	43.3	16.8	13.1	24.1	23.3	65.0	35.0
All female	33.8	22.5	69.7	37.5	*	*	**	**
Total	74.6	42.6	64.8	30.1	53.6	29.2	73.8	30.9

* Mean and median could not be calculated because there was only one respondent. The reported value was 55g.

** Mean and median could not be calculated because there was only one respondent. The reported value was 3.8g.

Discussion

This is the first known Australian case crossover study to examine the association between alcohol consumption and injury, and as such contributes to the limited research undertaken to date about this topic in Australia.

The incidence of alcohol-related injury in patients presenting to EDs in the Sydney South West Area Health Service was examined as well as the contextual factors and settings that contributed to alcohol consumption and injury. The risk of sustaining an injury following acute alcohol and drug intake was determined, and the association between injury type and severity, and level of alcohol consumed was also explored.

Aim 1: Determine the prevalence of alcohol-related injury amongst all patients presenting with injury to SSWAHS Emergency Departments who report consuming alcohol in the six hours prior to injury

Seventeen percent of our study population reported drinking alcohol in the six hours prior to their injury. This result is lower than that reported in other Australian studies. Research undertaken at St Vincent's hospital in Sydney in 2005 revealed one third of injured patients had been drinking alcohol in the six hours prior to their injury [34], which was similar to findings from a 2001 Queensland study [14] (29%). In Fremantle, Western Australia, McLeod [15] found that 22% of the study population reported drinking alcohol prior to injury and in a case crossover study in Auckland, New Zealand [21] as many as 35% of patients reported drinking prior to the injury event. The lower reported prevalence of alcohol consumption associated with injury in our study may be partly explained by the ethnically diverse nature of the population. Forty percent of the study population spoke a LOTE at home and LOTE speakers were less likely to consume alcohol than those that spoke English (13.1% vs. 20.1%). A recent review of international alcohol and injury ED studies since 1995 by Cherpitel [35] found that the prevalence of BAC positive patients in ED varied greatly from 4% in Ontario, Canada and the Czech Republic to 59% in South Africa.

In this study, 11% of attendees returned a positive BAC and 5.7% of these were over 0.1g/dl. However, over 33.5% of cases did not have a clearly defined or stated breath test reading.

Characteristics of the study population

The study population was predominately male, and at least half were single and had completed high school as their highest educational attainment. Nearly 40% were unemployed and a third were aged between 14-24 years. These characteristics are very similar to other studies of ED populations both in Australia and overseas [33, 34, 36-38].

In a study comparing ED populations with the general population, Cherpitel [37] found that the injured were more likely to be male, younger, never married, heavy drinkers and alcohol dependent compared with non-injured. Similar results were found elsewhere with the majority of those injured being male and aged under 35 years [14] [34] [38]. In the Sydney study at St Vincent's hospital, Poynton [34] reported that those younger than 25 years were more likely to have alcohol-related injuries, whilst the majority of those aged over 60 years presented with non alcohol-related injuries. In Roche's Queensland study [14], the mean age of injured males was 29.6 years and that of injured females was 40.3 years. These mean ages are slightly lower for both genders compared to the mean ages found in our study (35.3 years for males and 42.6 years for females).

Other commonly reported characteristics of the ED population include a high school educational level [39] [40] [41], a low income [14] [39] or unemployment [42]. Although, numbers in the subgroup were small, Ankney found that 83% of those with a positive blood alcohol content in ED were recently unemployed [39]. However, our results indicate that educational level and employment status had no significant effect on alcohol-related injury. Roche [14] also found that education level was not significant factor in alcohol-related injury.

The injured were more likely to be single [39] with Roche [14] finding that those who were single were 2.4 times more likely to be drinking than married persons.

Several studies [38] [39] [36] reported that those from a racial minority or indigenous background were also more likely to have an alcohol-related injury. This study found that people from an Aboriginal background were twice as likely to have consumed alcohol in the six hours prior to injury than non-Aboriginal peoples (32.0% and 16.7%) and were also over represented in the injured population (3.2% - overall Aboriginal population 1.07%). However, overall numbers for this subgroup were small so these results must be treated with caution.

In South Africa, Peden [38] found that over half of injury attendees were “coloured” and in Australia, McLeod identified that 3% of her study population were of Aboriginal origin and that the majority were cases i.e. injured patients. However, neither study reported on the associations between alcohol consumption and injury for people of Aboriginal or ethnic background.

In this study, those born overseas and speaking a language other than English at home were more likely to drink at lower levels than their Australian born counterparts. Five percent of those born overseas drank less than 30 grams of alcohol prior to injury compared with 4% of Australian born attendees. However, three times as many Australian born attendees drank above 90 grams compared with those born overseas (6.2% vs 1.7%).

Comparing data from this study with local SSWAHS data, a higher percentage of less severe presentations were seen. (59% for the two least severe triage categories compared to SSWAHS data of approximately 44%) [17]. This is most likely due to the fact that severe injuries were missed in this study. Compared to SSWAHS data (5-10%)[17], ED attendees who were unemployed (37.9%) were over represented as were Aboriginal peoples (3.2% vs SSWAHS 1.07%) [17]. Also, mimicking closely the demographics of the Sydney South West area, 40% of the study population spoke a language other than English at home.

Aim 2: Explore the contribution of contextual factors and setting on the association between alcohol and injury.

Location

Compared to non drinkers, those who drank at a hotel type venue (including tavern, night club or sports club) increased their risk of sustaining an injury by 52%. The risk associated with drinking at home or in a restaurant was not statistically significant compared with non drinkers. This is similar to other findings.

Macdonald [43] in his summary of ED studies from 16 countries concluded that alcohol-related injuries were more likely to occur in a bar or restaurant and Humphrey [21] determined that violent injuries were more likely to occur in a public or licensed outlet. In her Queensland study, Roche [14] found that injured heavy drinkers were more likely to be drinking at a licensed venue.

McLeod [24] found that drinking in an industrial area or recreation/sporting area compared to drinking at home significantly increased the risk of injury. Drinking on the street or in a licensed premise compared to being at home also significantly increased risk, but to a lesser extent than the other two locations.

People Present

Drinking alcohol with a group of people and drinking alone significantly increased the risk of injury, however the average amount of alcohol consumed varied considerably between lone drinkers and those drinking in a group. Lone drinkers drank an average of just over four standard drinks whilst those drinking in a mainly male group drank an average of almost 13 standard drinks in the six hours before injury. The group composition appeared to impact on the amount drunk with higher levels being consumed when males were present and generally much less being consumed in all female groups.

People present during drinking occasions appears not to have been explored in many studies. In examining the relationship between the amount of alcohol consumed and people present, McLeod [24] found that drinking 30-60 grams of alcohol with friends decreased an individual's risk of injury. However, McLeod also noted that people present and alcohol use act independently on the risk of sustaining an injury.

Intentional Injury

Seven percent of patients in this study sustained their injuries through intentional harm. This is similar to other Australian studies. Poynton [34] reported 14% of injuries were due to interpersonal violence, while Roche [14] noted that alcohol-related injuries were more likely to be due to intentional harm than non-alcohol related injury. Poynton [34] examined circumstances of injury assault victims further and found that of the 111 interviewed nearly all involved males (94.6%) and 60% had been started by provocation.

In South Africa, a study of trauma hospitals in three cities found that between half to two thirds of alcohol-related injuries were due to violence [44].

Drug Use

Social and recreational drugs were reported to be used by 10% of the study group prior to injury. Toxicology tests were not performed to verify this and several studies have indicated that drug use, especially social and recreational drug use, is underreported by ED patients [36, 45]. Therefore the actual use of social and recreational drugs could be much higher than that reported in our study. In one USA study [38], at least 40% of ED patients had a positive urine test for social and recreational drugs and in another USA rural trauma centre study, 92% of those with a positive blood alcohol reading, screened positive for social and recreational drugs though numbers were small [39]. Blondell also noted that a characteristic of patients with alcohol-related injuries was that they tested positive for social and recreational drug use on toxicology screening [36]. In a 1995 study of motor vehicle accidents in south-western Sydney, 25 drivers (15.2%) tested positive for cannabinoids, whilst 20% tested positive for alcohol (n=164) and16.5% of these had a urine alcohol concentration greater than 0.08g/dl. However, only four people were found to be both alcohol and drug positive [45].

Taking social and recreational drugs prior to injury appeared to increase the risk of injury by 25% but this was not statistically significant (OR: 1.25; 95% CI: 0.91-1.72). However, use of prescribed medicine prior to injury was found to decrease the risk of injury by 8% (OR: 0.82; 95% CI: 0.71-0.95). McLeod [24] also found that prior use of social and recreational drugs was not a significant risk factor for injury and that prescription medication use was significant but substantially increased, rather than decreased, the risk (OR: 1.67; 95% CI: 1.12- 2.49).

Aim 3: Estimate the risk of sustaining an injury if consuming alcohol and quantity of alcohol in the six hours prior to injury

The risk of sustaining an injury was 1.42 times greater in those who had consumed alcohol than those who had not. At high levels of alcohol intake (>90g) the risk of injury was doubled and was similar at these levels for both males and females. The influence of acute alcohol intake on injury risk varies greatly between study locations. In New Zealand, Humphrey et al [21] found the risk of injury was nearly three times greater when alcohol was involved, while in Queensland, Watt and colleagues [46] calculated that the risk was twice as much for drinkers compared to non drinkers.

A dose response relationship is also evident [24] [46] [47] and McLeod found that drinking more than 60 grams of alcohol (6 standard drinks) increased injury risk 3.5 times.

Gmel in Switzerland [48] noted that all types of drinkers are at increased risk of injury but that those who drink little but have heavy episodic drinking are most at risk. Chronic drinkers of all drinking types had the lowest risk.

It would appear from Gmel's study and others [49] that acute heavy alcohol intake substantially increases the risk of injury in those who usually only drink small amounts, and that chronic drinkers, given the same level of acute intake, have developed a level of tolerance [50].

As suggested by Cherpitel [50] the magnitude of alcohol and injury associations varies across countries and even across regions in countries and may be related to the drinking culture i.e. frequent and light (wet drinkers) or seldom and heavy episodic bouts (dry drinkers).

Aim 4: Examine associations between level of alcohol consumed (six hours prior to the injury) and injury type.

From his extensive review of ED studies in 16 countries, Macdonald concludes there is evidence that alcohol intake increases the risk of certain types of injury, in particular falls, violence related injuries and motor vehicle collisions (MVC) [43]. The results from this study of ED attendees in Sydney South West reflect these findings and indicate a slight variation in alcohol-related injuries between English and LOTE speakers. Injuries from motor vehicle accidents were much lower in this study (8%) compared with Australian (43%) and NSW (30%) data [13] but this study only examined those injured in a MVC and not those that died as a result of their injury in an MVC. This study was not able to capture many of the more seriously injured patients, which may also have impacted on figures for MVCs.

The association of alcohol and injuries caused by motor vehicle collisions is particularly strong and is consistent across countries. Findings show that as blood alcohol content (BAC) levels increase above 50mg% the chance of a collision increases exponentially [43].

Macdonald's earlier study [51] of 30 Emergency Rooms in six countries determined that a significant dose response relationship existed between blood alcohol level and violence. This study found that a positive BAC and a BAC $\geq$ 80mg% was significantly related to a violent injury. Those with violent injuries were 2.8 to 9.5 times more likely to have BAC > 80mg% than those with other types of accidental injury.

Cherpitel's 1995 study examining drinking patterns and problems [37] concluded that patients drinking more than six alcoholic drinks were more likely to have violence related injuries or to have a fall.

In Stockholm, a study examining risk factors for falls found that high alcohol intake ($\geq$ 1000g/month of 100% ethanol) was a significant predicator of a single injurious fall in women but not men. In women younger than 60, a high alcohol intake and an earlier self reported fall were associated with an increased risk of an injurious fall. In women, older than 60, high alcohol intake and use of sedatives or hypnotics increased the risk of a fall [52].

In another northern European study [53], the risk of sustaining a head injury increased sharply with increasing BAC. Trauma patients with a BAC greater than 150mg/dl had a markedly increased risk of sustaining a head injury. However, in this study no association was found between a positive BAC and severity of head trauma.

Macdonald [43], in his review of 45 ED studies, refers to an American study which found that severe craniofacial injuries were more common in intoxicated patients than those that were sober.

A 1999 meta analysis [54] of fatal non traffic injuries involving alcohol in the USA revealed that 42% of burn/fire fatalities involved alcohol. Alcohol intoxication (defined BAC > 100mg/dl) was also found to be a major contributing factor in homicides (32%), unintentional death (31%) and suicides (23%).

In Australia, Watt [46] examined two aspects of injury type (nature of injury, e.g. head injury and body region injures, e.g. chest) and levels of alcohol consumed. No significant association was found between acute alcohol intake and specific injury type although Watt did conclude that acute alcohol intake increases the general risk of injury.

Aim 5: Examine associations between level of alcohol consumed (six hours prior to the injury) and injury severity.

Very few studies have examined the association between injury severity and quantity of alcohol consumed. No firm conclusions regarding increasing alcohol intake and injury severity can be drawn from the results of this study. Rather, the results here seem to indicate that injury, of any severity, is greater at low levels of alcohol (<= 30g) or very high levels of alcohol (> 90g).

One retrospective study [36] examined characteristics of patients with a positive BAC and those with a negative BAC and rated injury using an Injury Severity Score (ISS). No significant difference in injury severity existed between the two groups, whether comparing mean scores or odds ratios after dichotomizing results as ISS $\leq$ 15 or ISS > 15. However, this study did not examine quantity of alcohol consumed in those with a positive BAC.

An extensive review of 45 studies in 16 countries by Macdonald [43] revealed that a significant relationship existed between a blood alcohol level > 80mg% and injury severity (measured by the number of body regions injured). Macdonald noted that certain injuries such as head injuries and multiple body part injuries are more severe types of injury and are correlated with motor vehicle crashes and violence. He hypothesised that those impaired by alcohol are less able to detect external threats and so sustain more serious injury. Macdonald's review excluded those with severe injuries and so the association between injury severity and alcohol quantity, as measured by blood alcohol content, could be stronger.

Cherpitel in her recent review of international emergency room studies since 1995 [35] stated that few studies had taken injury severity into account. She also noted that there was an ongoing debate amongst researchers on the likely association between injury severity and alcohol intake. Some studies had concluded that alcohol might increase the risk of injury due to other factors associated with alcohol consumption such as speeding, not wearing seatbelts or other risky behaviours. While other researchers believed that alcohol intoxication itself can make injuries appear more severe and that those most severely injured are likely to reach the ER sooner and thus exhibit a higher BAC than those less injured. In conclusion, Cherpitel states that more research is needed into the association between amount of alcohol consumed and injury severity.

Strengths of the Study

In this study, which was conducted in an emergency department setting, we achieved a response rate 64.2%. The relatively high response rate together with the fact that we collected data 24 hours a day over the study period would minimise any potential selection bias. The case-crossover design of the study ensured that we were able to control for a number of non-time varying potential confounders (for example, gender, age) at the design stage. The fact that we conducted the study in the emergency departments of both teaching hospitals and district hospitals ensured that our results would be generalisable. The case-crossover design gave us an effective sample size of 6396 subjects making this the largest study of its kind. The case-crossover design was also a cost efficient method for substantially increasing the sample size of the study and hence the power of the study to detect small differences.

Limitations of the study

There were a number of limitations of this study, which may have had the potential to bias the results of the study.

Our sample only included patients who presented to EDs and may not be representative of all injured patients, as some of those injured (especially those with minor injuries) may have sought treatment elsewhere (for example, visited their general practitioner) or did not seek any treatment at all [55]. Furthermore, we were not able to recruit many of the more seriously injured patients, as they were either too unwell to recruit into the study or were transferred to other hospitals. Therefore, those with moderate injuries may be over represented in our study. Our results may be generalisable only to those with moderate injuries presenting to EDs.

In any retrospective study, where the subject is asked to recall past events, there is the possibility of recall bias. Attendees may have difficulty in recalling information related to the amount of alcohol consumed especially when it relates to alcohol consumption in the 24, 48 and seven day periods prior to the injury. Recall may have been compromised, particularly if the subject had been drinking alcohol or under the influence of licit or social and recreational drugs or both. This is an acknowledged limitation of our study design. However, any exposure misclassification will be non-differential and bias the results towards the null.

Participants may also have been reluctant to disclose information about their alcohol or drug use for reasons of legal liability or embarrassment in front of family members. Such under-reporting of alcohol consumption may result in an underestimation of the association between alcohol or drug use and injuries [56]. We checked self-reported alcohol consumption with information in the medical records to minimise any misclassification in alcohol consumption. Again, any under-reporting of alcohol consumption is likely to bias the results towards the null.

Additionally, there was a lower response rate in Campbelltown and Bowral Hospitals as more

participants were missed due to shortages of staff available to conduct the survey or refusal of participants.

Seasonality has been known to influence alcohol consumption patterns however it was not able to be investigated in this study due to budgetary and time constraints.

Process Evaluation

Human Resources

1. We seriously underestimated the time required for the study by the Research Officer and Data Entry staff especially during data collection periods. In retrospect we would have employed a full-time Research Officer. This would have facilitated day-to-day project continuity particularly during the 24 week data collection period when data were being collected continuously at participating hospitals.
2. Unfortunately the Research Officer resigned prior to data analysis and the investigating team was unable to call on the vast knowledge of this person during the compilation of the report.
3. Day-to-day data collection supervision was difficult due to the nature of the study. Interviewers were on duty 24 hours a day at the respective Emergency Departments making it difficult to provide regular face to face contact. Mechanisms such as handover notes, email contact and phone contact alleviated this problem to some extent.
4. Recruitment and training of suitable interviewers was a huge task as we needed to recruit adequate numbers to collect data continuously at participating hospitals. This was further hampered because of issues with prompt payment of project and interviewing staff, which resulted in high staff turnover.
5. Administrative support needs were underestimated especially in relation to project implementation such as production of all paperwork, flyers etc.
6. During the study one of the Chief Investigators took maternity leave and although she maintained her involvement this did impact on issues such as supervision and support for the Research Officer and Interviewers as she had been actively involved in the first data collection phase.

Questionnaire, Data Management and Analysis

1. The study experienced significant issues in both data entry and data management due to the design of the questionnaire and the database. A longer lead time with additional pilot testing through to data entry and extraction may have reduced these issues.
2. Issues included correct coding of questionnaires by interviewers and complex analysis to determine number of standard drinks due to the manner in which drinking questions were asked. Data entry was complex with data entry into six sets of tables linked by a unique number. To some extent these issues related to a lack of strategic integration of project resources to ensure development of the questionnaire, the database, data entry, data cleaning and data analysis processes were well linked.
3. The data repository caused significant unforeseen problems requiring a significant concentration of existing resources and the employment of additional resources to resolve.
4. Data collection in each hospital occurred in two phases, two weeks in phase one and two weeks in phase two. In retrospect it would have been simpler to collect data continuously for four weeks in each hospital. We also collected data concurrently at different hospitals during each of the phases which stretched our resources.

Recommendations

The results of this study support increased warnings for the community and particularly those whom consume alcohol. Injury risk increases when drinking alcohol and increases further with the quantity of alcohol consumed. For men any consumption greater than 61g increases risk by 50% and for women consumption greater than 31g increases risk by 60% (although due to smaller numbers this was non significant at lower levels). Younger people, and males especially, are more likely to drink and to drink at risky levels and so should be particularly targeted in any community awareness and Public Health initiatives.

Almost 20% of Emergency Department attendees in this study had been drinking prior to their injury and nearly 10%, as defined by the CAGE questionnaire, abused alcohol. As highlighted in other studies, this supports the value of screening for alcohol in all those presenting to ED with an injury, or at the very least, screening injured males. Brief interventions in ED have been shown to be effective elsewhere at reducing drinking as attendees' motivation to change at this time is high [57]. A UK study also showed that referral to an alcohol health worker in ED significantly lowered drinking levels in injured attendees identified as drinking at risky levels [58].

The results of this study also demonstrate an increased risk of injury associated with the consumption of social and recreational drugs. Routine drug screening in ED is therefore warranted, as well as support for an increase in strategies to inform the community of injury harm due to social and recreational drugs.

These findings support current policy regarding restrictions to the sale of alcohol eg Responsible Service of Alcohol under the Liquor Act 2007 and the recent Liquor Regulation 2008, and a tightening of legislation, particularly in terms of warnings on alcoholic beverage containers.

Warnings at place of purchase should include greater emphasis on the number of standard drinks and all alcoholic beverages should be labelled to identify the risks associated with the consumption of alcohol, including the risk of injury.

Enduring Benefits of the Research

This study illustrates the need for further research regarding contextual factors influencing alcohol consumptions and subsequent injury risk.

Further research is warranted to:

- Explore the increased risk of drinking at a hotel/licensed premise type venue. It should also determine whether hotels/licensed premises are meeting the guidelines under the Responsible Service of Alcohol legislation.
- Contribute to the body of evidence and identify contextual factors amenable to change.
- Identify if there are particular issues relating to the time of injury related to alcohol consumption.
- Explore the differences in drinking patterns and injury risk in various ethnic populations
- Further examine the influence of alcohol consumption on injury in Aboriginal populations

These results provide additional local data to inform debate at a State and National level concerning alcohol-related harm. It will also inform the development of local strategies to reduce harm associated with alcohol use. The local data will also be useful for the local communities in lobbying for changes to reduce injury in the community related to alcohol consumption i.e. trading hours of licensed premises.

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Appendices

Appendix A: Questionnaire

Study Number ☐☐☐☐☐☐ 03/073

Hospital: Liverpool

THE PREVALENCE OF ALCOHOL RELATED INJURY AMONGST PATIENTS PRESENTING WITH INJURY TO EMERGENCY DEPARTMENTS IN SYDNEY SOUTH WEST

Hello, I'm _____ from the Health Promotion Service. We are conducting a short but important survey about the relationship between injury and the use of alcohol for Sydney South West Areas Health Service.

(RESPONDENT MUST BE OVER THE AGE OF 14)

1. DO YOU SPEAK ENGLISH? YES / NO IF YES, CODE 01

IF NO GO TO 2.

2. What language do you speak? *(One response only)*

Cantonese	02	ARRANGE CALLBACK IF RESPONDENT IS MORE COMFORTABLE CONDUCTING THE INTERVIEW IN ONE OF THESE LANGUAGES
Mandarin	03	
Vietnamese	04	
Arabic	05	
Spanish	06	**Continue in English if possible** ELSE TERMINATE RECORD LANGUAGE
Indonesian	07	
Tagalog (Philippino)	08	
Italian	09	
Greek	10	
Other must specify _____	11	
Refused	99	

The research we are conducting is important and will determine whether alcohol use increases the rate and severity of injury. The survey will help the Sydney South West Area Health Service to work with your local community to reduce injuries.

- *Give person copy of study information sheet and explain study verbally.*
- *Confirm consent.*
- *Then proceed with screening questions.*

Study Number ☐☐☐☐☐☐ 03/073

Hospital: Liverpool

Potential Participants

Screening Questions

Interviewer _____

1. MRN	**Q1** Code MRN _____
2. Date of Interview	**Q2** Code Date: ___/___/___.
3. Time of Interview	**Q3** Code Time: ____ : ____ 24 hour clock
4. Date of Presentation at ED	**Q4** Code Date: ___/___/___.
5. Time of Presentation at ED	**Q5** Code Time: ____ : ____ 24 hour clock
6. Triage Code	**Q6** Code: ____
7. Gender	Male ..... **1** Female ..... **2** **Q7** Code ___
8. Date of Birth	**Q8** Code: ___/___/___ **[Age Group: <14 14-15 >=16]**
9. Date of Injury	**Q9** Code Date: ___/___/___
10. Time of Injury	**Q10** Code Time: ____ : ____ 24 hour clock
11. Suburb and postcode of normal place of residence	**Q11a** Code Suburb _____ **Q11b** Code Postcode _____
12. Do you live in a house, unit or private residence (not a hospital, psychiatric hospital or prison)	Yes ..... **1** **Go to ELIGIBILITY** No ..... **2** **Q12** Code ___
13. If **No** to 12, please specify what type of accommodation you live in	**Q13** Code Accommodation _____
Interviewer Notes	
14. Is there someone else present during the interview?	Yes ..... **1** No ..... **2** **Q14** Code ___
15. What is the other person's relationship to the participant?	**Q15** Code Relationship _____

Study Number | | | | | | | 03/073

Hospital: Liverpool

Eligibility/Ineligibility Criteria

Circle: "Conduct Interview" box **OR** "Complete Ineligibility Form" box **ONLY**

	Criteria	Interview	Ineligible
1.	Is the person aged 14 years or over?	Yes	No
2.	Does the person have an injury?	Yes	No
3.	Was the time of injury within 24 hours of presentation at ED?	Yes	No
4.	Can the person give informed consent?	Yes	No
5.	Is the person in Police Custody?	No	Yes
6.	Has the Study Information Sheet been provided and explained to the person or guardian?	Yes	No
7.	Has the Consent Form been signed by the person or guardian?	Yes	No
8.	Can the person be interviewed in the ED?	Yes	No
	Conduct Interview	**Conduct Interview**	**Interview on Ward?**
9.	Should the person be interviewed on the Ward?	Yes	No
	Follow up action	**Schedule Interview on Ward**	**Complete Ineligibility Form**

Consent to Conduct a Breath Test

	Breath Test	YES	NO
	Will you participate in a breath test?	Yes	No

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Hospital: Liverpool

Demographics

"I am going to ask you some routine questions about yourself so that we can get an idea of the different groups of people who are taking part in this survey. Remember that all your answers are confidential."

1 Are you a resident of Australia?

Yes, Australian Citizen 1
Yes, Permanent Resident 2
No 3

Q1 Code ☐

2 In which country were you born?

Australia ..... 1 **Go to Q4**
Other (please specify) ..... 2 **Q2a Code Country** .....

Q2 Code ☐

3 When did you first arrive in Australia to live here for one year or more?

Year .....

Q3 Code Year ☐☐☐☐

4 Do you usually speak a language other than English at home?

Yes 1
No ..... 2 **Go to Q6**

Q4 Code ☐

5 What language do you usually speak at home?

Arabic 1
Cantonese 2
Mandarin 3
Vietnamese 4
Other (Please specify) ..... 5 **Q5a Code: Language** .....

Q5 Code ☐

6 Are you of Aboriginal or Torres Strait Islander Origin?

No 1
Yes, Aboriginal 2
Yes, Torres Strait Islander 3
BOTH Aboriginal and Torres Strait Islander 4
DON'T KNOW X
Refused ..... R

Q6 Code ☐

7 What is your current formal marital status?

Married 1
Widowed 2
Separated but not Divorced 3
Divorced 4
Never Married 5
DON'T KNOW X
Refused ..... R

Q7 Code ☐

8 In the last week, which of the following best describes how you were employed?

Full-time employee	1	Q8 Code ☐
Part-time employee	2	
Self-employed – not employing others	3	
Self-employed – employing others	4	
Employed – unpaid worker in a family business	5	
Unemployed – seeking full-time work	6	
Unemployed – seeking part-time work	7	
Unemployed – not seeking work	8	
DON'T KNOW	X	
Refused	R	

9 In the last week, which of the following best describes your employment status?

Worked for payment or profit	1	
Worked for payment/profit but absent on paid leave or holidays	2	Q9 Code ☐
Unpaid work in a family business	3	
Other unpaid work	4	
I was actively looking for work	5	**Go to Q11**
Did not have a job and I was not looking for work	6	**Go to Q11**
DON'T KNOW	X	
Refused	R	

10 What are you employed as?

Occupation ..... **Q10 Code Occupation** .....

11 Which of the following categories best describes your usual activities?

Home Duties	1	☐
Student	2	**Q11 Code**
Retired	3	
An invalid pensioner	4	
Other pensioner	5	
Looking for work	6	
Working	7	
Other	8	

12 What is the highest level of school education that you have completed?

Never attended school	1	**Go to Q14**	**Q12 Code** ☐
Currently still at school	2		
Year 8 or below	3		
Year 9 or equivalent	4		
Year 10 or equivalent	5		
Year 11 or equivalent	6		
Year 12 or equivalent (Matriculation – Leaving)	7		
DON'T KNOW	X		
Refused	R		

Study Number | | | | | | | 03/073

Hospital: Liverpool

13 What is the level of the highest qualification you have completed?

School Certificate – Intermediate, Y10, 4th Form..... 1
HSC – Leaving, Y12, 6th Form..... 2
TAFE Certificate of Diploma..... 3
University, CAE or other tertiary institute degree or higher 4
Completed Primary School..... 5
Completed Years 7-9..... 6
Other (Specify)..... 7
DON'T KNOW..... X
Refused..... R

Q13 Code ☐

13a Other .....

14 In the last year, what is your annual household income before tax?

No personal income at all..... 1
Up to $10,000..... 2
$10,001 - $20,000..... 3
$20,001 - $40,000..... 4
$40,001 - $60,000..... 5
$60,001 - $80,000..... 6
More than $80,000 7
DON'T KNOW..... X
Refused..... R

Q14 Code ☐

15 I would like to ask you a few questions about your injury. Can you tell me what happened? Exactly how did you injure yourself? (Record Verbatim)

Q15 Code Text

DON'T KNOW..... X
Refused..... R

or Q15 Code ☐

16 Injury in the Past 12 Months			
a	Have you been to a hospital ED with an injury in the past 12 months?	Yes	No
b	Had you been drinking alcohol before injuring yourself and then going to an ED?	Yes	No
c	How many times?	Number	

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Nature and Circumstances of Injury

Please circle (or code) the best response for questions 17-28.
For questions 17, 19, 20 and 21, choose the code that comes first on the list if there are two equal responses.

17 Was the main cause of your injury the result of:	
A transport incident:	
• Being a motor vehicle driver	1
• Being a motor vehicle passenger	2
• Being on a bicycle or motorcycle	3
• Being a pedestrian (i.e., being hit by a car)	4
A fall	5
A drowning or near drowning	6
Suffocation	7
Flames, fire, smoke	8
A hot object (steam, liquid, stove, heater)	9
A poisoning incident (with no other injury):	
• Medication (with no other injury)	10
• Alcohol (with no other drugs)	11
• Non-prescribed drugs (with no other injury)	12
• Other	13
Firearm	14
Being cut or pierced	15
An animal caused incident (incl. Insects)	16
Being hit by or hit against something	17
Some other cause	18
DON'T KNOW	X

18 Was this an intentional or unintentional event?	
Unintentional	1
Intentional harm by another	2
Intentional self-harm **go to Q19**	3

18a How many other people were involved in the event?		
Number of Males	Q18a.1 Code Number	
Number of Females	Q18a.2 Code Number	
No one else was involved **go to Q19**		99
DON'T KNOW		X

18b What relationship did this person or persons have to you? (Multiples allowed)	
Former spouse/partner	1
Relative	2
Friend	3
Stranger	4
Security Personnel	5
More than one other person involved	6
Current spouse/partner	7
Other (specify)	8

18c Had they been drinking alcohol before the event?	
Yes all of them had been drinking with me	1
Yes some of them had been drinking with me	2
Yes but they hadn't been drinking with me	3
No	4
DON'T KNOW	X

18d If INTENTIONAL HARM BY ANOTHER: Can you tell me who started the actual incident?	
By self	1
By another person	2

18e Can you tell me the reason for the incident?	
No provocation	1
Verbal interaction	2
Pushing/shoving (accidental)	3
Pushing/shoving (deliberate)	4
Robbery/mugging	5
Other (please specify)	6

18f I am going to read to you a list of situations that may describe how you were involved. Which one do you think best describes you in the incident?	
Were you:	
An active participant	1
Acting in self-defence	2
Helping a friend	3
An unrelated bystander	4
A target	5
Other (please specify)	6

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19 What was the result of the injury – what made you come into the ED? (May need to look at medical records.)	
Superficial (excluding eye)	**1**
Open wound (excluding eye)	**2**
Fracture (excluding tooth)	**3**
Dislocation	**4**
Sprain or strain	**5**
Crushing	**6**
Injury to muscle/tendon	**7**
Injury to internal organ	**8**
Burn or corrosion	**9**
Dental injury (incl. Fractured tooth)	**10**
Eye injury (excl. foreign body in external eye)	**11**
Foreign body in external eye	**12**
Drowning/near drowning	**13**
Poisoning, toxic effects excluding bites	**14**
Bites, including envenomations	**15**
Intracranial injury (incl. Concussion)	**16**
Injury of unspecified nature	**17**
OR Multiple injuries of more than one nature	**18**

20 Body part involved?	
Head, excluding face	**1**
Face	**2**
Neck	**3**
Lower Back	**4**
Abdomen	**5**
Thorax	**6**
Shoulder	**7**
Arm	**8**
Wrist	**9**
Hand	**10**
Leg	**11**
Ankle	**12**
Foot	**13**
Other body part (specify)	**14**
OR Multiple injuries, involving more than one significant body location	**15**

21 Where were you at the time of the injury?	
Own home	**1**
Other person/s home/accommodation	**2**
School/college	**3**
Office or administration area	**4**
Recreation area/park/by the water	**5**
Sporting area	**6**
Street or highway	**7**
Hotel/Tavern	**8**
Night Club	**9**
Restaurant/Café	**10**
Social Club/Sports Club	**11**
Immediate vicinity of a licensed premise	**12**
Other trade/service area (e.g. supermarket, bank)	**13**
Industrial/construction site; mine/quarry	**14**
Farm/station/property	**15**
On the water	**16**
Other site (specify):	**17**
DON'T KNOW	**X**

22 Who were you with when you were injured? (If team mates, ask Case if 3 or 4 – friends or acquaintances.)	
With family	**1**
With friends	**2**
Acquaintances/strangers	**3**
Work mates	**4**
I was on my own	**5**

23 What were you doing at the time of the injury? (Please note in "Other" if Case states they were drinking alcohol or using drugs as their activity at the time of injury.)	
Participating in organised sports (specify)	**1**
Participating in social sports (specify)	**2**
Participating in other physical activities (specify)	**3**
Household chores	**4**
Participating in board games/cards, art/craft, playing, theatre, gardening etc.	**5**
TV, relaxing, on phone, reading, music	**6**
Shopping	**7**
Driving/Travelling	**8**
Being cared for	**9**
Sleeping, eating, personal care	**10**
Working for an income	**11**
Attending an entertainment event	**12**
Attending a social gathering	**13**
Other (specify – see above)	**14**

24 What was your physical motion leading up to the injury event?	
Sitting, lying down	**1**
Standing	**2**
Walking	**3**
Manual handling (cutting, chopping)	**4**
Climbing	**5**
Lifting	**6**
Swimming	**7**
Jumping	**8**
Running	**9**
Fighting	**10**
Other motion (specify)	**11**

25 What sort of mood were you in just before the injury? Were you feeling:	
Relaxed	**1**
Tired	**2**
Unhappy	**3**
Drunk	**4**
Affected by drugs	**5**
Angry	**6**
Tense	**7**
Other mood (specify)	**8**

26 Before you started the physical motion leading up to the injury, did you do anything to reduce the risk of injuring yourself?	
Yes	1
No	2

27 Did you use any protective equipment?	
Yes	1
What sort (specify)	2
Didn't need any	3
No	4

28 Did you think you were at risk of injuring yourself when you started the physical motion leading up to the injury?	
Yes	1
No	2

If the Case consented to a breath test:

"At the beginning of the interview you consented to a breath test as part of the interview. We would like to do that now." Continue with the breath test.

29 "When did you have your last alcoholic drink?"

Date..... **Q29a Code Date** _____/_____/_____

Time..... **Q29b Code Time** | | : | | **24 hour clock**

29c "Was this before or after your injury?"

Before ..... **1** **Q29c Code** |
After..... **2**

29d "Was it the only alcoholic drink you had?"

Yes..... **1** **Go to Q31** **Q29d Code** |
No..... **2**

29e "When did you have your first alcoholic drink?"

Date..... **Q29e Code Date** _____/_____/_____

Time..... **Q29f Code Time** | | : | | **24 hour clock**

30 Breath Test Reading

..... **Q30 Code Breath Test Reading**

"The next section is about any alcohol or drugs you may have had before your injury, as well as general questions about your normal drinking and drug use patterns."

31 Whole of Life Alcohol Use History			
a	Have you ever felt you should cut down on your drinking?	Yes	No
b	Have people annoyed you by criticizing your drinking?	Yes	No
c	Have you ever felt bad or guilty about your drinking?	Yes	No
d	Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (hair of the dog, eye opener)?	Yes	No

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Hospital: Liverpool

Drinking Patterns in the 6 hours before Injury

"Now, I would like to ask you some questions about your alcohol use and medication/drug use in the six hours before your injury."

32 "Have you had any drinks that contained alcohol in the 6 hours before your injury i.e., between ___ am/pm and ___ am/pm?"

Yes	1	Q32Code ☐
No	2 go to Q41	

33 "Where were you MOSTLY drinking alcohol in the 6 hours before your injury?"

Hotel	1	Q33Code ☐
Tavern	2	
Night Club	3	
Sports Club	4	
Restaurant/Café	5	
Licensed Function	6	
In the vicinity of a licensed premise	7	
NAME OF PREMISE (Specify):	**Premise Code:**	☐☐☐☐☐☐
Own Home	8	
Other home/accommodation	9	
School/College	10	
Office or administration area	11	
At work	12	
Sporting Area	13	
Car Park	14	
Street or highway	15	go to Q37
Industrial or construction site, mine or quarry	16	
Other trade/service area (e.g., supermarket, bank)	17	
Farm/station/property	18	
Recreation area/park/by the water	19	
On the water	20	
Other specified site	21	
DON'T KNOW	X	

34 "Please think about the licensed premise you were drinking alcohol at in the 6 hours before your injury and answer these questions as accurately as you can. How full would you say the _____(place) was at the time you were there?"

Quarter full or less	1	Q34 Code ☐
Half full	2	
Three quarters full	3	
Full	4	
Overcrowded	5	
DON'T KNOW	X	

35 "Were any alcoholic drinks discounted while you were there e.g., happy hour, very cheap drinks, drink promotions?"

Yes	1	Q35 Code ☐
No	2	
DON'T KNOW	X	

36 "Was alcohol being served to people who seemed obviously drunk to you e.g., loss of co-ordination, slurring speech, staggering, loud or quarrelsome behaviour?"

Yes.....1
No.....2
DON'T KNOW.....X

Q36 Code ☐

37 "Which of the following BEST describes who you were drinking alcohol with during the 6 hours before your injury?"

I was drinking alone.....1
I was drinking with one other person.....2
I was drinking with a group:
All male.....3
Mostly male.....4
Equal male/female.....5
Mostly female.....6
All female.....7

Q37 Code ☐

38 "Do you usually drink alcohol at _____(place)?"

Yes.....1
No.....2

Q38 Code ☐

39 "What type of alcohol were you drinking during the 6 hours before your injury?"

Type of Alcohol (multiples allowed)	Code 39.1-18
Beer full strength	1
Beer medium strength	2
Beer low alcohol	3
Beer extra strength	4
Spirits straight	5
Spirits mixed	6
White/Red Wine straight	7
White/Red Wine mixed	8
Sparkling Wine straight	9
Sparkling Wine mixed	10
Champagne straight	11
Champagne mixed	12
Port/Sherry/Brandy/Cognac etc.	13
Guinness	14
Cider straight	15
Cider mixed	16
Cocktail (>2 shots of alcohol with mixers)	17
Premixed drinks: Specify (**Q39.2 Code Text**)	18

40 "What size were the drinks you had during the 6 hours before your injury and how many did you have?" Present Standard Drinks Card.

Size of Drinks (multiples allowed)	Code 40.1-14	No of Drinks
Middy	1	
Schooner	2	
Stubbie	3	
Can	4	
375 ml bottle	5	
750 ml bottle (Tallie)	6	
Single shot/nip	7	
Double shot/nip	8	
Half a wine glass	9	
Full wine glass	10	
Half bottle of wine (375 ml)	11	
Full bottle of wine (750 ml)	12	
Other Specify (**Q40.2 Code Text**)	13	

Drug Use in 6 hours before Injury

"I now have a few questions about medications and non-medical drugs. All your responses are strictly confidential so please answer as accurately as possible."

41 "During the 6 hours between ___am/pm and ___/ am/pm, before your injury, did you take any drugs or medicines including over-the-counter medications?"

No.....1 go to Q 46 **Q41 Code** ☐
Yes.....2

42 "Did you take any medication prescribed by your doctor (like those in the list) in the 6 hours before your injury?"

No.....1 go to Q 43 **Q42 Code** ☐
Yes.....2

Please specify which ones

Prescription Medications (multiples allowed)	Code 42.1-10
Antibiotics	1
Aspirin/headache tablets	2
Prescription Pain Killers	3
Tranquillisers/Sedatives (mogadon, normison, valium)	4
Anti Hypertensives (for blood pressure)	5
Antihistamines (for allergies and colds)	6
Antidepressants	7
Other psychological drugs	8
Other Name: Specify (**Q42.2 Code Text**)	9
If they can't remember, ask "What are they for" (**Q42.3 Code Text**)	10

43 "Did you take any Over-the-Counter medications (like those in the list) in the 6 hours before your injury?"

No.....**1 go to Q 44** **Q43Code** ☐
Yes.....**2**

Please specify which ones

Over-the-Counter Medications (multiples allowed)	Code 43.1-9
Aspirin (not for headache)	1
Aspirin/headache tablets (Panadol)	2
Anti inflammatories (Nurofen)	3
Cough/sinus medicine	4
Antacid	5
Period pain tablets (Naprogesic)	6
Antihistamines (for allergies and colds)	7
Other Name (**Q43.2 Code Text**)	8
If they can't remember, ask "What are they for" (Q43.3 Code Text)	9

44 "Did you take any social or recreational drugs in the 6 hours before your injury?"

No.....**1 go to Q 45** **Q44 Code** ☐
Yes.....**2**

Please specify which ones

Social or Recreational Drugs (multiples allowed)	Code 44.1-10
Marijuana, pot or hash	1
Speed or uppers (amphetamines)	2
Ecstasy	3
LSD or Acid	4
Cocaine or Crack	5
Heroin or Smack	6
Inhalants such as glue, aerosols or petrol	7
Benzodiazepines (Benzo's, Rowies)	8
Other Name (**Q44.2 Code Text**)	9
If they can't remember, ask "What are they for" (Q44.3 Code Text)	10

45 "Did any of these drugs make you feel drowsy or sleepy?"

Yes.....**1** **Q45 Code** ☐
No.....**2**

Study Number | | | | | | | 03/073

Hospital: Liverpool

Participant feedback on Responses to questions about the 6 hours prior to Injury

46 "Do you think alcohol was a contributing factor of this injury?"

Yes	1	Q46Code ☐
No	2 go to Q48	
Unsure	3	

47 "Do you think this injury could have been avoided if you had not been drinking alcohol?"

Yes	1	Q47Code ☐
No	2	
Unsure	3	

48 "How confident do you feel about the accuracy of the responses you have already given concerning your injury?"

Very confident	1	Q48Code ☐
Moderately confident	2	
Not very confident	3	
Not confident	4	

49 "How confident do you feel about the accuracy of the responses you have already given concerning your alcohol use in the last 6 hours before your injury?"

Very confident	1	Q49Code ☐
Moderately confident	2	
Not very confident	3	
Not confident	4	

50 "How confident do you feel about the accuracy of the responses you have already given concerning your drug use in the last 6 hours before your injury?"

Very confident	1	Q50Code ☐
Moderately confident	2	
Not very confident	3	
Not confident	4	

FILL IN PERSONAL CALENDAR FOR THE LAST 7 DAYS

1. In the last 7 days before your injury, were there any significant days for you – e.g., days at uni or TAFE, days at work, celebrations, family occasions, sporting occasions? Mark these.
2. Which days were alcohol-free days? Mark the days.
3. Did you drink alcohol on any of these days?
4. Would you know approximate times when you were drinking alcohol? Mark the days and approximate times.

Study Number ☐☐☐☐☐☐ 03/073

Hospital: Liverpool

Drinking Patterns in the same 6 hour period, 24 hrs, 48 hrs and 7-days before your Injury

"I would like to ask you some questions about your alcohol use and drug use in the same six hours, for three different days. The first, 24 hours ago, the second 48 hours ago and the last 7 days ago." Show participant their calendar.

51 "In the same 6 hour period, between _____ am/pm and _____ am/pm, (use Calendar to define period) have you been to a hospital emergency department for an injury?"

24 hrs ago	48 hrs ago	7 days ago
Yes.....1 Ineligible No.....2 Q51.0 Code ☐	Yes.....1 Ineligible No.....2 Q51.1 Code ☐	Yes.....1 Ineligible No.....2 Q51.2 Code ☐

52 "In the same 6 hour period, between _____ am/pm and _____ am/pm, (use Calendar to define period) did you have any drinks containing alcohol?"

24 hrs ago	48 hrs ago	7 days ago
Yes.....1 No.....2 Q52.0 Code ☐	Yes.....1 No.....2 Q52.1 Code ☐	Yes.....1 No.....2 Q52.2 Code ☐

If No to drinking 24hrs, 48hrs and 7 days prior to injury, go to Q58

53 "Where did you MOSTLY drink during those times?"

Venue	24 hrs ago	48 hrs ago	7 days ago
Hotel.....1 Tavern.....2 Night Club.....3 Sports Club.....4 Restaurant/Café.....5 Licensed Function.....6 In the vicinity of a licensed premise.....7 **NAME OF PREMISE (Specify):** .... **Premise Code:** ☐☐☐☐☐☐	**Q53.0 Code** ☐	**Q53.1 Code** ☐	**Q53.2 Code** ☐
Own Home.....8 Other home/accommodation.....9 School/College.....10 Office or administration area.....11 At work.....12 Sporting Area.....13 Car Park.....14 Street or highway.....15 Industrial or construction site, mine or quarry.....16 Other trade/service area (e.g., supermarket, bank).....17 Farm/station/property.....18 Recreation area/park/by the water.....19 On the water.....20 Other specified site.....21 DON'T KNOW.....X			

54 "How many times have you drunk alcohol in this place within the past 7 days?"

24 hrs ago	48 hrs ago	7 days ago
Q54.0 Code Number of times: ☐	**Q54.1 Code** Number of times ☐	**Q54.2 Code** Number of times ☐

55 "Which of the following BEST describes who you were drinking alcohol with during those times?"

Company	24hrs ago	48hrs ago	7 days ago
I was drinking alone..... **1** I was drinking with one other person... **2** **I was drinking with a group:** All male ..... **3** Mostly male ..... **4** Equal male/female ..... **5** Mostly female ..... **6** All female **7**	**Q55.0 Code** ☐	**Q55.1 Code** ☐	**Q55.2 Code** ☐

56 "What type of alcohol were you drinking during those times?"

Type of Alcohol (multiple codes allowed)	24hrs ago Q 56.1-18 Code	48hrs ago Q 56.21-38 Code	7 days ago Q 56.41-58 Code
Beer full strength	1	21	41
Beer medium strength	2	22	42
Beer low alcohol	3	23	43
Beer extra strength	4	24	44
Spirits straight	5	25	45
Spirits mixed	6	26	46
White/Red Wine straight	7	27	47
White/Red Wine mixed	8	28	48
Sparkling Wine straight	9	29	49
Sparkling Wine mixed	10	30	50
Champagne straight	11	31	51
Champagne mixed	12	32	52
Port/Sherry/Brandy/Cognac etc.	13	33	53
Guinness	14	34	54
Cider straight	15	35	55
Cider mixed	16	36	56
Cocktail (>2 shots of alcohol with mixers)	17	37	57
Premixed drinks: Specify for each time period	18	38	58
	Q56.6 Text	Q56.7 Text	Q56.8 Text

57 "What size were the drinks you had during those times and how many did you have?"

Size of Drinks (multiple codes allowed)	24hrs ago		48hrs ago		7 days ago	
	Q 57.0 Code	Q57.1 Code No. of Drinks	Q 57.2 Code	Q57.3 Code No. of Drinks	Q 57.4 Code	Q57.5Code No. of Drinks
Middy	1		21		41	
Schooner	2		22		42	
Stubbie	3		23		43	
Can	4		24		44	
375 ml bottle	5		25		45	
750 ml bottle (Tallie)	6		26		46	
Single shot/nip	7		27		47	
Double shot/nip	8		28		48	
Half a wine glass	9		29		49	
Full wine glass	10		30		50	
Half bottle of wine (375 ml)	11		31		51	
Full bottle of wine (750 ml)	12		32		52	
Other: **Specify for each time period**	13		33		53	
	Q57.6 Text		Q57.7 Text		Q57.8 Text	

Drug Use in the same 6 hours before Injury, 24 hrs, 48 hrs and 7 days ago

"I now have a question about medications and non-medical drugs. I would remind you that all your responses are strictly confidential so please answer as accurately as possible."

58 "During the same 6 hours (between ___am/pm and ___/am/pm, before your injury), did you take any drugs or medicines, including over-the-counter medications, at the following times?"

24hrs ago	48hrs ago	7 days ago
Yes.....1 No.....2 Q58.0 Code ☐ If No, Go to 63	Yes.....1 No.....2 Q58.1 Code ☐ If No, Go to 63	Yes.....1 No.....2 Q58.2 Code ☐ If No, Go to 63

59 "Did you take any medication prescribed by your doctor (like those in the list) in the same 6 hours before your injury, at the following times?"

24hrs ago	48hrs ago	7 days ago
Yes.....1 No.....2 Q59.0 Code ☐ If No, go to 60	Yes.....1 No.....2 Q59.1 Code ☐ If No, go to 60	Yes.....1 No.....2 Q59.2 Code ☐ If No, go to 60

Please specify which ones

Prescription Medications (multiples allowed)	24 hrs ago	48 hrs ago	7 days ago
	Q 59.3 Code	Q 59.4 Code	Q 59.5 Code
Antibiotics	31	41	51
Aspirin/headache tablets	32	42	52
Prescription Pain Killers	33	43	53
Tranquillisers/Sedatives (mogadon, normison, valium)	34	44	54
Anti Hypertensives (for blood pressure)	35	45	55
Antihistamines (for allergies and colds)	36	46	56
Antidepressants	37	47	57
Other psychological drugs	38	48	58

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Hospital: Liverpool

Prescription Medications (multiples allowed)	24 hrs ago	48 hrs ago	7 days ago
	Q 59.3 Code	Q 59.4 Code	Q 59.5 Code
Other Name: **Specify for each time period**	39	49	59
	Q59.6 Text	Q59.7 Text	Q59.8 Text
If they can't remember, ask "What are they for" SPECIFY FOR EACH TIME PERIOD	40	50	60
	Q59.9 Text	Q59.10 Text	Q59.11 Text

60 "Did you take any Over-the-Counter medications (like those in the list) in the 6 hours before your injury?"

24hrs ago	48hrs ago	7 days ago
Yes.....1	Yes.....1	Yes.....1
No.....2 **Q60.0 Code** ☐	No.....2 **Q60.1 Code** ☐	No.....2 **Q60.2 Code** ☐
If No, go to 61	**If No, go to 61**	**If No, go to 61**

Please specify which ones

Over-the-Counter Medications (multiples allowed)	24 hrs ago	48 hrs ago	7 days ago
	Q 60.3 Code	Q 60.4 Code	Q 60.5 Code
Aspirin (not for headache)	31	41	51
Aspirin/headache tablets (Panadol)	32	42	52
Anti inflammatories (Nurofen)	33	43	53
Cough/sinus medicine	34	44	54
Antacid	35	45	55
Period pain tablets (Naprogesic)	36	46	56
Antihistamines (for allergies and colds)	37	47	57
Other Name: **Specify for each time period**	38	48	58
	Q60.6 Text	Q60.7 Text	Q60.8 Text
If they can't remember, ask "What are they for" SPECIFY FOR EACH TIME PERIOD	39	49	59
	Q60.9 Text	Q60.10 Text	Q60.11 Text

61 "Did you take any social drugs in the 6 hours before your injury?"

24hrs ago	48hrs ago	7 days ago
Yes.....**1** No.....**2 Q61.0 Code** ☐ **If No, go to 62**	Yes.....**1** No.....**2 Q61.1 Code** ☐ **If No, go to 62**	Yes.....**1** No.....**2 Q61.2 Code** ☐ **If No, go to 62**

Please specify which ones

Social Drugs (multiples allowed)	24 hrs ago	48 hrs ago	7 days ago
	Q61.3 Code	**Q61.4 Code**	**Q61.5 Code**
Marijuana, pot or hash	**31**	**41**	**51**
Speed or uppers (amphetamines)	**32**	**42**	**52**
Ecstasy	**33**	**43**	**53**
LSD or Acid	**34**	**44**	**54**
Cocaine or Crack	**35**	**45**	**55**
Heroin or Smack	**36**	**46**	**56**
Inhalants such as glue, aerosols or petrol	**37**	**47**	**57**
Benzodiazepines (Benzo's, Rowies)	**38**	**48**	**58**
Other Name: **Specify for each time period**	**39**	**49**	**59**
	Q61.6 Text	**Q61.7 Text**	**Q61.8 Text**
If they can't remember, ask "What are they for" **SPECIFY FOR EACH TIME PERIOD**	**40**	**50**	**60**
	Q61.9 Text	**Q61.10 Text**	**Q61.11 Text**

62 "Did any of these drugs make you feel drowsy or sleepy?"

24 hrs ago	48 hrs ago	7 days ago
Yes.....**1 Q62.0 Code** ☐ No.....**2**	Yes.....**1 Q62.1 Code** ☐ No.....**2**	Yes.....**1 Q62.2 Code** ☐ No.....**2**

Study Number | | | | | | | 03/073

Hospital: Liverpool

Participant feedback on Responses to questions about the 24 hrs, 48 hrs and 7-days prior to Injury

63 "How confident do you feel about the accuracy of the responses you have already given concerning your alcohol use in the past 7 days before your injury?"

Very confident.....1
Moderately confident.....2
Not very confident.....3
Not confident.....4

Q63 Code ☐

64 "How confident do you feel about the accuracy of the responses you have already given concerning your drug use in the past 7 days before your injury?"

Very confident.....1
Moderately confident.....2
Not very confident.....3
Not confident.....4

Q64 Code ☐

General Drinking Patterns

65 "Typically, how many DAYS-PER-WEEK would you drink alcohol?"
If Case answers less than once a week, ask the same question for a typical month i.e., how many DAYS-PER-MONTH or if less than once a month, how many DAYS-PER-YEAR.

Days per week.....1
OR Days per month.....2
OR Days per year.....3
OR Never drink.....4

Q65.0 Code Time Period ☐
Q65.1Code No. of DAYS per period ☐
Go to Q72

66 "On a typical day when you drink alcohol, how many standard drinks do you USUALLY have?"
Show Case standard drinks card once again.

Number of standard drinks.....

Q66 Code no of drinks ☐

67a If Case is FEMALE, ask: "In a TYPICAL WEEK, how many times do you have <=4 STANDARD DRINKS of alcohol in a DAY?"
If Case is MALE, ask: "In a TYPICAL WEEK, how many times do you have <=6 STANDARD DRINKS of alcohol in a DAY?"
If Case answers less than once a week, ask the same question for a typical month OR year.

Days per week.....1
OR Days per month.....2
OR Days per year.....3
OR Never drink that much.....4

Q67a.0 Code Time Code ☐
Q67a.1 Code No. of Times ☐

67b If Case is FEMALE, ask: "In a TYPICAL WEEK, how many times do you have 5-6 STANDARD DRINKS of alcohol in a DAY?"
If Case is MALE, ask: "In a TYPICAL WEEK, how often do you have 7-10 STANDARD DRINKS of alcohol in a DAY?"
If Case answers less than once a week, ask the same question for a typical month OR year.

Days per week.....1
OR Days per month.....2
OR Days per year.....3
OR Never drink that much.....4

Q67b.0 Code Time Code ☐
Q67b.1 Code No. of Times ☐

67c If Case is FEMALE, ask: "In a TYPICAL WEEK, how many times do you have >=7 STANDARD DRINKS of alcohol in a DAY?"
If Case is MALE, ask: "In a TYPICAL WEEK, how many times do you have >=11 STANDARD DRINKS of alcohol in a DAY?"
If Case answers less than once a week, ask the same question for a typical month OR year.

Days per week ..... 1 — **Q67c.0 Code Time Code** ☐
OR Days per month 2
OR Days per year ..... 3 — **Q67c.1 Code No. of Times** ☐
OR Never drink that much 4

68 If Case is FEMALE, ask: "In a TYPICAL MONTH, how many times do you have 14 STANDARD DRINKS of alcohol or more in a WEEK?"
If Case is MALE, ask: "In a TYPICAL MONTH, how often do you have 28 STANDARD DRINKS of alcohol or more in a WEEK?"
If Case answers less than once a month, ask the same question for a typical year.

Weeks per month (max 4) ..... 1 — **Q68.0 Code Time Code** ☐
OR weeks per year (max 52) 2
OR Never drink that much ..... 3 — **Q68.1 Code No. of Times** ☐

69 "Which ONE of the following BEST describes why you drink alcohol?" Please read choices.

I drink to enjoy myself ..... 1 — **Q69 Code** ☐
Drinking alcohol helps me to relax 2
To celebrate an occasion 3
My friends drink so I drink 4
I drink to cope with problems 5
No particular reason 6
I usually drink on this day of the week at this time 7
Other reason (specify) ..... 8 **Q69a Code Reason** .....

Risk Activities

I would now like to ask you some questions about things you have done in the past 12 months.

70 "In the last 7 days, have you been involved in any of the following activities?" Multiples Allowed

Been booked for speeding? ..... 1 — **Q70.0 Code** ☐
Riding a motorbike? 2
A physical fight? 3
Passed out from drinking alcohol or drug use ..... 4 — **Q70.1 Code** ☐
Unprotected sex with someone you don't know well 5
Attended an Emergency Department with an injury other than now 6
I haven't been involved in any of these activities ..... 7 — **Q70.2 Code** ☐

71 "We are also interested in the types of activities people might become involved with. What activities would you like to become involved with from the following?" Multiples Allowed

Exploring a cave	1	Q71.0 Code ☐
Watching movies or TV shows that have a lot of violence	2	
Take chances or do dangerous things for the thrill of it	3	
Do you usually like to pass most cars on the freeway	4	Q71.1 Code ☐
Scuba Diving	5	
Driving a motorcycle	6	
Pilot your own plane	7	Q71.2 Code ☐
Smoke	8	
I don't want to be involved in any of these activities	9	

72 How many days a week would you go to a bar, tavern or nightclub?

Number of days per week	1	Q72.0 Code ☐
Number of days per month	2	Q72.1 Code ☐
Number of days per year	3	Q72.2 Code ☐

Thank you for participating in our study.

73 "Outcome of attendance at ED?"

Did not wait	1	Q73Code ☐
No treatment required	2	
Treated and discharged	3	
Admitted to hospital	4	
Died in Emergency Department	5	

74 Is the person showing any of the following signs? **To be assessed by Interviewer** *(more than one can be circled)*		Yes	No
Loss of Co-ordination	Q74.1 Code	1	2
Slurred Speech	Q74.2 Code	1	2
Staggering or Falling Over	Q74.3 Code	1	2
Loud or quarrelsome behaviour	Q74.4 Code	1	2
Alcohol smelt on breath	Q74.5 Code	1	2

Appendix B: Time Line Follow-Back Personal Calendar

7-Day Calendar **Study Number** | | | | | |

Time of Day							
00:01 – 08:00							
08:01 – 16:00							
16:01 – 24:00							
See Instructions	**8** Day of Week	**7** Day of Week	**6** Day of Week	**5** Day of Week	**4** Day of Week	**3** Day of Week	**2** Day of Week	**1** Day of Week	**0** **Today** ___/___/___

CODES

A = Abstinence
D = Drinking Alcohol
E = ED
F = Family/Friends
G = Gym
H = Holiday
I = Injury
N = Newsworthy Events
O = Other
S = Special Events (events that are important to the Case)
Sc = School
Sp = Sport
T = TAFE
U = Uni
W = Working

INSTRUCTIONS: Use the Standard Drinks Card

1. Mark Date/Time of Presentation to ED, **Today** (Day 0) and Mark "**E**" (for ED).
2. Mark Day of Week under 1, 2, 3 – 8 respectively e.g., if 0 Today = Fri, 1=Thu, 2=Wed, 3=Tue, 4=Mon etc.
3. Mark Date/Time of Injury and mark an "**I**" (for Injury).
4. Check that: **ED Date/Time – Injury Date/Time <=24 hours**.
5. Shade in the 6hr block before the Date/Time of Injury. This is the **6hr Injury Time Block** and relates to Q32-Q50.
6. Count backwards from the Injury Time Block and shade in the same 6 hr Time Block for 24hrs, 48hrs, and 7-days before. These are needed for Q52-Q64.
7. Mark in Special Events, **W**orking, TAFE/Uni/**Sc**hool, **Sp**ort, **G**ym, **F**amily/Friends, **D**rinking, **A**bstinence and any **O**ther, to aid recall.

Appendix C: Study Protocol

Prevalence of alcohol related injury amongst patients presenting with injury to Emergency Departments in South Western Sydney

Research Assistants

1. Must report to team leader in Emergency Department (ED) at the beginning of each shift. Also ensure that you introduce yourself to the staff member on triage duties that shift.
2. Handover with the Research Assistant (RA) who has completed the shift prior.
3. All RA must carry a duress alarm at all times whilst in the ED – these should be handed from one RA to the next at change of shift.

Study Protocols

1. Patients present to Emergency Department and triaged.
2. All patients with injuries will be flagged using Emergency Department Information System (EDIS). Nursing staff will advise if patients unsuitable to approach for interview e.g. aggressive, too intoxicated, seriously injured. Some patients may become suitable for interview after a period of time has passed so check with ED staff.

   The EDIS system also identifies the location of the patient (waiting room, beds, trauma).
3. Research Assistants (RA) to record details of injured patients in study record book. This book records patient details, medical record number, triage category, location, interview status and allocates a unique case number for each patient. This book must be left in the administration area of ED and not seen by any patients.
4. Review current injury cases using EDIS and prioritise for interview. The study aims to capture all injury patients and thus it may be necessary to interview those who are most likely to leave the ED first.

   For example: Patients more seriously injured are likely to remain in ED for longer whilst patients triaged as category 4 or 5 may get sick of waiting and leave before being treated.
5. Record the unique number on the interview tool prior to approaching the patient.
6. RA approaches patient
   - Introduce yourself and the study
   - People from culturally and linguistically diverse communities
     a. Ask if the patient speaks sufficient English to complete a survey
     b. If not and the patient is from one of the following language groups (Cantonese, Mandarin, Vietnamese and Arabic) provide the patient with the translated information sheet and consent form. Request signed consent so that a bi-lingual interviewer can contact them later.
     c. Should the patient not speak English or one of the other languages thank them for their time.

- Study Information and Consent
  a. Provide patient with study information sheet and explain the study.
  b. Provide the patient with consent and explain that all information collected is confidential and will not identify the patient in any way. Request signed consent for the interview and breath test.
- Patient aged 14-16 years
  a. Ask whether they have a parent or guardian with them.
  b. If no – an interview cannot proceed.
  c. If yes – Provide patient and parent/guardian with study information sheet and explain the study.
  d. Provide the patient and parent/guardian with consent and explain that all information collected is confidential and will not identify the patient in any way. Request signed consent from both patient and parent/guardian for the interview and breath test.
- Child Protection Issues
  a. If during the interview you become aware of child protection issues please advise the patient that you will need to notify the relevant authorities. Offer to advise ED staff as they will be able to provide referrals to appropriate services.
- Privacy
  a. Patients in waiting room – if separate room is available in the ED ask the patient to accompany you to the quiet area after the patient has consented. (only if you feel it is safe do so).
  b. Patients in beds – curtains will only be drawn if requested by patient following consent and nursing staff/ED Team Leader agrees.
  c. Patients in trauma/resuscitation – if OK to be interviewed - curtains will only be drawn if requested by patient following consent and nursing staff/ED Team Leader agrees
  d. Complete the survey instrument
  e. Give patients some feedback along the way such as 'about halfway'
  f. If they wish to terminate the interview reassure them that all information collected is confidential however it is their right to withdraw at any time.
  g. If the patient identifies that they have a drug, alcohol, domestic violence situation that they wish to address provide the referral information sheet and advise them to contact the relevant agency. Offer to advise ED staff as they will be able to provide referrals to appropriate services.
  h. Once completed thank the patient for their time and that their participation has been very useful.
  i. Complete the RA assessment of intoxication as soon as you have left the patient.
  j. Place all completed interview sheets and consent forms in marked box in the administration area of ED. Mark the study record book to indicate that patient interview has been completed.
- Move on to next patient.
- Patients flagged for follow up later
  a. Review the patients' condition with relevant staff each hour – if possible complete interview. If patient is admitted – record in study record book, identifying which ward they have been sent to and flag for follow up the next day.

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Appendix D: Study Log

Form 03/073/1

Project No 03/073: The Prevalence of Alcohol Related Injury Amongst Patients Presenting with Injury to Emergency Departments in South Western Sydney

__/__/__

Daily Log Book

If participant has been interviewed or is no longer available, cross off the list and record outcome.
Start a new page for a new day.
Date: _____

No	Inter-viewer	Day List No	Arrival Date	Arrival Time	MRN	Surname	First Name	Age (Yrs)	DOB	Triage Code	ICD9 Code	Location	OUTCOME
1			__/__/__	__:__ 24hr					__/__/__				C R I M W B
2			__/__/__	__:__ 24hr					__/__/__				C R I M W B
3			__/__/__	__:__ 24hr					__/__/__				C R I M W B
4			__/__/__	__:__ 24hr					__/__/__				C R I M W B
5			__/__/__	__:__ 24hr					__/__/__				C R I M W B
6			__/__/__	__:__ 24hr					__/__/__				C R I M W B
7			__/__/__	__:__ 24hr					__/__/__				C R I M W B
8			__/__/__	__:__ 24hr					__/__/__				C R I M W B
9			__/__/__	__:__ 24hr					__/__/__				C R I M W B

Outcome Codes: B = Bilingual Interpreter, C = Completed, I = Ineligible, M = Missed, R = Refused, W = Ward (for Interview)
PLEASE CIRCLE ONE OUTCOME

1

Appendix E: Subject Information Sheet

SYDNEY SOUTH WEST
AREA HEALTH SERVICE
NSW HEALTH

Division of Population Health

THE PREVALENCE OF alcohol-related INJURY AMONGST PATIENTS PRESENTING WITH INJURY TO EMERGENCY DEPARTMENTS IN SYDNEY SOUTH WEST

STUDY INFORMATION SHEET

You are invited to participate in a study looking at the relationship between injury and the use of alcohol. We are interviewing patients presenting with an injury to all Emergency Departments in SSWAHS (Western Zone). The study aims to determine whether alcohol use increases the rate and severity of injury.

If you agree to take part in this study you will be asked to:

1. Provide written consent.
2. Participate in an optional breath test today to determine your alcohol levels.
3. Provide your consent allowing us to verify details associated with your injury/presentation from your medical records.
4. Participate in an interview of approximately fifteen minutes in length. During this interview, you will be asked to provide information about:
    1. your age, marital status, occupation, educational qualifications and the suburb where you live;
    1. how you were injured, what the injury is and what level of medical care is required;
    2. your recent consumption of alcohol and other drugs/medications.

Before commencement of this interview you will be invited to ask the interviewer any questions you may have regarding your participation in the study. You have a right to participate in, or subsequently withdraw from the study at any time. Please be reassured that your decision to participate or not will not affect any future relationship you may have with the Sydney South West Area Health Service or any other institution cooperating in this study.

All information that we receive from you is completely confidential. There will be no release of named data; and no published data will identify any individual.

Enquiries: If you have any questions about the study, please contact Mandy Williams, Director Health Promotion, on (02) 98285911.

Complaints may be directed to the Ethics Secretariat, Sydney South West Area Health Service, Locked Bag 7017, Liverpool BC, NSW, 1871 (phone 9828 5727, fax 9828 5962, email: jennie.grech@swsahs.nsw.gov.au)

Hugh Jardine Building, Liverpool Hospital, Eastern Campus, Locked Mail Bag 7017, Liverpool BC NSW 1871

Telephone: 61 2 9828 5911 Facsimile: 61 2 9828 5905

Appendix F: Consent Form

SYDNEY SOUTH WEST
AREA HEALTH SERVICE
NSW HEALTH

Division of Population Health

THE PREVALENCE OF alcohol-related INJURY AMONGST PATIENTS PRESENTING WITH INJURY TO EMERGENCY DEPARTMENTS IN SYDNEY SOUTH WEST
CONSENT FORM

I acknowledge that I have read the study information sheet on "Alcohol related injury in Sydney South West Emergency Departments" which describes the aims of the study and these have been explained to me to my satisfaction. I have also been given the opportunity to ask any questions relating to the study and I have received satisfactory answers to the questions that I have asked.

I consent to participate in this study and

(please tick applicable boxes)

1. Agree to participate in a fifteen-minute interview today. ☐
2. Agree to my medical records being accessed by a member of the study research team to verify details associated with my injury/presentation. ☐
3. Agree to participate in a breath test today to determine my alcohol levels. ☐

I understand that my participation is voluntary and that I may withdraw from the study at any time without prejudice.

I agree that research data gathered from the results of the study may be published, provided that I cannot be identified.

I understand that if I have any further questions relating to my participation in this research, I may contact Mandy Williams, Director Health Promotion, on (02) 98285911.

Signature of subject _____

Please Print Name _____

Date _____

Complaints may be directed to the Ethics Secretariat,
Sydney South West Area Health Service, Locked Bag 7017, Liverpool BC, NSW, 1871
(phone 9828 5727, fax 9828 5962, email: jennie.grech@swsahs.nsw.gov.au)

Hugh Jardine Building, Liverpool Hospital, Eastern Campus, Locked Mail Bag 7017, Liverpool BC NSW 1871

Telephone: 61 2 9828 5911 Facsimile: 61 2 9828 5905

Appendix G: Protocols For Following Up Subjects

Project 03/073: Prevalence of alcohol related injury amongst patients presenting with injury to Emergency Departments in South Western Sydney

Follow-Up on the Ward where Consent to participate cannot be gained in the ED

Preamble

There are cases where a patient cannot give informed consent to participate in the study while they are in ED. In such cases, the following guidelines will be observed.

Study Protocols

1. Patients present to Emergency Department and triaged.
2. All patients with injuries will be flagged using Emergency Department Information System (EDIS). Nursing staff will advise if patients are seriously ill and should be followed up on the Ward.

   The EDIS system will identify where the patient is taken on discharge from ED.
3. Research Assistants (RA) to record details of injured patients in study record book and in the Location column, note the Ward to which the patient is taken in addition to the location in ED.
4. Research Assistants will attend the Ward (only) that the patient is taken to and ask Nursing staff for advice on approaching the patient in order to leave an initial calling card that introduces the study. In addition, Research Assistants will also ask Social Workers for advice about leaving the same calling card with the patient's family.

   The calling card will serve to introduce the study to both the patient and/or the patient's family and will also nominate a mutually agreed later time, when a Research Assistant may return to talk more about the study and to gain consent. The amount of time between leaving the calling card and the Research Assistant's return will be determined by one of: Nursing staff on the Ward, the Social Worker or the patient's family.
5. Research Assistants will return to the Ward at the mutually agreed time and ask Nursing staff for advice on approaching the patient to gain consent to participate in the study. Similarly, Research Assistants will also seek advice from the Social Worker about any family involvement related to the study.
6. Once consent is gained from either the patient and/or the family, it is not necessarily the case that the interview will proceed at the same time. The patient and/or family may determine when the interview will take place and Research Assistants will follow it up at the mutually agreed time.

   Further, should family give consent initially for the interview to proceed at a specified time, Research Assistants must ensure that they gain the patient's informed consent to participate prior to the interview taking place.

7. Research Assistants will follow this process of gaining consent until the interview is completed or they are advised the patient is ineligible or the patient/family refuses to participate.
8. Current study protocols, 6. onwards, will be followed in administering the study questionnaire.

Appendix H: Australian Standard Drink Guide for Alcohol

Australian Standard Drink Guide for Alcohol

Beer full strength:

Middy (285ml)= 1 standard drink;
Schooner/Stubbie/Can (375ml)/375 ml bottle= 1.5 standard drink;
750ml Bottle=3 standard drinks.

Beer medium strength:

Middy (285ml)= 0.7 standard drink;
Schooner/Stubbie/Can (375ml)/375 ml bottle= 1 standard drink;
750ml Bottle=2 standard drinks.

Beer low strength:

Middy (285ml)= 0.5 standard drink;
Schooner/Stubbie/Can (375ml)/375 ml bottle=0.8 standard drink;
750ml Bottle=1.6 standard drinks.

Cider straight/mixed:

Middy (285ml)= 1 standard drink;
Schooner/Stubbie/Can (375ml)/375 ml bottle= 1.5 standard drink;
750ml Bottle=3 standard drinks.

Spirits straight:

Single shot/nip= 1 standard drink;
Double shot/nip= 2 standard drinks.

Spirits mixed:

Single shot/nip= 1.5 standard drinks;
Double shot/nip= 3 standard drinks.

Wine white/red/sparkling straight/mixed:

Half a wine glass = 0.75 standard drink;
Full a wine glass= 1.5 standard drink;
Half bottle of wine (375 ml)= 3.5 standard drinks;
Full bottle of wine (750ml)= 7 standard drinks.

Champagne mixed:

Half a wine glass = 0.75 standard drink;
Full a wine glass= 1.5 standard drink;
Half bottle of wine (375 ml)= 3.5 standard drinks;
Full bottle of wine (750ml)= 7 standard drinks.

Port/Sherry/Brandy/Cognac:

Half a wine glass = 0.5 standard drink;
Full a wine glass= 1 standard drink;
Half bottle of wine (375 ml)= 3.5 standard drinks;
Full bottle of wine (750ml)= 7 standard drinks.

Australian Drug Foundation: www.druginfo.adf.org.au