

**Policy  
Briefing  
Paper**

# ***Alcohol, Injuries and Violence***

***Te waipiro, ngā mamaetanga me te tukino***

---

**FINAL DRAFT 2012**

---

## Introduction

The harmful use of alcohol has a serious impact on public health and is recognised internationally, and in New Zealand as a major risk factor for poor health. The concept of the harmful use of alcohol is broad and encompasses the drinking that causes detrimental health and social consequences for the drinker, the people around the drinker and society at large. It can ruin the lives of individuals, devastate families, and damage the fabric of communities.

The New Zealand Law Commission recently undertook a comprehensive review of the regulatory framework for the sale and supply of liquor in New Zealand. Their report - *Alcohol in Our Lives – Curbing the Harm*<sup>1</sup> provides a comprehensive overview of the role of alcohol in the lives of New Zealanders, the size and scope of the alcohol industry, the harms of alcohol, and how we might best address them. Despite this there are significant gaps in our knowledge and understanding of the role alcohol plays in injuries and violence. What is clear is that alcohol is a major contributor to the burden of injury in New Zealand.

To better understand the extent of the alcohol-related burden of injuries and to inform alcohol harm prevention efforts in New Zealand, Alcohol Healthwatch undertook two literature reviews<sup>a</sup> canvassing both international and national literature. The reviews aimed to collate and summarise available evidence on:

1. The risks and contextual factors influencing alcohol-related injuries
2. The patterns and trends of injury outcomes
3. What works to prevent alcohol-related injuries

This briefing paper provides a context to the issues, presents a summary of these reviews, discusses issues emerging and proposes recommendations to enhance efforts to prevent alcohol-related injuries and violence in Aotearoa New Zealand.

The paper is for those with an interest in reducing alcohol-related harm in New Zealand, in particular those who are responsible for developing policy, plans and programmes to achieve this aim.

## Context

### Global

The harmful use of alcohol poses a significant burden on public health and is listed as the third leading risk factor for premature deaths and disability in the world<sup>2</sup>. Alcohol has been labelled as “no ordinary commodity”<sup>3</sup>. It is estimated that 2.5 million people worldwide die of alcohol-related causes annually. Alcohol is attributed to 4.5% of the global burden of disease and injury. The harmful use of alcohol is especially evident among younger age groups with the World Health Organisation (WHO) citing alcohol as the leading risk factor for death among males aged 15–59<sup>4</sup>.

---

<sup>a</sup> A Literature Review on Alcohol-Related Injuries- Part 1: Unintentional Injuries  
A Literature Review on Alcohol-Related Injuries- Part 2: Intentional Injuries  
Available at [www.ahw.org.nz](http://www.ahw.org.nz)

November, 2012

Alcohol is a highly toxic substance. It is a causal factor in 60 major types of diseases and injuries, and a contributing cause in over 200 others<sup>4</sup>. These include neuropsychiatric disorders and other non-communicable diseases such as cardiovascular diseases, cirrhosis of the liver and various cancers. For some diseases there is no evidence of a threshold effect in the relationship between the risk and level of alcohol consumption. The harmful use of alcohol is also associated with several infectious diseases such as HIV/AIDS, tuberculosis and pneumonia. A significant proportion of the disease burden attributable to alcohol arises from unintentional and intentional injuries<sup>2</sup>.

The degree of the risk for harmful use of alcohol varies with age, sex and other biological characteristics of the drinker, as well as with the setting and context in which the drinking takes place. Risks also vary in relation to patterns of drinking. Some groups and individuals have increased susceptibility to the toxic, psychoactive and dependence-producing properties of alcohol. At the same time low risk drinking patterns at the individual level may not be associated with occurrence or significantly increased probability of negative health and social consequences in otherwise healthy adults.

In 2010, the World Health Organisation published the Global Strategy to Reduce the Harmful Use of Alcohol<sup>2</sup>, providing a guide to member states for introducing more effective measures to address the alcohol-related harm burden. This document draws on the substantial scientific knowledge base of cost-effective strategies and interventions to prevent and reduce alcohol-related harm. Despite the need and this sound evidence for more effective action on alcohol, political barriers prevent or slow progress. The influence of the global alcohol industry and international trade agreements are obvious.

## National

New Zealanders consume more alcohol per capita than the world average<sup>4</sup>. New Zealand is ranked 11<sup>th</sup> highest of 31 OECD countries in alcohol consumption<sup>5</sup>. One in four New Zealand drinkers has a potentially hazardous drinking problem<sup>1</sup>. One in three New Zealand drinkers report being harmed by their own drinking in the previous year<sup>6</sup>. Harmful drinking patterns are particularly prevalent among men, young adults, Māori, Pacific people and those living in highly deprived communities. Alcohol-related harms are also contributing to increasing health inequalities<sup>1</sup>.

The Law Commission<sup>1</sup> review in 2010 concludes that “New Zealanders have been too tolerant of the risks associated with drinking to excess” and the “unbridled commercialisation of alcohol as a commodity in the last 20 years has made the problem worse”. Furthermore they agreed with Alcohol Healthwatch’s assertion that “the law as it stands is acting counter to its object and resulting in increased harm rather than reduced harm”.

In economic terms this harm is estimated to cost \$5.3 billion dollars a year in health and social costs<sup>7</sup>. Alcohol causes approximately 1000 premature deaths in New Zealand each year and many thousands more experience physical, emotional, social and economic harms from their alcohol use<sup>8</sup>. More recent research is explaining and measuring the impact of alcohol on those other than the drinker. This is also substantial and potentially greater than the harm to drinkers from their own drinking. Children, young people, Māori, Pacific Peoples and those living in more deprived neighbourhoods are among those that experience a disproportionate burden of harm from alcohol<sup>1,8</sup>.

Despite the significant burden of harm related to alcohol, New Zealand currently has no agreed national plan to address this harm. And despite having been presented with strong evidence and public support for substantive reform, the New Zealand Government has rejected the most effective options available to achieve this reform. Instead, the Government's response presented in the Alcohol Reform Bill presents only limited potential for reducing the harm resulting from alcohol use and changing New Zealand's heavy drinking culture.

*(NB) The Alcohol Reform Bill was progressing through its third and final reading in Parliament as this document went to print. It is expected to pass into law by the end of 2012.*

## Injury

The WHO divides injury into two main categories: unintentional and intentional (figure 1 below). Unintentional injuries are commonly referred to as "accidents" and intentional injuries or violence are injuries that result from deliberate acts of violence against oneself or others<sup>9,10</sup>. Violence can be classified as self-inflicted, interpersonal or collective. Interpersonal violence includes domestic and community violence. The first normally takes place between family members or intimate partners, and the second between unrelated people, who may or may not know each other<sup>9</sup>.



In addition to intent and cause, injuries are also classified by their settings (such as home, workplace, and roads) and by activities (such as sports, leisure activities and others).

The WHO recognises injury as a major public health concern and estimates that every year more than 5 million people die of injuries globally. By 2020, injuries are predicted to be the third leading cause of death and disability worldwide<sup>10</sup>.

Injury rates in New Zealand are double that of most developed countries. It is suggested that although the overall fatality rates in many countries have dropped significantly, New Zealand rates have remained static over the last decade<sup>11</sup>. Each year injuries claim the lives of 1,700 New Zealanders<sup>12</sup> and more than 2500 people sustain an injury each day that require medical attention<sup>13</sup>. Injury is the leading cause of death among those aged 1- 34 years<sup>12</sup>. Injuries claim more potential years of human lives than cancer and cardiovascular disease<sup>12</sup>. The burden falls inequitably on those living in low socioeconomic areas, and Māori and Pacific people. Males and young people are over represented. While injury rates have reduced in some areas such as road traffic crashes, falls on the other hand have increased significantly since the year 2000<sup>11</sup>.

Violence is another area in New Zealand that is of significant public health concern<sup>14</sup>. New Zealand has one of the highest rates of all forms of violence among OECD countries<sup>15</sup>. It is estimated that on average 14 women and seven men are killed by a member of their family every year. Furthermore, one in three women experience physical or sexual violence from a partner in their lifetime. On average nine children under the age of 14 are killed every year by a member(s) of their family. One in four girls and one in ten boys experience sexual abuse<sup>16</sup>.

The social cost of injuries is substantial:

- Injury cost New Zealand more than \$10 billion in 2010<sup>11</sup>.
- Family violence cost \$8 billion per year<sup>17</sup>.
- Child abuse cost \$2 billion every year<sup>18</sup>.
- Sexual violence cost \$1.2 billion every year<sup>19</sup>.
- Average cost of a homicide is \$4 million<sup>16</sup>.

The New Zealand Injury Prevention Strategy (NZIPS) launched by the government in 2003 had a limited focus on alcohol<sup>20</sup>. A review of the outcomes of this strategy in 2012 showed that there has been no improvement in injury rates overall and that alcohol-related injuries were worsening. Alcohol has since been identified as a new area of focus for NZIPS<sup>11</sup>.

There are a range of national strategies in place to address violence, for example the Te Rito: New Zealand Family Violence Prevention Strategy, the New Zealand Suicide Prevention Action Plan and others. However the burden of violence is not on the decline.

## Alcohol and injury

Alcohol has been identified as both a causal and a significant contributing factor to the burden of unintentional and intentional injuries<sup>3</sup>. Globally, around 42% of all unintentional and intentional deaths are attributed to alcohol<sup>4</sup>. A dose response relationship is evident, with the risk of injury increasing with the amount of alcohol consumed<sup>21</sup>. Risky drinking behaviours include the early onset of drinking, heavy drinking or drinking to intoxication (“binge drinking”) and drinking in settings where other risks are present. Furthermore, alcohol consumption increases the severity of injuries, complicates treatment and rehabilitation, and worsens prognosis<sup>3,22,180</sup>.

Relationships have been established between the increased number and concentration of alcohol outlets, increased alcohol sales and longer trading hours with higher incidences of alcohol-related injuries<sup>23</sup>.

Injuries generally result from the psycho-pharmacological effects of alcohol. Alcohol affects the brain's ability to function efficiently, including psychomotor and cognitive function. These effects negatively influence:

- reaction times
- information processing
- decision-making
- co-ordination
- attention
- alertness
- vision and
- hearing

These compromises to normal brain function have been shown to start with blood alcohol concentrations (BACs) as low as 20 mg/100ml (0.02), with risk of injuries and accidents rising with higher levels<sup>24</sup>. While New Zealand has recently lowered the legal BAC for drivers under the age of 20 years to zero, the legal limit for adult drivers remains at 0.08 (80mg/100ml).

It is estimated that of all alcohol-related deaths in New Zealand, more than 50% of the deaths, and 70% of years of life lost each year, are due to alcohol-related injuries<sup>8</sup>. New Zealand men are significantly more likely to experience an injury due to their own alcohol use than women. Women and children however experience more alcohol-related violence due to others' drinking.

## Alcohol-related unintentional injuries

Alcohol use has been shown to be a significant risk factor in the prevalence and severity of range of injuries. The following provides a summary of relationship and harm outcomes for the main injury types:

### Harm outcomes:

**Road traffic injuries (RTI)** - A causal relationship exists between alcohol consumption and RTIs<sup>25</sup>. Compared with people who start drinking at 21, those who start at age 14 have, after drinking, 6.3 times greater odds of having a motor vehicle crash<sup>26</sup>. At New Zealand's current legal adult BAC (0.08) drivers aged over 30 years are about 16 times more likely to be involved in a fatal crash than if they were sober, and those aged 20–29 are about 50 times more likely<sup>28</sup>.

In New Zealand, males, young adults and Māori are at increased risk of involvement in alcohol-related crashes<sup>27</sup>. The percentage of alcohol-related fatal and serious injury crashes has been on the rise since 2000<sup>11</sup>. In 2010, driver alcohol use contributed to 105 fatal crashes, 385 serious injury crashes and 993 minor injury crashes. These crashes resulted in 112 deaths, 502 serious injuries and 1490 minor injuries. The total social cost was estimated to be over \$1 billion<sup>30</sup>. In 2010, for every 100 alcohol or drug-impaired drivers or riders who died in road crashes, it is estimated that 54 of their passengers and 23 sober road users died with them<sup>28</sup>. It is estimated that around 40% of alcohol-related road traffic injuries in New Zealand are injuries to innocent victims<sup>29</sup>. International studies have found that as many as 54% of repeat drink-driving offenders may meet the criteria of alcohol dependence/abuse<sup>3</sup>. In 2011, of 28,859 convicted drink drivers in New Zealand, only 2230 (7.7%) were required to attend an alcohol use

assessment<sup>30</sup>. An association has been demonstrated between high number of liquor outlets (outlet density) and alcohol-related traffic crashes. A New Zealand study found that each additional outlet will result in 2 to 5 additional motor vehicle accidents<sup>23</sup>. Between 2001 and 2010 the number of alcohol-related non-fatal hospitalisations among cyclists almost doubled in New Zealand<sup>31</sup>. Between 2006 and 2010, 8% of all police-reported pedestrian casualties were intoxicated. These intoxicated pedestrians accounted for 52 fatalities, 128 serious injuries, and 227 minor injuries<sup>32</sup>.

**Falls** - A systemic review estimating the risk of alcohol use in unintentional falls found acute alcohol use to be involved in between 18-53% of fatal and between 21-71% of non-fatal fall injuries<sup>33</sup>. A New Zealand study found that consuming alcohol (three or more standard drinks) in the previous six hours increased the risk of a fall-related injury by about 12 times. Consuming two or more drinks in the previous six hours is strongly associated with falls at home that require medical treatment or that result in death among those aged 25–59 years. About 20% of unintentional falls at home can be attributed to having two or more alcoholic drinks in the preceding six hours<sup>34</sup>. Most alcohol-related falls occur in private homes, followed by outdoor public places<sup>35</sup>. Compared to injuries from other causes, alcohol plays an important role in fall-related injuries among older adults<sup>36</sup>. About 1 in 10 injured older adults (60 years and above) presenting to Emergency Departments are at-risk drinkers<sup>37</sup>. A New Zealand study found that of those falling overboard during recreational boating activities 67% had positive blood alcohol content<sup>38</sup>. There is limited information on alcohol-related falls in New Zealand in age groups other than working age adults.

**Fire** - Alcohol is a significant risk factor for fire and burn fatalities<sup>39</sup>. In New Zealand around 40-44% of fire fatalities involve alcohol. However, one study found alcohol to be a factor in 70% of fire fatalities among adults aged 17 years and over<sup>40</sup>. Children, older adults and disabled people are most at risk of fatal and non-fatal alcohol-related fire injuries. The risk of alcohol-related fire is higher among Māori, Pacific and those living in low socioeconomic areas. Alcohol is implicated in fatal fires in association with smoking and unattended cooking<sup>41</sup>. Alcohol intoxication has been identified as a strong risk factor for inadequately responding to fire alarms, thus increasing the risk of fire fatality<sup>42</sup>. Alcohol-affected burn victims are three times more likely to die than those with no alcohol present because of the body's suppressed immune response and impaired defence, and greater susceptibility to infection<sup>43</sup>. Information on alcohol's role in fires is not routinely collected in New Zealand.

**Drowning** - Risk of drowning increases with increased blood alcohol content. Alcohol increases the risk of drowning by almost 16 times<sup>44</sup>. Drinking is associated with a 10-fold increase in reckless behaviour such as the violation of safety rules and swimming in unauthorised areas<sup>45</sup>. In New Zealand between 2007 and 2011 there were 83 alcohol-related drowning deaths. Of the alcohol-related drownings, 31% occurred in tidal waters, 15% in home pools, 10% during water sport/recreation activities and 18% occurred during boating activities. Māori, Pacific, male and young adults experience disproportionate levels of harm<sup>46</sup>. Drinking on boats is a direct cause of about three deaths each year<sup>47</sup>. Alcohol is implicated in land-based fishing drownings, paddle-sports fatalities and underwater activities<sup>48</sup>. There is no legal blood alcohol limit for skippers of recreational boats in New Zealand. There is limited data available on the role of alcohol in non-fatal drownings, near drownings and other aquatic injuries.

**Sports injuries** - Studies indicate that alcohol is associated with an increased risk of sport injuries. Alcohol consumption in the six hours prior to injury is associated with an increasingly higher risk of sports injuries, with an injury prevalence of 55% in drinkers compared with 24% in non-drinkers<sup>49</sup>. Studies also show that athletes are more likely to binge drink than non-athletes and their drinking is strongly associated with other risky behaviours, such as drink-driving, unprotected and unplanned sex and antisocial behaviour<sup>50</sup>. New Zealand studies have found that elite sports people have higher rates of hazardous drinking than non-elite sports people<sup>51</sup>. A study of New Zealand rugby-related injuries found 14% of males and 8% of females sustained injuries in the previous 12 months as a result of their drinking. The study also found that 61% of males and 38% females consumed six drinks or more in one session at least weekly<sup>52</sup>. Overseas studies have found alcohol to be associated with football, ski, snowboard, all-terrain vehicle, and hunting injuries<sup>53</sup>. There is a paucity of alcohol-related sports injury data in New Zealand.

**Cutting and piercing injuries** - New Zealand research shows that alcohol consumption increases the risk of unintentional cutting or piercing at home by up to three times and the risk further increases with higher levels of drinking. The risk is high for all drinkers and not just for those with a high risk of hazardous or dependent drinking<sup>54</sup>.

**Occupational injuries** - On average there are about 200,000 occupational injuries every year (12 injuries per 100 workers) that result in an ACC claim in New Zealand, and about 100 people die from such injuries. Almost half of the injuries result in a disability, and about 6% in permanent disability<sup>55</sup>.

In New Zealand, between 20-25% of occupational injuries involve intoxicated workers<sup>56</sup>. There is also evidence that longer work hours are significantly associated with more frequent alcohol use, higher rates of alcohol abuse/dependence, and greater number of alcohol abuse/dependence symptoms<sup>57</sup>. Studies have documented workers reporting drinking before work, during the work day, working under the influence, and being at work with a hangover<sup>58</sup>. There is also evidence suggesting that alcohol consumption can be influenced by workplace drinking culture<sup>59</sup>. Intoxicated workers are more likely to disregard work-related safety precautions and take greater work-related risks<sup>60</sup>. Worker's alcohol use at high levels is associated with alcohol-related absenteeism and lost productivity. Workers drinking at high-risk levels are four to seven times more likely to report alcohol-related absenteeism<sup>61</sup>. Alcohol-related lost productivity is estimated to cost New Zealand between \$34- \$57 million annually<sup>62</sup>. There are significant gaps in our knowledge and understanding of alcohol-related workplace injuries in New Zealand.

**Poisoning** - Poisoning accounts for 19% of alcohol-attributed deaths worldwide<sup>4</sup>. A New Zealand study that examined the changes in admissions for alcohol poisoning before and after the 1999 Sale of Liquor Act amendment lowering the legal purchase age from 20 to 18 years, found that the number of intoxicated individuals aged 18–19 presenting to Emergency Departments increased 50% in the 12 months after the law change<sup>63</sup>. Females and young people particularly aged between 15-24 years are at increased risk of alcohol poisoning<sup>64</sup>. In New Zealand, the number of alcohol poisonings increased between 2001 and 2009, with the number of fatal poisonings almost quadrupling<sup>31</sup>. Between 2005 and 2007, 20.3% of deaths among children and young people were as a result of alcohol poisoning<sup>65</sup>. Alcohol-related poisoning is under-reported and often under-recorded<sup>66</sup>.



**Child injury** - Alcohol abuse by parent, caregiver or supervisor is associated with lack of supervision of children, increasing the risk of injuries and child neglect<sup>67</sup>. In children under 15 years of age, almost all injuries in alcohol-related crashes are attributed to someone else's drinking<sup>68</sup>. Parental alcohol abuse is positively associated with a child's lack of supervision, and lack of supervision of children is positively associated with children's injuries presenting to the Emergency Department<sup>69</sup>. Research has found that children of mothers who abuse alcohol have more than twice the risk of injury compared to children with non-drinking mothers. This risk increased nearly threefold when mothers with problem drinking were married to men who were moderate or heavy drinkers<sup>67</sup>. New Zealand reports note heavy caregiver drinking to be associated with a range of negative child and adolescent outcomes<sup>70</sup>, including injuries: drowning, falls, motor vehicle accidents, poisoning, drowning and suffocation<sup>65</sup>. Children experience significant harm from the drinking of others<sup>68,79</sup>. A New Zealand study, found that 17% of survey respondents with children in the household felt that the children were negatively impacted by the drinking of someone else<sup>71</sup>. Another recent New Zealand study found that between 2005 and 2007 an average of 61 children and young adults aged between four weeks and 25 years died every year because of their or someone else's drinking. In 32% of cases the death was due to someone else's drinking<sup>65</sup>. Compared to those who do not binge-drink, boys (aged between 12-17 years) who did are more than two times more likely to have an injury, while girls (aged between 12-17 years) who binge-drink are more than eight times more likely to have an injury<sup>72</sup>. The risk of children dying in a residential fire is doubled when adults in the household are impaired by alcohol at the time of the fire<sup>73</sup>. One in four cases of sudden infant death was related to alcohol use by parents and caregivers<sup>74</sup>.

## Alcohol-related intentional injuries (violence)

Violence is a multi-faceted problem with biological, psychological, social and environmental roots combining individual, relationship, social, cultural and environmental factors<sup>9</sup>. Violence is one of many negative outcomes associated with the consumption of alcohol<sup>75</sup>. Internationally, New Zealand ranks high in all forms of violence<sup>76</sup>. A New Zealand study found that one in three New Zealand women experience physical or sexual violence from a partner in their lifetime<sup>77</sup>. Another New Zealand survey found that one in five respondents felt that alcohol had a harmful effect on their home life<sup>78</sup>. More than 62,000 physical assaults and 10,000 sexual assaults are estimated to occur in New Zealand every year where the perpetrator has been drinking<sup>79</sup>. New Zealand males and females who abuse alcohol are up to 13 times more likely to commit violent offences than those with no alcohol misuse<sup>80</sup>. Compared with people who start drinking at 21, those who start at age 14 have, after drinking, 4.6 times greater odds of having been in a physical fight<sup>26</sup>.

The links between alcohol and violence are complex<sup>81</sup>. The World Report on Violence describes alcohol abuse as a risk factor for violence, and an important situational factor that can precipitate violence<sup>9,82</sup>. Alcohol is strongly associated with increased risk of aggression, physical assault, family violence, intimate partner violence (IPV), sexual abuse/assault, child abuse/neglect, youth violence, bullying, elder abuse/neglect, suicide and intentional self-harm. Compared to the use of other psycho-active substances, alcohol increases aggression more than any others<sup>83</sup>. Multiple mechanisms have been proposed to explain alcohol's relationship with violence, including the environment in which alcohol is consumed, effects on the central nervous system, personality predisposition, genetic factors and previous neurological damage. The literature discusses the link between alcohol and violence, and between alcohol and aggression, in a number of ways including directly causal, contributing cause, risk

factor, and co-occurring factor. There is debate on the causal relationship, particularly in relation to intimate partner violence, with concerns about study methodology and the risk of deflection of perpetrator responsibility for their actions<sup>3,84,85,86</sup>. Regardless of issues of causality, what is agreed is that alcohol is a significant risk factor and that it increases both the likelihood and the severity of violence.

Researchers note that, not only do abusers tend to be hazardous and heavy drinkers, but those who have been abused have a high probability of abusing alcohol and other drugs over the course of their lifetime (often using alcohol as a coping mechanism)<sup>87</sup>.

National and international studies have shown that there is a significant relationship between outlet numbers and concentration and rates of violence, with higher numbers of liquor outlets in a geographic area resulting in higher rates of violence<sup>88</sup>. Research has also shown that increases in retail alcohol sales<sup>89</sup>, and increases in hours of alcohol sales (longer trading hours)<sup>90</sup> increases the risk of alcohol-related violence.

In New Zealand alcohol-related violence most commonly occurs in public places, followed by licensed outlets, and the homes<sup>91</sup>.

### Harm outcomes:

**Community violence** - Alcohol use has been identified as a risk factor for community violence, it has also been identified as an outcome of community violence<sup>92</sup>. Researchers have consistently found that alcohol use by the perpetrator or victim immediately preceded many violent events<sup>93</sup>. When community violence is linked to alcohol consumption, it is found to be disproportionately committed by young people and at night. Those who consume alcohol more than 20 times during their adolescence, are 2.5 times more likely to commit violence than those who never use alcohol<sup>94</sup>. New Zealand Police report estimates that a third of all violent offenders are under the influence of alcohol at the time of arrest<sup>95</sup>. Nearly half of the victims of crime in public places said that the offender was intoxicated<sup>96</sup>. Further, one fifth of all violence occurs in places of entertainment, in or around bars or nightclubs<sup>96,97</sup>. Studies have found that a large proportion of alcohol-related violence is often concentrated in and around a small number of problematic venues and specific characteristics of venues have been linked to higher alcohol use and related harm<sup>98</sup>.

**Intimate partner violence (IPV)** - A significant body of evidence has established the correlation between alcohol and partner violence<sup>99</sup>. In 2007-2008 there were 19,388 recorded family violence assault victims in New Zealand, of whom 82% were women. At the time of the incident, 34% of offenders were intoxicated, and an estimated 14% and 16% of victims were affected by alcohol<sup>68</sup>. Māori and Pacific people are at increased risk of experiencing violence than non- Māori. Māori women are almost four times more likely than non-Māori women to be assaulted in the past year by someone under the influence of alcohol or drugs<sup>100</sup>.

Studies have found that harmful alcohol use increases the risk of exposure to intimate partner violence by 4-8 times<sup>101</sup>. Alcohol abuse by a violent male partner increases a woman's risk of death by more than four times<sup>102</sup>.

A third of all family violence in New Zealand involves alcohol as a contributing factor<sup>95</sup>. Studies have shown alcohol to be involved in more than 70% of all reported partner violence cases<sup>103</sup>. Both victim and

November, 2012

perpetrator alcohol use is associated with partner violence<sup>104</sup>. Although male perpetrated violence is more common<sup>105</sup>, female perpetrated violence is also reported<sup>106</sup>. Men who drink and have a predisposition for physical violence are more likely to be violent on the days that they drink<sup>107</sup>. Men's perpetration of violence is more likely than women's to be driven by control motives, whereas women's perpetration is more likely to be motivated by self-defence and fear<sup>108</sup>. Men are more likely to experience violence outside the home (such as in the street, in and around licensed premises), whereas women are more likely to experience violence in the home<sup>109</sup>.

There is also evidence that women who are affected by IPV have alcohol abuse problems at six times the rate of women in the general population<sup>110</sup>. Evidence suggests that those who experience domestic violence may use and misuse alcohol to cope with the effects of violence<sup>111</sup>. Research has also found that women who abuse alcohol are more likely to live with men who also abuse alcohol<sup>112</sup>. Alcohol use has been associated with domestic violence amongst same-sex couples<sup>113</sup>.

Research has found links between IPV during pregnancy and alcohol use. Pregnant women who have been abused are more likely to misuse alcohol<sup>114</sup>, and women who experience IPV during pregnancy have a higher potential of child abuse<sup>115</sup>. Furthermore, drinking alcohol during pregnancy can result in Fetal Alcohol Spectrum Disorder (FASD) which includes fetal alcohol syndrome (FAS) along with other alcohol-related birth defects<sup>116</sup>.

An association between high numbers of alcohol outlets, particularly in deprived communities, and increased rates of IPV has been demonstrated<sup>117</sup>.

**Homicide** - The homicide rates in New Zealand are considerably higher than other OECD countries both for males and females. Homicide mortality rates are significantly higher for Māori than they are for non-Māori<sup>118</sup>. Over a five year period, alcohol and drug abuse featured in about two-thirds of homicides within New Zealand families<sup>119</sup>. New Zealand Police figures show that alcohol contributes to approximately half of all homicide cases<sup>68</sup>. Increased rates of homicide particularly among youth have been linked to a higher number of alcohol outlets<sup>120</sup>. An increase in per capita alcohol consumption is associated with an increase in the number of homicides. One study found that a one-litre increase in per capita alcohol consumption was followed by an 8% increase in both overall and male homicide rates, and a 6% increase in female homicide rates<sup>121</sup>. The per capita consumption of alcohol in New Zealand has increased 9% between 1998 and 2008<sup>1</sup>. Early drinking, that is drinking before the age of 21, increases the risk of dying from homicide<sup>122</sup>. More than half of alcohol-related homicides occur in residential areas<sup>68,123</sup>.

**Sexual violence** - Alcohol is the most common 'date rape' drug<sup>124</sup>. Alcohol is implicated in half of all sexual assaults<sup>68,125</sup>. It is estimated that more than 10,000 sexual assaults occur in New Zealand every year which involve a perpetrator who had been drinking<sup>68</sup>. Research has shown that almost 75% of offenders, and just over 50% of sexual assault victims had consumed alcohol before sexual violence occurred<sup>103,124</sup>. Studies have found New Zealand tertiary and secondary school student's experience unwanted sex, unprotected sexual intercourse, a sexual situation they were not happy about, or having a sexual encounter that they later regretted after drinking<sup>126</sup>. Alcohol use has been associated with sexual violence amongst same-sex couples<sup>127</sup>. Neighbourhoods with higher numbers of alcohol outlets also have higher numbers of sexual offences and assaults<sup>88</sup>. Alcohol can also play a role in the aftermath of sexual assault, whether or not it occurred after drinking. Research has shown that those who

experience sexual violence, experience greater negative effects such as drinking to reduce tension, drinking to cope with negative effects and greater self blame<sup>103,104,128</sup>.

**Suicide and self-harm** - Alcohol plays an important role in the events leading to suicide and self-harm. Alcohol abuse can worsen existing mental illness including depression, and heavy drinking can facilitate suicidal behaviour in those already at risk, possibly by increasing impulsivity and aggression. At the same time those with alcohol use disorders, including dependence, are at increased risk of suicidal behaviour<sup>4,129</sup>. Almost 29% of young New Zealanders presenting to Emergency Departments after a suicide attempt had some level of harmful or dependent use of alcohol<sup>35</sup>. Depending on the age group and gender, up to 30% of deaths from suicide and self-inflicted injury are estimated to be attributable to alcohol<sup>130</sup>. During 2010–11, 40% of people who committed suicide had alcohol or drugs in their system, or a known history of alcohol or drug abuse, according to coronial reports<sup>11</sup>. Alcohol-involved non-fatal self-inflicted injury hospital discharges increased from 558 in 2001 to 863 in 2011<sup>31</sup>. Young people and Māori are significantly over represented in suicide rates<sup>131</sup>. Although males have high rates of suicide in New Zealand, females are more prone to suicidal behaviour than males. One New Zealand study found that females report suicidal thoughts at 1.3 times the rate of males and make suicide attempts at almost twice the rate of males<sup>132</sup>. Studies have found that alcohol use disorders presented an increased risk and are second only to mood disorders as the most common condition among suicide victims<sup>133</sup>. Lifetime risk of suicide in people with alcoholism has been estimated at 7%, higher than those with mood disorders (6%)<sup>134</sup>. Risk of suicide is four to eight times higher among those with alcohol-related problems<sup>135</sup>. People who suffer from depression are 20 times more likely to attempt suicide<sup>136</sup>. A causal link between alcohol use disorders and major depression has been found<sup>4,137</sup>. Studies have found that over 50% of men and 30% of women who present to hospital after deliberate self-harm had drunk alcohol in the previous 6 hours of their attempt<sup>138</sup>. An increased risk of alcohol dependence and suicide attempts has been evidenced among lesbian, gay and bisexual people<sup>139</sup>. Between one-quarter and one-third of older adult suicide victims have a substance-use disorder<sup>140</sup>. Alcohol availability, a high number and density of alcohol outlets and an increased per capita alcohol consumption, increases suicide rates<sup>141</sup>. Early drinking (drinking before the age of 21) increased the risk of suicide in adulthood<sup>122</sup>.

**Violence against children** - In New Zealand, on average 1 child is killed every 5 weeks and most of these children are under 5 years of age<sup>142</sup>. Every hour, two children are physically, sexually or emotionally abused<sup>143</sup>. Alcohol use and abuse by a parent(s) or caregiver(s) increases the risk of violence against children<sup>67</sup>. Studies have found that one in every six cases of child abuse is alcohol-related<sup>144</sup>. The likelihood of serious child abuse is six to eight times higher if the child's mother engaged in hazardous drinking around the time of conception or in the first trimester of pregnancy<sup>69</sup>. In New Zealand, there is a lack of routinely available data on alcohol-related child abuse, however a few studies report a significant association between parent/caregiver alcohol use and child abuse<sup>115,144</sup>, and children experiencing harm as a result of others drinking<sup>65</sup>. One study found that of the 171 infant cases that were notified to Child Youth and Family Services over a one year period, 82% of these cases involved a conflicted or violent relationship between the parent and infant. In an almost equal number of cases, both parents had significant alcohol abuse problems<sup>145</sup>. Another report found that one of the three most common factors associated with child homicide events was alcohol and drug abuse. The report summarised that children are at the highest risk of death from maltreatment in their first year of life, and when they live with young unemployed parents or caregivers who abuse alcohol and drugs<sup>119</sup>.

Research carried out to inform the Campaign for Action on Family Violence clearly stated the extent of harm that children experience as a result of parents or caregivers alcohol use, and the long term harmful consequences that result from the traumatic experiences that occurred during their childhood<sup>70,87</sup>. Children and young people who experience domestic violence and abuse are at heightened risk of alcohol and other substance abuse, delinquency, risk taking behaviour, eating disorders, depression, post traumatic stress disorders, self-harming behaviour and suicide, depression and post-traumatic stress reactions, increased aggression, violence and criminal activity in later life<sup>146</sup>. High numbers of alcohol outlets and parents'/caregivers' easy access to alcohol is associated with child abuse, neglect and maltreatment<sup>147</sup>.

**Youth violence** - A New Zealand study found that young people (15-16 years) who abuse alcohol are 3.2 times more likely to be involved in violent offending<sup>148</sup>. Research has shown that young people who drink before going out (pre-load) are 2.5 times more likely to be involved in a fight, and be sexually or verbally assaulted<sup>149</sup>. A New Zealand survey found 16.6% of 18-24 year-olds had been physically assaulted in the preceding 12 months by somebody who was drinking, 12% had been sexually harassed, and 4.8% had been involved in a motor vehicle accident as a result of somebody else's drinking<sup>150</sup>. A New Zealand survey of secondary school students found that 42.9% of moderate drinking males and 54.1% of binge drinking males reported hitting someone else in the past 12 months, compared to 28% of non-drinking males. Similarly, 26.2% of moderate drinking females and 35.6% of binge drinking females reported hitting someone else in the past 12 months, compared to 20.8% of non-drinking females<sup>151</sup>. Additionally, a survey among alternative education students found that 79% reported injuring someone else while they were drinking<sup>152</sup>. At the tertiary level, a study among New Zealand university students found that one in ten women and one in five men were assaulted at least once in the previous four weeks by someone who had been drinking<sup>153</sup>. In 2007-08, alcohol use was a factor for offenders in over 20,000 violence offences. Those most likely to have consumed alcohol before offending are males and those under 25 years of age. A disproportionate number of offenders are Māori and Pacific<sup>154</sup>.

Pre-teen alcohol use is associated with all forms of bullying involvement (victimisation, perpetration and both)<sup>155</sup>. Young people who are victims of bullying are at increased risk of alcohol use and abuse<sup>156</sup>. A high level of alcohol use is positively associated with dating violence perpetration among youth<sup>157</sup>.

New Zealand studies have evidenced a positive correlation between alcohol outlet density and harmful alcohol use among teenagers and young adults<sup>158</sup>.

**Elder abuse** - Alcohol is implicated in elder abuse<sup>159</sup>. A number of factors are associated with elder abuse and neglect<sup>160</sup>. However, alcohol abuse is known to be a risk factor for both the victim and the caregiver (perpetrator)<sup>161</sup>. There is a lack of routinely collected data on alcohol-related elder abuse in New Zealand, however several reports have identified a close link between caregiver alcohol use and elder abuse<sup>162</sup>. For instance, one report found that alcohol/substance misuse by the abuser was noted in 23% of elder abuse cases<sup>163</sup>.

**Seasonal/sporting events and interpersonal violence** - An association between alcohol use and an increase injury, violence and assault rates during special events and special periods such as during public holidays, sporting and other major events is evidenced<sup>164</sup>.

## Other injuries

**Alcohol-related brain injury (ARBI)** - ARBI is a term used to describe the physical injury (physiological and biochemical change) to the brain sustained as a result of alcohol consumption. Brain damage is a common and potentially severe consequence of long-term, heavy alcohol consumption. Even mild-to-moderate drinking can adversely affect brain functioning<sup>165</sup>. ARBI is often referred to as alcohol-related brain damage.

It is important to note that alcohol-related brain injury or damage can occur from alcohol before and after birth. As previously discussed, alcohol use during pregnancy can result in fetal alcohol spectrum disorder (FASD). FASD infants' brains may have less volume (i.e. microencephaly) and they may have fewer numbers of brain cells (i.e., neurons) or fewer neurons that are able to function correctly, leading to long-term problems that may include physical, mental, behavioural, and/or learning disabilities with possible lifelong implications<sup>116,166</sup>. As a cause of birth defects and brain damage in children, FASD is completely preventable by avoiding alcohol during pregnancy. There is no prevalence data available on FASD in New Zealand, however based on overseas prevalence studies, it has been estimated that between 600 and 3000 children in New Zealand could be born with FASD each year<sup>167</sup>.

Some of the most important changes in the brain occur between the ages of 10-20 years; the decade that encompasses adolescence. Alcohol affects the developing teen brain differently than the adult brain. Adolescent brains are more vulnerable to the effects of alcohol and are at greater risk of permanent brain damage. The brain areas most vulnerable are those responsible for thinking, planning, judgement, decision making, learning and memory<sup>168</sup>. Furthermore, people who start drinking during the early teen years are not only more likely to become dependent on alcohol, but tend to develop dependence faster and have more serious problems than those who choose to wait (until 21 years of age)<sup>169</sup>.

In adult life alcohol can result in a number of conditions associated with ARBI, such as Korsakoff's syndrome, Wernicke's encephalopathy and alcohol amnesic syndrome<sup>165</sup>. Heavy drinking can result in blackouts and memory lapses, regardless of age and dependency of the drinker<sup>170</sup>. No prevalence estimates or data was found on ARBI cases in New Zealand, however overseas studies suggest that the prevalence is increasing<sup>171</sup>. In Australia, more than 2,500 people are treated for ARBI every year and approximately 200,000 are undiagnosed<sup>172</sup>. It is estimated that one in five New Zealanders are at risk of ARBI<sup>173</sup>. Men appear to account for 75% of people with alcohol-related brain damage<sup>174</sup>, however, recent studies argue that women have received less research attention and are more vulnerable than men<sup>175</sup>.

**Traumatic brain injury (TBI) and Spinal cord injury** - Alcohol increases the risk of traumatic brain injury by two to four times and spinal cord injury by three times<sup>176</sup>. New Zealand research indicates that up to 68% of patients presenting at Accident and Emergency departments with a suspected TBI have elevated blood alcohol levels at the time of their injury<sup>177</sup>. Māori and Pacific people are at increased risk of TBI<sup>178</sup> and spinal cord injury<sup>179</sup>. There is a shortage of alcohol-related TBI and alcohol-related spinal cord injury data in New Zealand.

## Alcohol and the Emergency Department

Alcohol-related injuries are a major burden to Emergency Departments (ED). In New Zealand up to 35% of injury presentations to EDs are estimated to be alcohol-related<sup>180</sup>, with this increasing up to 75% during weekends<sup>181</sup>. Alcohol was involved in almost half of all facial fracture presentations; males accounted for the majority of cases and violence was the leading cause of presentation<sup>182</sup>. Patients who report drinking 6 hours prior to their incident are 34 times more likely to be admitted for a violence-related injury<sup>183</sup>. The male to female ratio is estimated to be 2:1, however in recent years the presentation rates are converging<sup>184</sup>. There is also evidence that intoxicated patients negatively affect ED staff. One New Zealand study reported that 50% of ED staff were assaulted by an intoxicated patient at work<sup>185</sup>.

**Harm to others** - In New Zealand harm experienced by an individual from others' drinking is more significant than previously thought. The prevalence of self-reported harm from others drinking is higher than the harm from one's own drinking<sup>68</sup>. Women, children and young adults experience more harm from others drinking<sup>71,91,186</sup>. The prevalence of experiencing at least one negative consequence from someone else's drinking is estimated to be one in four<sup>187</sup>. One in four respondents in a New Zealand study experienced at least one adverse impact during the previous 12 months due to someone else's drinking. About 40% of those injured and 25% of those killed in alcohol-related traffic crashes are not the drinker responsible. About 1 in 8 unintentional residential fire deaths are victims of alcohol-related fires<sup>68</sup>. Previous sections in this paper have cited the harms experienced by someone from others' drinking. While we do not know the full extent of injury outcomes as a result of someone else's drinking, it is likely to be considerable.

## Preventing alcohol-related injuries and violence

Alcohol-related injuries and violence are preventable. We found limited published evidence on the effectiveness of interventions specifically aimed at reducing alcohol-related injuries. There is however abundant evidence to guide alcohol harm prevention efforts more generally, and that address risky drinking behaviours. The Global Strategy to Reduce the Harmful Use of Alcohol provides advice to member states for implementing evidence based policies and interventions. The recommendations made by the New Zealand Law Commission present a local blueprint for us to progress the imperatives set out in the global strategy. The effective implementation of these will require a whole of government commitment.

Given that alcohol-related injuries are occurring in an environment where combinations of environmental, social, economic and individual risk factors are present and intersecting in often complex ways, single and short term interventions are inadequate and ineffective at achieving measurable and sustainable harm reduction outcomes. A mix of population, community and individual level approaches are needed. The New Zealand campaign to address drink-driving provides an example of a successful multi-pronged approach. The campaign included legislative changes which enabled the introduction of compulsory breath testing in 1993. These legislative changes were accompanied by significant investment in targeted enforcement activity and supportive enforcement tools such as a fleet of "booze buses"; intensive social marketing campaigns reminding New Zealanders of both the risks of drink-

driving and of being caught and community action initiatives supporting these messages. These activities saw a marked decrease in alcohol-related road crashes, deaths and injuries.

Despite continued efforts in the road safety arena, alcohol-related road crashes have been on the increase since 2000, signalling a need for new initiatives.

Evidence supports the use of strategies that address the individual risk factors such as heavy drinking, early drinking and alcohol abuse; and environmental risk factors such as high density of alcohol outlets, affordability and alcohol advertising.

## **Population level interventions**

Population level interventions are shown to be the most cost effective at reducing alcohol-related harm.

### **• Alcohol policies**

The following represent the most effective policy options for New Zealand at present<sup>2,3,188</sup>.

- Restricting or banning alcohol advertising, marketing and sponsorship
- Raising the price of alcohol through increased excise tax. Minimum pricing policies are also promising.
- Restricting availability through controls on the number and location of outlets, reduced trading hours
- Reducing legal blood alcohol levels for drivers over 20 years to at least 50mg/100ml per litre of blood (0.05).
- Raising the purchase age for alcohol to 20 years for both on and off licences.

Public opinion surveys<sup>189</sup> and responses to the Law Commission review show wide public support for these measures.

The rigorous enforcement of existing laws, especially those relating to the supply of alcohol to minors, serving to intoxication and drink-driving are shown to be effective in reducing harmful outcomes.

### **• Other policy and planning considerations**

It is evident that the burden of alcohol-related injuries and violence falls disproportionately on some population groups, for example those living in more deprived neighbourhoods, Māori, Pacific peoples, children and young people. Problematic alcohol consumption is common among marginalised groups. The needs of such people must be taken into account when developing and implementing interventions. Furthermore, interventions which address social inequalities are likely to support alcohol harm prevention.

The interventions discussed below are more likely to be effective at addressing alcohol-related harm when implemented in conjunction with, and in support of the population level interventions listed above.



## Local and community level interventions

- **Local level** - Local planning and use of bylaws to restrict alcohol availability, promotion and public place drinking are useful mechanisms to reduce alcohol consumption and related injuries and violence. An integrated planning approach is needed to ensure that aspects of local planning support and complement others to achieve common goals, such as public transport, event management and community safety. Crime Prevention Through Environmental Design (CPTED) offers useful tool for local authorities to implement alcohol harm prevention measures.

Local alcohol accords can be used effectively to achieve improved host responsibility by licensed premise operators.

- **Community level** - Community action/mobilisation approaches have been found to be effective in reducing alcohol-related harms, however ongoing investment is required for any gains to be sustained. The implementation of community action initiatives focused on reducing alcohol-related injuries and violence are limited and potential exists for greater investment in these approaches.

- **Service delivery** – Enhanced inter-agency collaboration, which allows for sharing knowledge and expertise, more effective use of resources, more effectively addressing the needs of affected populations and reducing or removing barriers to service access, has positive implications for reducing alcohol-related injuries and violence. Identifying ways to enhance collaboration across a wide range of sectors including public health, primary care, social service, mental health, road safety, local government, violence prevention and justice services is desirable. This will require support from national government to ensure that this collaboration is enabled through contract and funding structures, and through the development of shared policy and planning. Resources will also be needed to support workforce development and capacity building.

## Settings based interventions

- **Licensed premises** – Effective interventions for reducing alcohol-related injuries and violence include: staff and management training to better manage aggression and compliance with liquor laws especially those serving intoxicated patrons and supporting safe transport options. Careful consideration in the design and layout of licensed premises can offer protection. The evidence of effectiveness of “one way door” policies for late night premises is promising.

- **Road** – The following strategies are effective in reducing alcohol-related traffic crashes: Sobriety check points, random breath testing, lowered BAC limits, license suspension for drink- drivers, brief interventions and earlier referral to treatment and use of alcohol interlocks. New Zealand has implemented most of these strategies including zero BAC for drivers under 20 years of age.

Opportunities remain to reduce alcohol-related road crashes; these include lowering the legal limit for adult drivers to 0.05, routine use of screening and brief interventions and/or earlier referrals to treatment, evaluating the use of alcohol interlocks and adapt practice where necessary.

Addressing recidivism (repeat offending) requires a more comprehensive approach, such as the use of treatment programmes in conjunction with alcohol interlocks and penalties such as jail sentences. The use of victim impact panel or restorative justice conferences also reduce drink- driving recidivism. New Zealand has recently begun a pilot of a drug court enhancing opportunities to provide some of these more effective measures.

Designated driver schemes are popular however they do not appear to reduce alcohol-related crashes. Care should be taken in implementing these initiatives as they can encourage heavier alcohol consumption among passengers, which not only increases their risk of alcohol-related harm but also puts sober drivers at risk.

- **Workplace** - Workplace policies that support screening for harmful patterns of drinking and use of early and brief interventions are likely to have positive effect in reducing alcohol-related harm. While random alcohol testing has shown positive results in road safety, the impact of these tests in workplace is unclear.
- **Sports and recreation** – Measures to reduce the risk of alcohol-related injury such as prohibiting drinking in/near already hazardous and high risk environments such in sport clubs and aquatic settings can improve safety. Introducing a legal blood alcohol limit of at least 0.05 for skippers of recreational boats is likely to have a positive impact.
- **Home** – We found little evidence of effective strategies for reducing alcohol-related injuries in the home.
- **Special events/social occasions** - Proactively planning to manage risks related to alcohol prior to the event is most effective at reducing the likelihood of alcohol-related injuries and violence. This could include planning for the event to be alcohol free and refusing entry to intoxicated individuals and checking that alcohol is not brought into the event; having limits on the supply of alcohol such as single serve drinks in ready-poured containers (plastic), ensuring adequate ID checks are in place, provision of adequate supervision/security, and ensuring safe transport options are available or accommodation provided. A number of event planning guides have been developed.

### Individual level interventions

Interventions that focus on reducing the harmful use of alcohol can have benefits in preventing alcohol-related injuries and violence.

- **Screening and Brief interventions (SBI)** - SBI effectively reduce alcohol consumption and alcohol-related harm. However, these interventions are not routinely implemented in New Zealand. The necessary investment and resources to support the routine use of these interventions in a range of settings will be required.
- **Treatment** - Treatment for alcohol dependence has shown to reduce interpersonal violence. Early referral to treatment for repeat drink-drivers can reduce reoffending. The early diagnosis of alcohol-related problems is protective, for example the early diagnosis of FASD can be protective for those affected and prevent subsequent pregnancies from being alcohol exposed. Therapeutic courts or 'drug courts' have been shown to have positive outcomes for alcohol-related offending. Alcohol and Other Drugs (AOD) treatment services are under-funded, resulting in a major overall unmet need for AOD treatment for the general population, and for kaupapa Māori services<sup>1</sup>.

## Key Issues and Discussion

### Liberal Alcohol Policy Environment:

We've identified increased risk of injury and violence to be associated with increased availability and accessibility of alcohol through increased numbers of outlets, long trading hours and retail pricing strategies such as deep discounting. Exposure to alcohol marketing is another key risk factor.

These issues are most effectively addressed by government lead policy approaches. There is abundant evidence to guide such policy, and strong public support for such measures.

### The Politics of Alcohol:

Like most Governments around the world the New Zealand Government is exposed to competing interests when considering measures to address alcohol-related harm. The needs of commercial interests are often in strong opposition to best practice policies and community expectation.

This matter calls for political leadership and a whole of Government commitment to prioritising the well-being of our nation above that of commercial gain.

### Inequalities:

We have identified that within the population some groups experience greater risk of harm and increased harm outcomes. Being young, being Māori or Pacific or living in more deprived neighbourhoods all increase risk of experiencing alcohol-related harm. Having started drinking early, having been exposed to violence/abuse, experiencing depression or other mental health disorders also contribute to increased risk, as does being of same sex orientation, being a sportsperson or being a tertiary student. Women experience greater harm as a result of other's drinking.

It is clear that alcohol use in New Zealand is contributing to increased inequalities and this must be addressed through policy and planning development.

### Gender:

Alcohol is consumed by most New Zealanders and patterns of consumption vary by gender and within gender groups. Gender roles and identities are clearly linked with alcohol consumption. Gender issues must be taken into account in the development of policies and interventions relating to alcohol.

### Marketing:

Alcohol industry interests, having saturated the adult male market in the developed world long ago, identified women, young people and populations of the developing nations as new market domains. The products known as RTDs or alcopops clearly had women and young people lined up as consumers by their content, packaging, names and other marketing devices.

Alcohol marketing aims to attract and recruit drinkers as early as possible, to ensure recruits remain lifelong drinkers and to encourage drinkers to drink as much product as possible and as often as possible, normalising drinking as an everyday product. These are legitimate business goals – the

business of business is business. However, alcohol is “no ordinary commodity”, rather it is a toxic psycho-active substance causing significant harm to consumers, non-drinkers and society at large. The freedom to market such a product without due restraint must be challenged, this becomes more important than ever given the harmful patterns of drinking that are prevalent in our society.

### **Planning Vacuum:**

The New Zealand Drug Policy (2008-2012) sets out a harm minimisation approach to alcohol and other drugs including tobacco. However, we do not have an agreed national strategy or action plan to implement this policy for alcohol. Despite this significant effort to reduce alcohol-related harm is happening. Much of this effort is innovative and effective, at least in the short term, and is undertaken by dedicated, skilled professionals and volunteers at the coalface in our communities, in emergency wards and treatment settings.

The Global Strategy to Reduce Harmful use of Alcohol<sup>2</sup> sets out an evidence-based blueprint for countries to more effectively respond to the alcohol harm burden. New Zealand must look to adopting this strategy to inform a plan of action. Success factors for such a plan will be that it is based on a “whole of government” approach with a shared vision for change, shared values and understanding of issues raised in this paper, as well as others raised by communities and sector leaders. It will provide for effective policies and interventions to be implemented, including the necessary resourcing and investment to allow progressive achievement of goals, most of which will take longer than a political term. A successful plan will identify leadership, co-ordination and implementation roles. It will provide for the nurture and development of the necessary workforces. And above all it will aim to protect those most vulnerable and empower individuals, families/whanau and communities to make healthy choices.

There are other strategic and action plans in place that cover issues where alcohol use is a factor, for example transport and road safety, violence and injury prevention, suicide/self harm, depression, nutrition. Some of these contain actions to address aspects of alcohol-related harm, while others don't. It would appear that significant opportunities exist to develop and integrate policy and planning processes towards achieving better health outcomes and make better use of available resources.

### **Underinvestment:**

“Prevention is better than Cure”

There are indicators of significant underinvestment in responding to alcohol-related harm. While alcohol is recognised as the third leading cause of death and disability worldwide if doesn't attract the level of response it warrants here in New Zealand.

While population policy interventions provide the best-buys for preventing and reducing harm and achieving the sort after “culture change” the role of screening, diagnosis, brief interventions and treatment services play an integral part of the prevention spectrum.

In order to step up our efforts to meet the needs of people already affected by alcohol a significant increase in investment is needed to support the systems required and build workforce capacity and capability.

Elevating alcohol harm as a priority in health is an obvious starting point to address this.

## Knowledge gaps

Significant gaps exist in our knowledge and understanding of alcohol-related injuries and violence. This is largely due to the absence or limited nature of routinely collected data. These gaps limit our ability to plan effectively, to evaluate the effectiveness of policies and interventions and meet the needs of affected communities and individuals.

## Conclusion

This paper has summarised the findings of two literature reviews aimed at providing a better understanding of the burden of alcohol-related injuries and informing alcohol harm prevention efforts.

There are limitations in obtaining an accurate picture of alcohol-related injuries. However, the available evidence suggests that the burden of alcohol-related injuries in New Zealand is substantial. The harmful use of alcohol is implicated in a range of injury outcomes including premature death and disability; increased inequalities; increased frequency and severity of violence; reduced capacity to parent; and greater economic vulnerability.

Alcohol-related injuries result from increased risk of falling, fires, drowning, poisoning, suicide/self harm, violence, traffic crashes, cutting/piercing, child abuse/neglect and others. These injuries occur in a variety of settings and contexts, often with multiple risk factors present.

The burden of harm from alcohol-related injuries falls disproportionately on some sectors of society, contributing to increase social inequalities.

Because complex and inter-related factors are present, single prevention and intervention strategies are inadequate and unlikely to be effective.

There is evidence to guide effective intervention to prevent alcohol-related injuries and violence and reduce the health and social costs associated with them.

The key to preventing or reducing the harmful effects of alcohol is a strategic and coordinated approach that addresses the underlying drivers of harmful alcohol use rather than targeting individual behaviour change. Successful alcohol interventions will be coordinated across sectors and will require investment.

While we now know more about the role of alcohol in relation to injuries, significant knowledge gaps remain. This is largely due to a lack of available research allowing us to meaningfully report on alcohol use and alcohol-related harms outcomes and understand the impacts and effectiveness (or lack of) of alcohol-related policies and interventions.

Despite these knowledge gaps the current burden of alcohol-related injuries and violence warrants urgent attention and calls for more effective prevention measures to be implemented.

## Recommendations

### *1: Prioritising alcohol harm reduction*

That a whole of government approach to addressing alcohol-related harm is adopted, and that alcohol is given a greater priority in national policy and planning.

### *2: Developing effective policy interventions*

That evidenced-based alcohol policy interventions are implemented in accordance with the Global Strategy to Reduce the Harmful use of Alcohol, and as recommended by the New Zealand Law Commission.

### *3: Planning for alcohol harm reduction*

That a comprehensive and intersectoral national plan is developed to support the implementation of evidence-based strategies and interventions to reduce alcohol-related harm, and that this plan includes specific measures to address the risk factors for injury and violence.

### *4: Improving the collection of alcohol-related data*

That a strategic and coordinated approach to alcohol research on the role of alcohol in injuries and violence is adopted to enhance our knowledge about the role of alcohol within the diverse populations by gender, age and ethnicity; and inform the development of interventions and measure the impact of interventions.

### *5: Addressing the social determinants that contribute to alcohol harm*

That a whole of government approach to addressing social and ethnic inequalities including poverty is adopted.

### *6: Integrating screening and brief intervention into healthcare practice and service delivery*

That routine and standardised screening for harmful alcohol use is integrated within and across sectors, and that this is routinely linked to best practice brief interventions and/or referrals to treatment services.

### *7: Kaupapa Māori Services*

That services for Māori are delivered within a Kaupapa Māori values framework that reflects the aspirations of Whanau Ora.

### *8: Enhancing treatment services*

Alcohol and other Drug treatment services be assessed for their responsiveness to alcohol-related injury and violence outcomes, and a plan to address the gaps and issues identified be developed and implemented.

## 9: Strengthening communities

Communities are better resourced and supported to lead alcohol-related harm interventions.

## Acknowledgements

Thanks to the Ministry of Health for the funding support to undertake the literature reviews and to develop this policy briefing paper.

Thanks also go to those individuals and organisations that assisted with relevant information.

Thanks to xxx who have kindly reviewed this paper.

The full literature reviews that have informed this policy briefing paper can be downloaded from: [www.ahw.org.nz](http://www.ahw.org.nz)

## References

<sup>1</sup> New Zealand Law Commission. Alcohol in our lives: curbing the harm (Law Commission report 114). Wellington: Law Commission, 2010.

<sup>2</sup> World Health Organization. Global strategy to reduce the harmful use of alcohol. Geneva: World Health Organization, 2010.

<sup>3</sup> Babor T, Caetano, R, Casswell S, et al. Alcohol: No ordinary commodity. New York: Oxford University Press, 2010.

<sup>4</sup> World Health Organization. Global status report on alcohol and health. Geneva: World Health Organization, 2011.

<sup>5</sup> OECD. OECD Health Data 2011. [http://www.oecd.org/document/30/0,3746,en\\_2649\\_37407\\_12968734\\_1\\_1\\_1\\_37407\\_00.html](http://www.oecd.org/document/30/0,3746,en_2649_37407_12968734_1_1_1_37407_00.html) (accessed November 3, 2011).

<sup>6</sup> Meiklejohn J, Connor J, Kypri K. One in three New Zealand drinkers reports being harmed by their own drinking in the past year. The New Zealand Medical Journal 2012;125(1360):28-36.

<sup>7</sup> BERL. Costs of harmful alcohol and other drug use. Wellington: BERL, 2009.

<sup>8</sup> Connor J, Broad J, Rehm J, et al. The burden of death, disease, and disability due to alcohol in New Zealand. The New Zealand Medical Journal 2005;118(1213):1-12.

<sup>9</sup> Krug EG, Dahlberg LL, Mercy JA, et al. World report on violence and health. Geneva: World Health Organization, 2002.

<sup>10</sup> World Health Organization. Facts about injuries: preventing global injuries. Geneva: World Health Organization, 2001.

World Health Organization. The injury chart book. Geneva: World Health Organization, 2002.

<sup>11</sup> Proffitt C, Beacham M. The New Zealand injury prevention outcomes report – June 2012. Wellington: Accident Compensation Corporation, 2012.

<sup>12</sup> SCFNZ. Safe Communities Foundation New Zealand. Community Safety and Alcohol. Fact Sheet 47. Auckland: SAFNZ, 2008.

<sup>13</sup> Coggan C, Hooper R, Adams B. Self-reported injury rates in New Zealand. The New Zealand Medical Journal 2002;115(1161):U167.

<sup>14</sup> Families Commission. Family violence statistics report. Research report no. 4 /09, Wellington: Families Commission, 2009.

<sup>15</sup> OECD. SF3.4: Family Violence. OECD Family database. 01 July 2010. <http://www.oecd.org/dataoecd/30/26/45583188.pdf> (accessed October 28, 2011).

<sup>16</sup> Areyouok. Recent Statistics.2012. [http://www.areyouok.org.nz/files/statistics/itsnotOK\\_recent\\_family\\_violence\\_stats.pdf](http://www.areyouok.org.nz/files/statistics/itsnotOK_recent_family_violence_stats.pdf) (accessed July 28, 2012).

<sup>17</sup> Henare H, Hannifin K. The Cost of Domestic Violence. The Cost of Crime: Towards Fiscal Reasonability. Wellington, 2011.

<sup>18</sup> Infometrics Ltd. The nature of economic costs from child abuse and neglect in New Zealand. Every Child Counts discussion paper number 1. Wellington: Every Child Counts, 2010.

<sup>19</sup> Ministry of Justice. Te Toiora Mata Tauherenga- Report of the Taskforce for Action on Sexual Violence, Incorporating Views of Te Ohaakii a Hine-National Network Ending Sexual Violence Together. Wellington: Ministry of Justice, 2009.

<sup>20</sup> Accident Compensation Corporation. New Zealand Injury Prevention Strategy: Rautaki Ārai Whara o Aotearoa. Wellington: Accident Compensation Corporation, 2003.

<sup>21</sup> Kool B. *Unintentional falls at home among young and middle-aged adults: the influence of alcohol*. PhD Thesis. Auckland: The University of Auckland, 2009.

Thornley S, Kool B, Robinson E, et al. Alcohol and risk of admission to hospital for unintentional cutting or piercing injuries at home: A populationbased case-crossover study. *BMC Public Health* 2011; 11: 852. <http://www.biomedcentral.com/content/pdf/1471-2458-11-852.pdf> (accessed February 18, 2012).

Rehm J, Room R, Monteiro M, et al. Alcohol Use (Chapter 12). In: Ezzati M, Lopez A, Rodgers A, Murray CJL, eds. Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors. Geneva, World Health Organization, 2004:959-1108.

- <sup>22</sup> Macdonald S, Cherpitel CJ, DeSouza A, et al. Variations of alcohol impairment in different types, causes and contexts of injuries: results of emergency room studies from 16 countries. *Accident Analysis and Prevention* 2006;38(6):1107-1112.
- Borges G, Cherpitel CJ, Orozco R, et al. Multicentre study of acute alcohol and non-fatal injuries: data from the WHO collaborative study on alcohol and injuries. *Bulletin of the World Health Organization* 2006;84(6):453-460.
- <sup>23</sup> Connor JL, Kypri K, Bell ML, Cousins K. Alcohol outlet density, levels of drinking and alcohol-related harm in New Zealand: a national study. *Journal of Epidemiology & Community Health* 2011;65(10):841-846.
- Cameron MP, Cochrane W, McNeill K, et al. *The Impacts of Liquor Outlets in Manukau City: Summary Report-Revised*. Wellington: ALAC, 2012.
- Livingston M. A longitudinal analysis of alcohol outlet density and domestic violence. *Addiction* 2011;106(5):919-925.
- <sup>24</sup> Moskowitz H, Burns M. Effects of alcohol on driving performance. *Alcohol Health & Research World* 1990;14(1):12-14.
- Vinson DC, Maclure M, Reidinger C, Smith GS. A population-based case-crossover and case-control study of alcohol and the risk of injury. *Journal of Studies on Alcohol and Drugs* 2003;64(3): 358-366.
- Alcohol Alert. Alcohol-related impairment. National Institute on Alcohol Abuse and Alcoholism No. 25 PH 351 July 1994. <http://pubs.niaaa.nih.gov/publications/aa25.htm> (accessed November 14, 2011).
- <sup>25</sup> Rehm J, Room R, Monteiro M, et al. Alcohol Use (Chapter 12). In: Ezzati M, Lopez A, Rodgers A, Murray CJL, eds. *Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors*. Geneva, World Health Organization, 2004:959-1108.
- <sup>26</sup> Hingson RW, Edwards EM, Heeren T, Rosenbloom D. Age of drinking onset and injuries, motor vehicle crashes, and physical fights after drinking and when not drinking. *Alcoholism, Clinical and Experimental Research* 2009;33(5):783-790.
- <sup>27</sup> Ministry of Transport. *High-risk drivers in fatal and serious crashes: 2006–2010*. Wellington: Ministry of Transport, 2012.
- <sup>28</sup> Ministry of Transport. *Alcohol/Drugs:Crash statistics for the year ended 31 December 2010 (Crash Factsheet 2011)*. Wellington: Ministry of Transport, 2011.
- <sup>29</sup> Connor J, Casswell S. The burden of road trauma due to other people's drinking. *Accident Analysis and Prevention* 2009;41(5):1099-1103.
- <sup>30</sup> Data provided to Alcohol Healthwatch by New Zealand Transport Authority, 2012.
- <sup>31</sup> Data provided to Alcohol Healthwatch by Injury Prevention Research Unit, University of Otago sourced from Ministry of Health's National Minimum databases, 2012.
- <sup>32</sup> Ministry of Transport. *Pedestrians: Crash statistics for the year ended 31 December 2010 (Crash Factsheet 2011)*. Wellington: Ministry of Transport, 2011.
- <sup>33</sup> Hingson R, Howland J. Alcohol as a risk factor for injury or death resulting in accidental falls: a review of the literature. *Journal of Studies on Alcohol* 1987;48(3):212-219.
- <sup>34</sup> Kool B, Ameratunga S, Robinson E, et al. The contribution of alcohol to falls at home among working-aged adults. *Alcohol* 2008;42(5):383-388.
- <sup>35</sup> IPRC. *Alcohol and injuries: Fact Sheet 41*. Auckland: Injury Prevention Research Centre, 2002.
- <sup>36</sup> Cawthon PM, Harrison SL, Barrett-Connor E, et al. Alcohol intake and its relationship with bone mineral density, falls, and fracture risk in older men. *Journal of the American Geriatrics Society* 2006; 54(11):1649–1657.
- <sup>37</sup> McLean SA, Blow FC, Walton MA, et al. Rates of at-risk drinking among patients presenting to the Emergency Department with occupational and nonoccupational injury. *Academic Emergency Medicine* 2003;10(12): 1354-1361.
- <sup>38</sup> Smith G, Coggan C, Koelmeyer T, et al. *The role of alcohol in drowning and boating deaths in the Auckland region*. Auckland: Injury Prevention Research Centre, 1999.
- <sup>39</sup> Stokes F, Molano W, Nana G. *Alcohol and fire: A strategic review*. Wellington: New Zealand Fire Services, 2011.
- World Health Organization. *Facts about injuries: burns*. Geneva: World Health Organization, 2004.
- <sup>40</sup> Duncanson M, Reid P, Langley J, Woodward A. *Overview of fire-related mortality data for Aotearoa New Zealand 1991-1997*. Wellington: New Zealand Fire Service Commission, 2001.
- Miller I. *Human behaviour contributing to unintentional residential fire deaths 1997-2003*. Wellington: New Zealand Fire Service Commission Research Report Number 47, 2005.
- <sup>41</sup> Miller I, Beever P. *Victim behaviours, intentionality, and differential risks in residential fire deaths*. WIT transactions on the built environment. Vol 82: 845-854. Southampton ; Boston : WIT Press, 2005.
- Kool B. *Unintentional fire-related childhood injuries in Auckland resulting in hospitalisation or death 1989-1998*. New Zealand Fire Service Commission Research Report Number 13. Wellington: New Zealand Fire Service, 2001.
- Duncanson M, Reid P, Langley J, Woodward A. *Overview of fire-related mortality data for Aotearoa New Zealand 1991-1997*. Wellington: New Zealand Fire Service Commission, 2001.
- Duncanson M, Woodward A, Reid P. *Socioeconomic deprivation and fatal unintentional domestic fire incidents in New Zealand*. *Fire Safety Journal* 2002;37(2): 165-179.
- <sup>42</sup> Ball M, Bruck D. The effect of alcohol upon response to fire alarm signals in sleeping young adults. In *Human Behaviour in Fire: Proceedings of the 3rd International Symposium*, Belfast. London: Interscience Communications pp, 2004: 291-302.
- <sup>43</sup> Hingson R, Howland J. Alcohol and Non-Traffic Unintentional Injuries. *Addiction* 1993;33(88):877-883.
- <sup>44</sup> Browne ML, Lewis-Michl EL, Stark AD. *Watercraft-related drownings among New York state residents, 1988–1994*. Cited in *Alcohol, Boating and Water recreation facts*. European Child Safety Alliance. 2011.
- <sup>45</sup> Bell NS, Amoroso PJ, Yore MM, et al. Alcohol and other risk factors for drowning among male active duty U.S. army soldiers. *Aviation, Space and Environmental Medicine* 2001;72(12):1086-1095.
- <sup>46</sup> DrownBase™-Water Safety New Zealand. DrownBase™. 2012. <http://www.watersafety.org.nz/research/drownbase/> (accessed September 28, 2012).



- <sup>47</sup> Maritime New Zealand. Boating Safety Strategy: 2007 Review of the New Zealand Pleasure Boating Safety Strategy. Wellington: Maritime New Zealand, 2008.
- <sup>48</sup> Chalmers D, Morrison L. Epidemiology of non-submersion injuries in aquatic sporting and recreational activities. *Sports Medicine* 2003;33(10):745-70.
- Davis M, Warner M, Ward B. Snorkelling and scuba diving deaths in New Zealand, 1980-2000. *South Pacific Underwater Medicine Society* 2002;32(2):70-80.
- DrownBase™-Water Safety New Zealand. DrownBase™. 2012.
- Centers for Disease Control and Prevention (CDC). Paddle sports fatalities-Maine, 2000-2007. *Morbidity and Mortality Weekly Report* 2008;57(19): 524-527.
- <sup>49</sup> Gmel G, Kuendig H, Daepfen JB. Sport and alcohol: An emergency department study in Switzerland. *European Journal of Sport Science* 2009;9(1):11-22.
- O'Brien CP, Lyons F. Alcohol and the athlete. *Sports Medicine* 2000;29:295-300.
- Injury Update. Sports-related spinal cord injuries, Oklahoma, 1988-2003. Oklahoma: Injury Prevention Service, Oklahoma State Department of Health, 2006.
- <sup>50</sup> Nelson TF, Wechsler H. Alcohol and college athletes. *Medicine & Science in Sports & Exercise* 2001;33(1):43-47.
- O'Brien KS, Ali A, Cotter JD, et al. Hazardous drinking in New Zealand sports people: Level of sporting participation and drinking motives. *Alcohol & Alcoholism* 2007;42(4):376-382.
- O'Brien KS, Kypri K. Alcohol industry sponsorship and hazardous drinking among sportspeople. *Addiction* 2008;103(12):1961-1966.
- Leichtner JS, Meilman PW, Presley CA, et al. Alcohol use and related consequences among students with varying levels of involvement in college athletics. *Journal of American College Health* 1998;46(6):257-262.
- Nattiv A, Puffer JC, Green GA. Lifestyles and health risks of collegiate athletes: a multi-center study. *Clinical Journal of Sports Medicine* 1997;7(4):262-272.
- <sup>51</sup> O'Brien KS, Blackie JM, Hunter JA. Hazardous drinking in elite New Zealand sportspeople. *Alcohol & Alcoholism* 2005;40(3):239-241.
- <sup>52</sup> Quarrie K, Feehan M, Waller A, et al. The New Zealand rugby injury and performance project: alcohol use patterns within a cohort of rugby players. *Addiction* 1996;91:1865-1868.
- <sup>53</sup> Dietze PM, Fitzgerald JL, Jenkinson RA. Drinking by professional Australian Football League (AFL) players: prevalence and correlates of risk. *Medical Journal of Australia* 2008;89(9):479-483.
- Gaudio RM, Barbieri S, Feltracco P, et al. Impact of alcohol consumption on winter sports-related injuries. *Medicine, Science and the Law* 2010;50(3):122-125.
- TIRF. The Alcohol-crash problem in Canada: 2006. Ottawa: Traffic Injury Research Foundation, 2009.
- Therbo M, Osten CVD. Firearm-related hunting accidents in Denmark. *The Journal of Trauma* 2009;67(6):1265-1269.
- <sup>54</sup> Thornley S, Kool B, Robinson E, et al. Alcohol and risk of admission to hospital for unintentional cutting or piercing injuries at home: A populationbased case-crossover study. *BMC Public Health* 2011; 11: 852. <http://www.biomedcentral.com/content/pdf/1471-2458-11-852.pdf> (accessed February 18, 2012).
- <sup>55</sup> Driscoll T, Mannetje A, Dryson E, et al. The burden of occupational disease and injury in New Zealand: Technical report. Wellington: NOHSAC, 2004.
- <sup>56</sup> World Health Organization. Global status report on alcohol. Geneva: World Health Organization, 2004.
- Humphrey G, Casswell S, Han DY. Alcohol and injury among attendees at a New Zealand emergency department. *The New Zealand Medical Journal* 2003; 116(1168):U298.
- <sup>57</sup> Gibb SJ, Fergusson DM. Working hours and alcohol problems in early childhood. *Addiction* 2011;107(1):81-88.
- <sup>58</sup> Frone MR. Prevalence and distribution of alcohol use and impairment in the workplace: A U.S National Survey. *Journal of Studies on Alcohol* 2006;67(1):147-156.
- <sup>59</sup> Barrientos-Gutierrez T, Gimeno D, Mangione TW, et al. Drinking social norms and drinking behaviours: a multilevel analysis of 137 workgroups in 16 worksites. *Occupational & Environmental Medicine* 2007;64(9): 602-608.
- <sup>60</sup> Ramchand R, Pomeroy A, Arkes J. The effects of substance use on workplace injuries. Santa Monica, CA: RAND Corporation, 2009.
- <sup>61</sup> Roche AM, Pidd K, Berry JG, Harrison JE. Workers' drinking patterns: the impact of absenteeism in the Australian work-place. *Addiction* 2008;103(5):738-748.
- <sup>62</sup> Jones S, Casswell S, Zhang JF. "The economic costs of alcohol-related absenteeism and reduced productivity among the working population of New Zealand." *Addiction* 1995;90(11):1455-1461.
- BERL. Costs of harmful alcohol and other drug use. Wellington: BERL, 2009.
- <sup>63</sup> Everitt R, Jones P. Changing the minimum legal drinking age- its effect on a central city Emergency Department. *The New Zealand Medical Journal* 2002;115(1146):9-11.
- <sup>64</sup> Public Health Advice. "Reported poisonings in Auckland." *Public Health Quarterly Report*; 6(2), 2000: 1-3.
- <sup>65</sup> Child and Youth Mortality Review Committee, Te Rōpū Arotake Auau Mate o te Hunga Tamariki, Taiohi. Special report: the involvement of alcohol consumption in the deaths of children and young people in New Zealand during the years 2005-2007. Wellington: Child and Youth Mortality Review Committee, 2009.
- <sup>66</sup> Lahti RA, Sajantila A, Korpi H, et al. Under-recording of ethanol intoxication and poisoning in cause-of-death data: Causes and consequences. *Forensic Science International* 2011;212(1-3): 121-125.
- Neves P, Neuffer N, Yersin B. Massive alcohol poisoning in the emergency department: how many, who, what and how? *Revue Medicale Suisse* 2011;13(7):1445-1449.

- <sup>67</sup> Bijur PE, Kurzon M, Overpeck MD, Scheidt PC. Parental alcohol use, problem drinking, and children's injuries. *Journal of American Medical Association* 1992;267(23):3166-3171.
- Gluckman P, Hayne H, et al. Improving the transition: reducing social and psychological morbidity during adolescence. Auckland: Office of the Prime Minister's Science Advisory Committee, 2011.
- World Health Organization. Child maltreatment and alcohol. Geneva: World Health Organization, 2006.
- UN (United Nations). Report of the independent expert for the United Nations study on violence against children. New York: United Nations, 2006.
- Casswell S, Harding JF, You RQ, Huckle T. Alcohol's harm to others: self-reports from a representative sample of New Zealanders. *The New Zealand Medical Journal* 2011;124(1336):1-10.
- <sup>68</sup> Connor J, Casswell S. Alcohol-related harm to others in New Zealand: evidence of the burden and gaps in knowledge. *The New Zealand Medical Journal* 2012;125(1360):11-27.
- <sup>69</sup> Casanueva C, Foshee VA, Barth RP. Intimate partner violence as a risk for children's use of the emergency room and injuries. *Children and Youth Services Review* 2005;27(11):1223-1242.
- Doolan M. Child Death by Homicide: An examination of incidence in New Zealand 1991-2000. *Te Awatea Review* 2004;2(1):7-10.
- Martin J, Pritchard R. Learning from tragedy: homicide within families in New Zealand 2002-2006. Wellington: Ministry of Social Development, 2010.
- Meredith V, Price-Robertson R. Alcohol misuse and child maltreatment: Resource sheet National Child Protection Clearinghouse. Australian Institute of Family Studies, 2011.
- <sup>70</sup> Girling M, Huakau J, Casswell S. et al. Families and heavy drinking: impacts on children's wellbeing. Wellington: Families Commission, 2006.
- <sup>71</sup> Casswell S, Harding JF, You RQ, Huckle T. Alcohol's harm to others: self-reports from a representative sample of New Zealanders. *The New Zealand Medical Journal* 2011;124(1336):1-10.
- <sup>72</sup> Nordstrom D, Zwerling C, Stromquist A, et al. Identification of risk factors for non-fatal child injury in a rural area: Keokuk County Rural Health Study. *Injury Prevention* 2003;9(3):235-240.
- <sup>73</sup> Marshall SW, Runyan CW, Bangdiwala SI, et al. Fatal residential Fires: who dies and who survives. *The Journal of the American Medical Association* 1998;279(20):1633-1637.
- <sup>74</sup> Blair PS, Sidebotham P, Evason-Coombe C, et al. Hazardous cosleeping environments and risk factors amenable to change: case-control study of SIDS in south west England. *British Medical Journal* 2009;339: b3666.
- <sup>75</sup> Room R, Babor T, Rehm J. Alcohol and public health. *Lancet* 2005; 365(9458):519-30.
- <sup>76</sup> OECD. SF3.4: Family Violence. OECD Family database. 01 July 2010. <http://www.oecd.org/dataoecd/30/26/45583188.pdf> (accessed October 28, 2011).
- Gilbert R, Fluke J, O'Donnell M. et al. Child maltreatment: variation in trends and policies in six developed countries. *Lancet* 2012;379(9817):758-772.
- UN Women (United Nations Entity for Gender Equality and the Empowerment of Women). Progress of the world's women: In pursuit of justice. New York: UN Women, 2011.
- <sup>77</sup> Fanslow J, Robinson E. Violence against women in New Zealand: prevalence and health consequences. *The New Zealand Medical Journal* 2004;117(1206):1-12.
- <sup>78</sup> Habgood R, Casswell S, Pledger M, Bhatta K. Drinking in New Zealand: National Surveys Comparisons 1995 & 2000. Auckland: Alcohol and Public Health Research Unit, University of Auckland, 2001.
- <sup>79</sup> Connor J, You R, Casswell S. Alcohol-related harm to others: a survey of physical and sexual assault in New Zealand. *The New Zealand Medical Journal* 2009;122(1303):10-20.
- <sup>80</sup> Lynskey MT. Alcohol use and violent behaviour among youth: results from a longitudinal study. In *Alcohol, young persons and violence*, by Williams P. (Ed), 163-181. Canberra: Australian Institute of Criminology, 2001.
- <sup>81</sup> Reiss AJ, Jr. Roth JA, eds. *Understanding and Preventing Violence*. Vol. 3. Washington, DC: National Academy Press, 1994.
- <sup>82</sup> World Health Organization. Injuries and violence in Europe; why they matter and what can be done. Copenhagen: WHO Regional Office for Europe, 2005.
- <sup>83</sup> Pernanen K, Cousineau M, Brochu S, Sun F. Proportions of crimes associated with alcohol and other drugs in Canada. *Canadian Centre on Substance Abuse*, 2002.
- <sup>84</sup> Bushman BJ, Cooper HM. Alcohol and human aggression: An integrative research review. *Psychological Bulletin* 1990;107:341-354.
- <sup>85</sup> Boden JM, Fergusson DM, Horwood LJ. Alcohol misuse and violent behavior: Findings from a 30-year longitudinal study. *Drug and Alcohol Dependence* 2012;122(1-2): 135-141.
- Connor JL, Kypri K, Bell ML, Cousins K. Alcohol involvement in aggression between intimate partners in New Zealand: a national cross-sectional study. *BMJ Open* 2011;1:e000065. <http://bmjopen.bmj.com/content/1/1/e000065.full> (accessed March 28, 2011).
- Fergusson DM, Horwood LJ. Alcohol abuse and crime: a fixed-effects regression analysis. *Addiction* 2000; 95(10):1525-1536.
- <sup>86</sup> Braaf R. "Elephant in the room: responding to alcohol misuse and domestic violence." *Australian Domestic and Family Violence Clearinghouse*. July 2012. [http://www.adfvc.unsw.edu.au/PDF%20files/IssuesPaper\\_24.pdf](http://www.adfvc.unsw.edu.au/PDF%20files/IssuesPaper_24.pdf) (accessed August 01, 2012).
- Heise L. What works to prevent partner violence: An evidence overview. STRIVE Research Consortium. 2011. <http://strive.lshtm.ac.uk/resources/what-works-prevent-partner-violence-evidence-overview> (accessed April 24, 2012).
- <sup>87</sup> Golding J. Intimate partner violence as a risk factor for mental disorders: a meta-analysis. *Journal of Family Violence* 1999;14:99-132.
- Centre for Social Research and Evaluation. Preventing physical and psychological maltreatment of children in families. Wellington: Ministry of Social Development, 2008.
- Craig A. Domestic violence and health professionals: A short study on women's experiences. Belfast: Northern Ireland Women's Aid Federation, 2003.

- <sup>88</sup> Connor JL, Kypri K, Bell ML, Cousins K. Alcohol outlet density, levels of drinking and alcohol-related harm in New Zealand: a national study. *Journal of Epidemiology & Community Health* 2011;65(10):841-846.
- Cameron MP, Cochrane W, McNeill K, et al. The Impacts of Liquor Outlets in Manukau City: Summary Report-Revised. Wellington: ALAC, 2012.
- Day P, Breetzke G, Kingham S & Campbell M. Close proximity to alcohol outlets is associated with increased violent crimes in New Zealand. *Australian and New Zealand Journal of Public Health*. 2012; 36(1):48-54.
- Livingston M. A longitudinal analysis of alcohol outlet density and domestic violence. *Addiction* 2011;106(5):919-925.
- Toomey TL, Erickson DJ, Carlin BP, et al. The association between density of alcohol establishments and violent crime within urban neighborhoods. *Alcoholism, Clinical and Experimental Research* 2012;36(8): 1468-1473.
- <sup>89</sup> Ray JG, Moineddin R, Bell CM, et al. Alcohol sales and risk of serious assault. *PLoS Med* . 13 May 2008. <http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.0050104> (accessed July 10, 2011).
- <sup>90</sup> Stockwell T, Chikritzhs T. Do relaxed trading hours for bars and clubs mean more relaxed drinking? A review of international research on the impacts of changes to permitted hours of drinking. *Crime Prevention and Community Safety* 2009;11(3):153-170.
- <sup>91</sup> Humphrey G, Casswell S, Han DY. Alcohol and injury among attendees at a New Zealand emergency department. *The New Zealand Medical Journal* 2003; 116(1168):U298.
- Mayhew P, Reilly J. Community safety: Findings from the New Zealand Crime and Safety Survey 2006. Wellington: Ministry of Justice, 2007.
- <sup>92</sup> Malik S, Sorenson SB, Aneshensel CS. Community and dating violence among adolescents: Perpetration and victimization', *Journal of Adolescent Health* 1997;21:291-302.
- Schwab-Stone ME, Ayers TS, KasproW W, et al. No safe haven: a study violence exposure in an urban community. *Journal of the American Academy of Child and Adolescent Psychiatry* 1995; 34(10):1343-1352.
- <sup>93</sup> Boles SM, Miotto K. Substance abuse and violence: A review of the literature', *Aggression and Violent Behaviour* 2003;8:155-174.
- Room R, Rossow I. The share of violence attributable to drinking. *Journal of Substance Abuse* 2001;6(4):218-228.
- <sup>94</sup> Gudlaugsdottir GR, Vilhjalmsón R, Kristjansdóttir, G, et al. Violent behaviour among adolescents in Iceland: a national survey, *International Journal of Epidemiology* 2004;33(5):1046-1051.
- <sup>95</sup> Broad H. Alcohol Causes Violence. New Zealand Police. 24 March 2010. <http://www.police.govt.nz/blog/2010/03/24/alcohol-causes-violence/22677> (accessed October 10, 2011).
- <sup>96</sup> Mayhew P, Reilly J. Community safety: Findings from the New Zealand Crime and Safety Survey 2006. Wellington: Ministry of Justice, 2007.
- <sup>97</sup> Nicholas S, Kershaw C, Walker A, Crime in England and Wales 2006/07, Home Office Statistical Bulletin 11/07. Home Office, London, 2007.
- <sup>98</sup> Morgan A, McAtamney A. Key issues in alcohol-related violence. Research in practice. Summary paper No. 4. Australian Institute of Criminology. December 2009. <http://www.aic.gov.au/publications/current%20series/rip/1-10/04.aspx> (accessed March 13, 2012).
- Briscoe S, Donnelly N. Problematic licensed premises for assault in inner Sydney, Newcastle and Wollongong. *Australian and New Zealand Journal of Criminology* 2003;36:18-33.
- <sup>99</sup> Foran HM, O'Leary KD. Alcohol and intimate partner violence: a meta-analytic review. *Clinical Psychology Review* 2008;28(7):1222-1234.
- Abramsky T, Watts CH, Garcia-Moreno C, et al. What factors are associated with recent intimate partner violence? Findings from the WHO multi-country study on women's health and domestic violence. *BMC Public Health* 2011;11(109):1-17.
- <sup>100</sup> Ministry of Health. Alcohol use in New Zealand: Key results of the 2007/08 Alcohol and Drug Use survey. Wellington: Ministry of Health, 2009.
- Cunningham C, Triggs S, Faisandier S. Analysis of the Māori experience: Findings from The New Zealand Crime and Safety Survey 2006. Wellington: Ministry of Justice, 2009.
- Huakau J, Asiasiga L, Ford M, et al. New Zealand Pacific peoples' drinking style: too much or nothing at all? *The New Zealand Medical Journal* 2005;118(1216). <http://journal.nzma.org.nz/journal/118-1216/1491/> (accessed October 16, 2011).
- <sup>101</sup> Gil-González D, Vives-Cases C, Álvarez-Dardet C, Latour-Pérez J. Alcohol and intimate partner violence: do we have enough information to act? *European Journal of Public Health* 2006;16(3): 278-284.
- Sharps P, Campbell J, Campbell D, et al. The role of alcohol use in intimate partner femicide. *American Journal of Addictions* 2001;10(2):122-135.
- <sup>102</sup> Brown M. Family violence risk assessment - Review of international research. Wellington: NZ Police, 2011.
- <sup>103</sup> Gilchrist E, Johnson R, Takriti R, et al. Domestic Violence Offenders: characteristics and offending related needs (Home Office Findings 217). London: Home Office, 2003.
- Laslett AM, Room R, Ferris J, et al. Surveying the range and magnitude of alcohol's harm to others in Australia. *Addiction* 2011;106(9): 1603-1611.
- Brisibe S, Ordinioha B, Dienye PO. Intersection between alcohol abuse and intimate partner's violence in a rural Ijaw community in Bayelsa State, South-South Nigeria. *Journal of Interpersonal Violence* 2011;27(3): 513-522.
- Friend J, Langhinrichsen-Rohling J, Eichold II Bl. Same-Day Substance Use in Men and Women Charged With Felony Domestic Violence Offenses. *Criminal Justice and Behavior* 2011;38(6):619-633.
- <sup>104</sup> Weinsheimer RL, Schermer CR, Malcoe LH, et al. Severe intimate partner violence and alcohol use among female trauma patients. *The Journal of Trauma* 2005;58(1):22-29.
- Ministry of Justice. The New Zealand Crime and Safety Survey 2009. Wellington: Ministry of Justice, 2010.
- Connor JL, Kypri K, Bell ML, Cousins K. Alcohol involvement in aggression between intimate partners in New Zealand: a national cross-sectional study. *BMJ Open*. 29 June 2011. <http://bmjopen.bmj.com/content/early/2011/06/28/bmjopen-2011-000065.full> (accessed June 29, 2011).
- <sup>105</sup> Shine/Te Kakano Tumanako. Alcohol and drugs. 2011. [www.2shine.org.nz/alcohol-and-drugs](http://www.2shine.org.nz/alcohol-and-drugs) Accessed 13 March, 2012.
- Friend J, Langhinrichsen-Rohling J, Eichold II Bl. Same-Day Substance Use in Men and Women Charged With Felony Domestic Violence Offenses. *Criminal Justice and Behavior* 2011;38(6):619-633.

- <sup>106</sup> Williams JR, Ghandour RM, Kub JE. Female perpetration of violence in heterosexual intimate relationships: adolescence through adulthood. *Trauma Violence Abuse* 2008;9(4):227-249.
- <sup>107</sup> Fals-Stewart W. The occurrence of partner physical aggression on days of alcohol consumption: a longitudinal diary study. *Journal of Consulting and Clinical Psychology* 2003; 71(1):41-52.
- <sup>108</sup> Swan SC, Gambone LJ, Caldwell JE. A review of research on women's use of violence with male intimate partners. *Violence and Victims* 2008;23(3):301-314.
- <sup>109</sup> Leonard KE, Quigley BM, Collins RL. Physical aggression in the lives of young adults: prevalence, location, and severity among college and community samples. *Journal of Interpersonal Violence* 2002;17(5):533-550.
- <sup>110</sup> Logan TK, Walker R, Cole J, Leukefeld C. Victimization and substance abuse among women: Contributing factors, interventions, and implications. *Review of General Psychology* 2002;6(4):325-397.
- <sup>111</sup> Gao W, Paterson J, Abbott M, et al. Impact of current and past intimate partner violence on maternal mental health and behaviour at 2 years after childbirth: evidence from the Pacific Islands Families Study. *The Australian and New Zealand Journal of Psychiatry* 2010;44(2):174-182.
- Craig, A. Domestic violence and health professionals: A short study on women's experiences. Belfast: Northern Ireland Women's Aid Federation, 2003.
- <sup>112</sup> Bennet LW. Substance abuse and women abuse by male partners. National Resource Center on Domestic Violence. February 1998. [http://www.vawnet.org/applied-research-papers/print-document.php?doc\\_id=395](http://www.vawnet.org/applied-research-papers/print-document.php?doc_id=395) (accessed November 07, 2011).
- <sup>113</sup> Pega F, MacEwan I. Takatāpui, lesbian, gay, and bisexual scoping (TLGB) exercise. Wellington: Alcohol Advisory Council of New Zealand, 2010.
- Parrott DJ, Gallagher KE, Vincent W, Bakeman R. The link between alcohol use and aggression toward sexual minorities: an event-based analysis. *Psychology of Addictive Behaviors* 2010;24(3):516-521.
- <sup>114</sup> Martin SL, Beaumont JL, Kupper LL. Substance use before and during pregnancy: links to intimate partner violence. *The American Journal of Drug and Alcohol Abuse* 2003;29(3): 599-617.
- <sup>115</sup> Casanueva CE, Martin SL. Intimate partner violence during pregnancy and mothers' child abuse potential. *Journal of Interpersonal Violence* 2007;22(5):603-622.
- <sup>116</sup> Streissguth A, Barr H, Kogan J, Bookstein F. Understanding the occurrence of secondary disabilities in clients with Fetal Alcohol Syndrome (FAS) and Fetal Alcohol Effects (FAE). Final report to the Centers for Disease Control and Prevention. Seattle: University of Washington School of Medicine, 1996.
- Niccols A. Fetal alcohol syndrome and the developing socio-emotional brain. *Brain and Cognition* 2007;65(1):135-142.
- <sup>117</sup> McKinney C, Caetano R, Harris T, et al. Alcohol availability and intimate partner violence among US couples. *Alcoholism Clinical and Experimental Research* 2009;33(1):169-176.
- Cunradi CB, Mair C, Ponicki W, Remer L. Alcohol outlets, neighborhood characteristics, and intimate partner violence: ecological analysis of a California city. *Journal of Urban Health* 2011; 88(2):191-200.
- Livingston M. A longitudinal analysis of alcohol outlet density and domestic violence. *Addiction* 2011;106(5): 919-925.
- <sup>118</sup> Ministry of Social Development. The Social Report 2009. Wellington: Ministry of Social Development, 2009.
- <sup>119</sup> Martin J, Pritchard R. Learning from tragedy: homicide within families in New Zealand 2002-2006. Wellington: Ministry of Social Development, 2010.
- <sup>120</sup> Parker RN, Williams KR, McCaffree KJ, et al. Alcohol availability and youth homicide in the 91 largest US cities, 1984-2006. *Drug and Alcohol Review* 2011;30(5):505-514.
- <sup>121</sup> Ramstedt M. Population drinking and homicide in Australia: A time series analysis of the period 1950-2003. *Drug and Alcohol Review* 2011;30(5):466-472.
- <sup>122</sup> Grucza RA, Hipp PR, Norberg KE. The Legacy of Minimum Legal Drinking Age Law Changes: Long-Term Effects on Suicide and Homicide Deaths Among Women. *Alcoholism: Clinical & Experimental Research* 2012;36(2):377-384.
- <sup>123</sup> Dearden J, Payne J. Alcohol and homicide in Australia. Trends and issues in crime and criminal justice no. 372. Canberra: Australian Institute of Criminology, 2009.
- <sup>124</sup> Ministry of Justice. Te Toiora Mata Tauherenga – Report of the Taskforce for Action on Sexual Violence, Incorporating Views of Te Ohaakii a Hine – National Network Ending Sexual Violence Together. Wellington: Ministry of Justice, 2009.
- <sup>125</sup> Russell N. A review of the associations between drugs (including alcohol) and sexual violence. The Taskforce For Action on Sexual Violence. 2008. <http://www.justice.govt.nz/policy/supporting-victims/taskforce-for-action-on-sexual-violence/documents/A%20Review%20of%20the%20Associations%20between%20Drugs%20including%20Alcohol-%20and%20Sexual%20Violence.pdf/view> (accessed November 3, 2011).
- <sup>126</sup> Cashell-Smith M, Connor J, Kypri K. Harmful Effects of Alcohol on Sexual Behaviour in a New Zealand University Community. *Drug and Alcohol Review* 2007;26(6):645-651.
- Clark TC, Robinson E, Crengle S, et al. Youth'07: The Health and Wellbeing of Secondary School Students in New Zealand. Findings on Young People and Violence. Auckland: The University of Auckland, 2009.
- Connor J, Gray A, Kypri K. Drinking history, current drinking and problematic sexual experiences among university students. *Australian and New Zealand Journal of Public Health* 2010;34(5):487-494.
- Ameratunga S, Waayer D, Robinson E, et al. Youth'07: The health and wellbeing of secondary school students in New Zealand. Young people and alcohol. Auckland, New Zealand: The University of Auckland, Adolescent Health Research Group, 2011.
- Adam D, Welch N, Pendlebury C, Merrit K. A Culture of Consumption: An Investigation into Alcohol Related Drinking Problems Amongst University Students. Waikato University; Hamilton: 2000.
- Kypri K, Paschall MJ, Langley J, et al. Drinking and alcohol-related harm among New Zealand university students: Findings from a national web-based survey. *Alcoholism: Clinical & Experimental Research* 2009;33(2):307-314.

- <sup>127</sup> Fenaughty J, Braun V, Gavey N, et al. Sexual Coercion Among Gay Men, Bisexual Men and Takatāpui Tane in Aotearoa/New Zealand. Auckland: Gender and Critical Psychology Group, Department of Psychology, University of Auckland, 2006.
- Pega F, MacEwan I. Takatāpui, lesbian, gay, and bisexual scoping (TLGB) exercise. Wellington: Alcohol Advisory Council of New Zealand, 2010.
- <sup>128</sup> Ullman SE, Filipas HH, Townsend SM, Starzynski LL. Correlates of comorbid PTSD and drinking problems among sexual assault survivors. *Addictive Behaviors* 2006;31(1):128-132.
- Ullman SE, Filipas HH, Townsend SM, Starzynski LL. Trauma exposure, posttraumatic stress disorder and problem drinking in sexual assault survivors. *Journal of Studies on Alcohol* 2005;66(5): 610-619.
- <sup>129</sup> Sher L. Alcohol consumption and suicide. *Quarterly Journal of Medicine* 2006;99(1):57-61.
- Schilling EA, Aseeltine RH Jr., Glanovsky JL, et al. Adolescent alcohol use, suicidal ideation, and suicide attempts. *The Journal of Adolescent Health* 2009;44(4):335-341.
- <sup>130</sup> NZLC (New Zealand Law Commission). Alcohol in our lives: an issues paper on the reform of New Zealand's liquor laws.(NZLC IP15). Wellington: Law Commission, 2009.
- <sup>131</sup> Ministry of Health. Suicide facts: Deaths and intentional self-harm hospitalisations 2010. Wellington: Ministry of Health, 2012.
- <sup>132</sup> Fergusson DM, Woodward LJ, Horwood LJ. Risk factors and life processes associated with the onset of suicidal behaviour during adolescence and early adulthood. *Psychological Medicine* 2000;30(1):23-39.
- <sup>133</sup> Cavanagh JT, Carson AJ, Sharpe M, et al. Psychological autopsy studies of suicide: a systematic review. *Psychological Medicine* 2003;33(3):395-405.
- Wilcox HC, Conner KR, Caine ED. Association of alcohol and drug use disorders and completed suicide: an empirical review of cohort studies. *Drug and Alcohol Dependence* 2004;76 Suppl:S11-9: S11-9.
- <sup>134</sup> Inskip HM, Harris EC, Barraclough B. Lifetime risk of suicide for affective disorder, alcoholism and schizophrenia. *The British Journal of Psychiatry* 1998;172:25-24.
- <sup>135</sup> Pompili M, Serafini G, Innamorati M, et al. Suicidal behavior and alcohol abuse. *International Journal of Environmental Research and Public Health* 2010;7(4):1392-1431.
- <sup>136</sup> Harwitz D, Ravizza L. Suicide and Depression. *Emergency Medicine Clinics of North America* 2000; 18(2):263-271.
- Ministry of Health. Facts about depression. *Depression New Zealand*. 2009. [http://www.depression.org.nz/ContentFiles/Media/PDF/Facts\\_about\\_depression.pdf](http://www.depression.org.nz/ContentFiles/Media/PDF/Facts_about_depression.pdf) (accessed November 16, 2011).
- <sup>137</sup> Boden JM, Fergusson DM. Alcohol and depression. *Addiction* 2011;106(5):906-914.
- <sup>138</sup> Merrill J, Milker G, Owens J, Vale A. Alcohol and attempted suicide. *Addiction* 1992;87(1):83-89.
- Haw C, Hawton K, Casey D, Bale E, Shepherd A. Alcohol dependence, excessive drinking and deliberate self-harm: trends and patterns in Oxford, 1989-2002. *Social Psychiatry and Psychiatric Epidemiology* 2005;40(12):964-971.
- Barker R, McKenzie K, Scott D, et al. Cocktails in the ED: an analysis of presentations due to substance and alcohol co-use in youth aged 12-24 years. *Injury Bulletin No 112, Queensland Injury Surveillance Unit*, 2011.
- <sup>139</sup> King M, Semlyen J, Tai SS. A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry* 2008;8:70.
- <sup>140</sup> Beautrais AL, Collings SCD, Ehrhardt P, et al. Suicide prevention: A review of evidence of risk and protective factors, and points of effective intervention. Wellington: Ministry of Health, 2005.
- <sup>141</sup> Johnson FW, Gruenewald PJ, Remer LG. Suicide and alcohol: do outlets play a role? *Alcoholism: Clinical and Experimental Research* 2009;33(12):2124-2133.
- Kerr WC, Subbaraman M, Ye Y. Per capita alcohol consumption and suicide mortality in a panel of US states from 1950 to 2002. *Alcohol and Drug Review* 2011;30(5):473-480.
- <sup>142</sup> Child Matters. Facts about Child Abuse. 2011. <http://www.childmatters.org.nz/55/learn-about-child-abuse/facts> (accessed December 2, 2011).
- <sup>143</sup> Ministry of Social Development. Every Child Thrives, Belongs, Achieves: The Green Paper for Vulnerable Children. Wellington: Ministry of Social Development, 2011.
- <sup>144</sup> Eurocare. Harm done by alcohol to children. Brussels: European Alcohol Policy Alliance, 2007.
- <sup>145</sup> Connolly M, Wells P, Field J. Working with vulnerable infants. *Social Work Now*, December 2007: 05-10.
- <sup>146</sup> Lamont A. Effects of child abuse and neglect for children and adolescents. *NPC Resource sheet*, 2010: 1-7.
- Carrington K, Phillips J. Domestic Violence in Australia – An Overview of the Issues. Canberra: Social Policy Group, Parliament of Australia, 2006.
- Frederick J. Safeguarding children living with trauma and family violence: evidence based assessment, analysis and planning interventions. *Child & Family Social Work* 2010;15(2):259-260.
- Andrews G, Corry J, Slade T, Issakidis C, Swanston H. Child sexual abuse (Chapter 23). In: Ezzati M, Lopez A, Rodgers A, Murray CJL, eds. Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors. Geneva, World Health Organization, 2004:1851-1940.
- <sup>147</sup> Freisthler B. Alcohol use, drinking venue utilization, and child physical abuse: Results from a pilot study. *Journal of Family Violence* 2011;26(3):185-193.
- Freisthler B, Gruenewald PJ, Remer LG, et al. Exploring the spatial dynamics of alcohol outlets and Child Protective Services referrals, substantiations, and foster care entries. *Child Maltreatment* 2007; 12(2):114-124.
- Freisthler B, Midanik LT, Gruenewald PJ. Alcohol Outlets and Child Physical Abuse and Neglect: Applying Routine Activities Theory to the Study of Child Maltreatment. *Journal of Studies on Alcohol and Drugs* 2004;65(5):586-592.
- <sup>148</sup> Fergusson DM, Lynskey MT, Horwood LJ. Alcohol misuse and juvenile offending in adolescence. *Addiction* 1996;91(4):483-494.

- <sup>149</sup> Hughes K, Anderson Z, Morleo M, Bellis MA. Alcohol, nightlife and violence: the relative contributions of drinking before and during nights out to negative health and criminal justice outcomes. *Addiction* 2008;103(1):60-65.
- <sup>150</sup> Ministry of Health. Alcohol use in New Zealand. Analysis of the 2004 New Zealand Health Behaviours survey-Alcohol Use. Public Health Intelligence Occasional Bulletin No. 40, Wellington: Ministry of Health, 2007.
- <sup>151</sup> Clark TC, Robinson E, Crengle S, et al. Youth'07: The Health and Wellbeing of Secondary School Students in New Zealand. Findings on Young People and Violence. Auckland: The University of Auckland, 2009.
- <sup>152</sup> Clark TC, Smith JM, Raphael D, et al. Youth'09: The health and wellbeing of young people in Alternative Education. A report on the needs of Alternative education students in Auckland and Northland. Auckland: The University of Auckland, 2010.
- <sup>153</sup> Langley JD, Kypri K, Stephenson SCR. Secondhand effects of alcohol use among university students: computerized survey. *British Medical Journal* 2003;327(7422):1023-1024.
- <sup>154</sup> Stevenson, R. National alcohol assessment. Wellington: New Zealand Police, 2009.
- <sup>155</sup> Swahn MH, Topalli V, Ali B, et al. Pre-teen alcohol use as a risk factor for victimization and perpetration of bullying among middle and high school students in Georgia. *West Journal of Emergency Medicine* 2011;12(3):305-309.
- <sup>156</sup> Tharp-Taylor S, Haviland A, D'Amico E J. Victimization from mental and physical bullying and substance use in early adolescence. *Addictive Behaviors* 2009;34(6-7):561-567.
- <sup>157</sup> Rothman EF, McNaughton Reyes L, Johnson RM, Lavalley M. Does the alcohol make them do it? Dating violence perpetration and drinking among youth. *Epidemiologic Reviews* 2011;34(1): 103-119.
- <sup>158</sup> Kypri K, Bell ML, Hay GC, Baxter J. Alcohol outlet density and university student drinking: a national study. *Addiction* 2008;103(7):1131-1138.
- Huckle T, Huakau J, Sweetsur P, et al. Density of alcohol outlets and teenage drinking: living in an alcogenic environment is associated with higher consumption in a metropolitan setting. *Addiction* 2008;103(10):1614-1621.
- <sup>159</sup> World Health Organization. Elder abuse and alcohol fact sheet. Geneva: World Health Organization, 2006. [http://www.who.int/violence\\_injury\\_prevention/violence/world\\_report/factsheets/ft\\_elder.pdf](http://www.who.int/violence_injury_prevention/violence/world_report/factsheets/ft_elder.pdf) (accessed December 12, 2011).
- <sup>160</sup> Fallon P. Elder abuse and/or neglect. Wellington: Ministry of Social Development, 2006.
- <sup>161</sup> Glasgow K, Fanslow JL. Family Violence Intervention Guidelines: Elder abuse and neglect. Wellington: Ministry of Health, 2006.
- Families Commission. Elder abuse and neglect: exploration of risk and protective factors. . Research report no. 1/08, Wellington: Families Commission, 2008.
- <sup>162</sup> Age Concern New Zealand. Elder Neglect: A qualitative study of neglect cases referred to Age Concern Elder Abuse and Neglect Prevention Services during the period 1 July 2002 to 30 June 2006. Wellington: Age Concern New Zealand Incorporated, 2008.
- Age Concern New Zealand. Age Concern Elder Abuse and Neglect Services: An analysis of referrals for the period 1 July 1998 to 30 June 2001. Wellington: Age Concern New Zealand, 2002.
- <sup>163</sup> Age Concern New Zealand. Age Concern Elder Abuse and Neglect Prevention Services: An analysis of referrals for the period: 1 July 2002 to 30 June 2004. Wellington: Age Concern New Zealand Incorporated, 2005.
- <sup>164</sup> Braaf R, Gilbert R. Domestic violence incidents peaks: seasonal factors, calendar events and sporting events. Stakeholder paper 2, Australian Domestic & Family Violence Clearinghouse, 2007.
- VicHealth. Fact Sheet: Drinking cultures and social occasions-sporting events. 2012. <http://www.vichealth.vic.gov.au/Publications/Alcohol-Misuse/Sporting-events-Drinking-cultures-and-social-occasions.aspx> (accessed November 1, 2012).
- White GF, Katz J, Scarborough KE. The impact of professional football games upon violent assaults on women. *Violence and Victims* 1992;7:151-157.
- Sachs CJ, Chu LD. The association between professional football games and domestic violence in Los Angeles County. *Journal of Interpersonal Violence* 2000; 15(11):1192-1201.
- Chan SB, Quinn EJ. Outcomes In EMS-transported attendees from events at a large indoor arena. *Prehospital Emergency Care* 2003;7(3):332-335.
- Deakin CD, Thompson F, Gibson C, Green M. Effects of international football matches on ambulance call profiles and volumes during the 2006 World Cup. *Emergency Medicine Journal* 2007;24(6):405-407.
- Madensen TD, Eck JE. Spectator violence in stadiums. U.S. Department of Justice. Office of Community Oriented Policing Services, 2008.
- Rees DI, Schnepel KT. College Football Games and Crime. *Journal of Sports Economics* 2009;10(1):68-87.
- NZ Herald. "Post-rugby violence 'sad reality' - police." NZ Herald. 26 August 2012. [http://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=10829563](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10829563) (accessed August 27, 2012).
- NZ Herald. "Christmas domestic violence warning." NZ Herald. 14 December 2005. [http://www.nzherald.co.nz/domestic-violence/news/article.cfm?c\\_id=178&objectid=10359947](http://www.nzherald.co.nz/domestic-violence/news/article.cfm?c_id=178&objectid=10359947) (accessed December 15, 2011).
- NZ Herald. "Concern at rise in family violence." NZ Herald. 26 September 2011. [http://www.nzherald.co.nz/domestic-violence/news/article.cfm?c\\_id=178&objectid=10754403](http://www.nzherald.co.nz/domestic-violence/news/article.cfm?c_id=178&objectid=10754403) (accessed December 15, 2011).
- <sup>165</sup> North West Alcohol Forum Ltd. Alcohol-related brain injury (ARBI) in the HSE West (Donegal, Sligo, Leitrim) and Western Health and Social Care Trust Areas. Co Donegal: North West Alcohol Forum Ltd. 2011
- <sup>166</sup> Alcohol Alert. Alcohol's damaging effects on the brain. October 2004. <http://pubs.niaaa.nih.gov/publications/aa63/aa63.htm> (accessed November 14, 2011).
- <sup>167</sup> Sellman D, Connor J. In-utero brain damage from alcohol- a preventable tragedy. *The New Zealand Medical Journal* 2009;122(1306):6-8.
- <sup>168</sup> Morris SL, Wagner EF. Adolescent substance use: developmental considerations. Florida Certification Board/Southern Coast ATTC Monograph Series #1. 2007. [http://www.attcnetwork.org/regcenters/productDocs/14/Adolescent\\_Monograph\\_1.pdf](http://www.attcnetwork.org/regcenters/productDocs/14/Adolescent_Monograph_1.pdf) (accessed August 14 2011).
- Hickie IB, Whitwell BG. Alcohol and the teenage brain: safest to keep them apart, BMRI Monograph 2009-2, Sydney: Brain & Mind Research Institute, 2009.

- <sup>169</sup> Hingson RW, Heeren T, Winter MR. Age at drinking onset and alcohol dependence: age at onset, duration, and severity. *Archives of Pediatrics & Adolescent Medicine* 2006;160(7):739-746.
- <sup>170</sup> White AM. What happened? Alcohol, memory blackouts, and the brain. *Alcohol Research & Health* 2003;27(2):186–196.
- <sup>171</sup> MacRae R, Cos S. Meeting the Needs of People with Alcohol Related Brain Damage: A Literature Review on the Existing and Recommended Service Provision and Models of Care. Scotland: University of Stirling, 2003.
- <sup>172</sup> Better Health. Alcohol related brain impairment: Fact Sheet. March 2012. [http://www.betterhealth.vic.gov.au/bhcv2/bhcv2/pdf.nsf/ByPDF/Alcohol related brain damage/\\$File/Alcohol related brain damage.pdf](http://www.betterhealth.vic.gov.au/bhcv2/bhcv2/pdf.nsf/ByPDF/Alcohol%20related%20brain%20damage/$File/Alcohol%20related%20brain%20damage.pdf) (accessed May 2012).
- <sup>173</sup> NZ Herald. "Brain damage from alcohol threatens one Kiwi in five." NZ Herald. 05 November 2007. [http://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=10474031](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10474031) (accessed December 15, 2011).
- <sup>174</sup> Harper C. The Incidence of Wernicke's encephalopathy in Australia: a neurological study of 131 cases. *Journal of Neurology, Neurosurgery and Psychiatry* 1983;46:593-598.
- <sup>175</sup> Hommer DW. Male and Female Sensitivity to Alcohol-Induced Brain Damage. National Institute on Alcohol Abuse and Alcoholism. July 2004. <http://pubs.niaaa.nih.gov/publications/arh27-2/181-185.htm> (accessed July 23, 2012).
- <sup>176</sup> Levy DT, Mallonee S, Miller TR, et al. Alcohol involvement in burn, submersion, spinal cord, and brain injuries. *Medical Science Monitor* 2004;10(1):CR17-24.
- <sup>177</sup> Goodisson D, MacFarlane M, Snape L, Darwish B. Head injury and associated maxillofacial injuries. *The New Zealand Medical Journal* 2004;117(1201):U1045. <http://journal.nzma.org.nz/journal/117-1201/1045/content.pdf> (accessed June 20, 2011).
- <sup>178</sup> Barker-Collo SL, Wilde NJ, Feigin VL. Trends in head injury incidence in New Zealand: a hospital-based study from 1997/1998 to 2003/2004. *Neuroepidemiology* 2009;32(1):32-39.
- <sup>179</sup> Derrett S, Beaver C, Sullivan MJ, et al. Traumatic and non-traumatic spinal cord impairment in New Zealand: incidence and characteristics of people admitted to spinal units. *Injury Prevention*. March 7, 2012. <http://injuryprevention.bmj.com/content/early/2012/04/28/injuryprev-2011-040266.full.pdf+html> (accessed April 11, 2012).
- <sup>180</sup> Humphrey G, Casswell S, Han DY. Alcohol and injury among attendees at a New Zealand emergency department. *The New Zealand Medical Journal* 2003; 116(1168):U298.
- <sup>181</sup> Public Health Advice. Alcohol related injury presentations. *Public Health Report* 2009;6(1):1-2.
- Macmaster M. How pissed are the patients. ALAC Working Together Conference. Auckland, 2010.
- <sup>182</sup> Lee KH, Snape L. Role of alcohol in maxillofacial fractures. *The New Zealand Medical Journal* 2008;121(1271):15-23.
- <sup>183</sup> Borges G, Cherpitel CJ, Medina-Mora ME, Mondragon L. Violence related injuries in the emergency room: Alcohol, depression, and conduct problems. *Substance Use & Misuse* 2004;39(6):911-930.
- <sup>184</sup> Barker R, McKenzie K, Scott D, et al. Cocktails in the ED: an analysis of presentations due to substance and alcohol co-use in youth aged 12-24 years. *Injury Bulletin No 112*, Queensland Injury Surveillance Unit, 2011.
- Chai YK, Frei L, Jiang H, et al. Patterns of ED use among young patients in Dunedin: long-term trends and impacts of student drinking events. Otago Medical School; Department of Preventive and Social Medicine, 2011.
- <sup>185</sup> Gunasekara F, Butler S, Cech T, et al. How do intoxicated patients impact staff in the emergency department? An exploratory study. *The New Zealand Medical Journal* 2011;124(1336). <http://www.nzma.org.nz/journal/124-1336/4710> (accessed July 16 2011).
- <sup>186</sup> Huhtanen R, Tigerstedt C. Women and young adults suffer most from other people's drinking. *Drug and Alcohol Review*: Epub ahead of print, 2012: DOI: 10.1111/j.1465-3362.2012.00480.x.
- <sup>187</sup> Mongan D, Hope A, Nelson M. Social consequences of harmful use of alcohol in Ireland. HRB Overview Series 9, Dublin: Health Research Board, 2009.
- <sup>188</sup> World Health Organization and World Economic Forum. From burden to "Best Buys": Reducing the economic impact of Non-Communicable Diseases in low- and middle-income countries." World Health Organization. 2011. [http://www.who.int/nmh/publications/best\\_buys\\_summary.pdf](http://www.who.int/nmh/publications/best_buys_summary.pdf) (accessed February 27, 2012).
- <sup>189</sup> Peck R. 2010 Health and Lifestyles Survey: Alcohol Related Attitudes. Wellington: Health Sponsorship Council, 2011.
- Ministry of Transport. Public attitudes to road safety. Results of the 2011 survey. Wellington: Ministry of Transport, 2012.