About Suicide Prevention Australia
Suicide Prevention Australia Inc (SPA) is the national peak body for the suicide prevention sector. SPA is a not for profit organisation representing a broad-based membership of organisations and individuals with a commitment to suicide prevention. SPA works to prevent suicide by supporting its members to build a stronger suicide prevention sector; developing collaborative partnerships to raise awareness and undertake public education; and advocating for a better policy and funding environment.

SPA Position Statements
SPA regularly publishes position statements on priority areas of suicide and self-harm prevention, intervention and postvention in Australia. These foundation documents provide a basis for understanding, discussion, teaching, delivery and research, and reflect the diversity of voices within the sector.

Position statements are not intended to be specific to or limited to policy makers alone, but are instead written with a general cross section of the educated lay public in mind (i.e. broader community, media, and other non government organisations). SPA Position Statements therefore represent a starting point for policy and strategy development, while supporting SPA’s ongoing advocacy work and activities.

These statements are developed in close consultation with community and specialist reference groups and are ratified by the SPA Board. They are reviewed biannually with the intention of being reaffirmed, revised or retired. They generally do not refer to issues previously covered by other SPA Position Statements or by those currently in the process of being drafted.

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SPA Position Statements can be downloaded from the SPA website: 
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Alcohol, Drugs and Suicide Prevention Guiding Principles

- Alcohol and other drug (AOD) abuse confers a high risk of suicide.
- AOD abuse refers to the harmful use of substances including illegal drugs, alcohol or the use of chemicals or prescription drugs for consumption other than as directed.
- AOD abuse is a significant public health problem that requires sustained prevention, intervention and treatment programs to reduce the burden it places on the health and welfare of society.
- Patterns of AOD abuse reflect social and individual causes that can be targeted and reduced.
- Suicide is a preventable outcome of AOD abuse that would benefit from increased policy attention and resources.
- Both suicide and AOD abuse share some common risk factors that can be targeted at a social level, often by instilling protective factors during early childhood and adolescence.

Background

AOD abuse is a major public health problem worldwide. It is a significant contributor to the global burden of disease including physical and mental illness and is recognised as a mental illness in its own right. AOD abuse creates additional personal and social problems such as socio-economic disadvantage, family breakdown, criminality and social exclusion. These features of AOD abuse make it a significant risk factor for suicidality.

The epidemiology of AOD abuse points to risk factors involving the individual and their environment over their lifespan including prenatal exposure, genetic predisposition to addiction and impulsivity, childhood adversity and family discord leading to restricted self control and poor decision-making skills (Dervaux et al. 2001). The pathways to risk of AOD abuse are complex, but furthermore the effects and outcomes of AOD abuse vary between individuals and social groups.

The recognition of AOD abuse as a mental illness is contested by some medical professionals and remains poorly understood by the public and policy makers. Thus AOD abuse remains stigmatised, discriminated against compared to other mental illnesses and often involves criminal activity, to the detriment of the treatment options, recovery and equality of opportunities of those who are AOD dependent (Carter & Hall in press).

There is a well established relationship between AOD abuse and suicide, yet the causal mechanisms remain unclear (Cherpitel et al. 2004). Overall, AOD abuse is found in 25 to 55% of suicides, far outweighing the prevalence of such use in society (Murphy 2000). See prevalence levels below.

Although complex, the links between AOD use and suicidality are loosely explained in three key ways.

- A direct causal effect, which proposes that AOD abuse leads directly to suicidality or vis versa where suicidality directly causes AOD abuse.
- An indirect causal hypothesis which proposes that intermediary factors (for example homelessness or a relationship breakdown) may cause a person who is involved in AOD abuse to become suicidal and inversely a suicidal person who becomes homeless may turn to AOD abuse.
- A common factors hypothesis which proposes that common risk factors such as mental illness or adverse childhood experiences predispose an individual to both AOD abuse and suicidality concurrently.

Risk factors of AOD abuse and suicide can present throughout a person’s lifespan, necessitating multiple prongs of potential intervention and protective influences. The following diagram was adapted to reflect the pathways to risk of substance abuse and the corresponding opportunities to intervene with protective factors: the diagram further demonstrates the multiple pathways to risk of social exclusion and its relationship to suicidal behavior.
Diagnostic and Statistical Manual IV Definition of Substance Abuse and Dependence Substance Abuse/Harmful Use

A) A maladaptive pattern of substance use, leading to clinically significant impairment or distress as manifested by at least one of the following occurring within a 12–month period:

- Recurrent substance use resulting in a failure to fulfil major role obligations at work, school, or home.
- Recurrent substance use in situations in which it is physically hazardous.
- Recurrent substance–related legal problems.
- Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance.

B) Never met criteria for substance dependence for this class of substance.

Substance Dependence

A) A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three or more of the following occurring at any time in the same 12–month period:

- tolerance
- withdrawal
- impaired control
- neglect of activities
- time spent in substance use related activity
- continued use despite problems.

B) No duration criterion separately specified, but several dependence criteria must occur repeatedly as specified by duration qualifiers associated with criteria (e.g., “persistent,” “continued”).

American Psychiatric Association, 2000, Diagnostic and Statistical Manual of Mental Disorders DSM-IV-TR Fourth Edition

*MHS refers to Mental Health Services
Pathways to Risk Diagram, Webster 2011, adapted from Silburn 2003.
Prevalence of Alcohol and Other Drug Problems in Australia

The 2007 National Drug Strategy Household Survey conducted by the Australian Institute of Health and Welfare (AIHW) found that almost one in ten (8.6%) Australians aged 14 years and older consumed alcohol at levels considered risky or high risk for short and long term harm (AIHW 2008). The survey further found that over two million Australians used an illegal drug in the previous 12-month period, with marijuana being the most common drug taken. In addition, over three million people over the age of 14 reported using an illegal drug other than marijuana during their lifetime.

Of those who had used illegal drugs in the previous 12 months, unemployed people (23.3%) were the most common labour force group represented. Indigenous Australians and those living in rural and remote areas were also disproportionately represented. People with the highest socioeconomic status (14.3%) were the most likely socioeconomic group to have recently consumed illegal drugs. However, these figures are misleading as while drug use is prevalent in individuals in high socioeconomic groups, the detrimental social and personal effects of AOD abuse including suicidality are over-represented in low socioeconomic groups. This gives impetus for prevention efforts to be focused on the social determinants of AOD abuse and suicidality, pre-empting the development of individual addictions or pathologies.

The most recent Illicit Drug Reporting System (IDRS) survey questioned injecting drug users across the country, reporting that 49% recognised that they had a mental health problem, most commonly depression (65%). Of those who reported that they had a mental health problem 77% attended a mental health professional for treatment (IDRS 2010). Of injecting drug users 10% also drink alcohol and are also more likely to have higher levels of polydrug use, especially depressants; indicating multiple levels of risk for suicide (Scott et al. 2009).

Alcohol Abuse

According to the Australian Bureau of Statistics alcohol abuse is the one of the most common disorders in Australia with 13% of the adult population drinking alcohol at high, risky levels in any 12-month period (ABS 2006). A medically diagnosed alcohol dependence disorder affects 2.9% of the population (ABS 2008).

Alcohol abuse has been established as a major contributor to suicidality for many years (Murphy 2000). Studies show that alcohol disorders are the second most commonly diagnosed disorder among those who die by suicide; second only to depressive disorders (Bernal et al. 2007). This is due to both the high prevalence of alcohol disorders and the proportion of people with alcohol disorders who experience suicidality.

Studies on the prevalence of suicide attempts among those with alcohol dependence have found rates between 11.62% and 51%, with the highest estimations reflecting those people with more extreme dependence (Bernal et al. 2007; Pompili et al. 2010; Yaldizli et al. 2010). Such studies indicate a six-fold risk of suicidality among those with alcohol dependence compared to their peers.

According to the National Drug Research Institute (NDRI) suicide is the third leading cause of alcohol related death for males in Australia, and suicide attempts are the fifth most common cause of alcohol-related hospitalisations for females (NDRI 2009). At least one-quarter of all suicides in Australia record alcohol dependence as a causal factor (Begg et al. 2007). One psychological autopsy study found evidence of an alcohol disorder in 68% of male suicides and 29% of female suicides (Kolves et al. 2006).

The link between alcohol and suicide is well established; in order to prevent alcohol-related suicide, it is important to consider the factors that exacerbate suicide risk among people who abuse alcohol.

The precise role of alcohol as a precursor to suicidality still contains some ambiguity. Alcohol in itself does not cause suicidality (Pompili et al. 2010). This is evident because the majority of alcohol drinkers will never become suicidal. Yet alcohol abuse and particular patterns of alcohol consumption and behavior may have direct and indirect causal links with an increased risk of suicide.
It is hypothesised that alcohol increases vulnerability to suicide in three ways.

- As a proximal risk factor, because of the neurobiological and neurosensory effects of alcohol consumption, individuals become dis-inhibited, impulsive, unable to solve problems, judgment-impaired, depressed and antisocial. Thus alcohol can act as a tipping point for pre-existing suicide risk factors (Hufford 2001).
- As a distal risk factor, long-term alcohol abuse can lead to severe social risk factors such as financial difficulties, family breakdown, criminal justice issues, social isolation and physical health problems. These contribute to a risk of suicide which may escalate over time.
- Common factors such as mental illness, social marginalisation, low socioeconomic status and other life difficulties may predispose individuals to both suicidality and alcohol abuse concurrently.

**Alcohol Consumption Preceding a Suicide Attempt**

Alcohol consumption has been found to be associated with suicide attempts that are both planned and impulsive (Conner et al. 2006). In an impulsive situation alcohol may precipitate an attempt; during planned attempts it may be used to facilitate it. Case-crossover studies have found that there is an association between drinking alcohol and subsequent suicide and that this is most pronounced during the first hour after drinking (Borges et al. 2004). The dis-inhibiting features of alcohol may compel individuals to progress from suicide ideation to a suicide attempt. In addition impaired judgment and problem-solving abilities and alcohol-associated depression may make suicide seem like a valid solution to their problems for intoxicated individuals who are experiencing underlying suicide risk factors. Autopsy studies have produced varying results due to methodological and geographical differences. A review of research by Cherpetel et al. (2004) found on average 37% of suicides involved acute alcohol use, although the range was 10% to 69%.

The review found a range of 10% to 73% of suicide attempts involved acute alcohol use, with an average of 40%. It has also been hypothesised that small amounts of alcohol may serve to decrease anxiety and distress and perhaps reduce suicide attempts. Fidalgo et al. (2009) found some evidence for self-medication with alcohol to have this effect however further research is needed as the risks of alcohol consumption outweigh the possible benefits.

**Factors which Increase Suicide Risk among those with Alcohol Disorders**

Mental illness is a substantial risk factor for suicidality thus the co-morbidity of an alcohol disorder with another mental disorder confers significant risk. Alcohol abuse regularly occurs alongside other mental disorders. Of the people who report that they drink every day, more than one in five (21%) have a 12-month mental disorder (ABS 2008). Depression is frequently diagnosed among people who abuse alcohol (Murphy 2000), with studies showing that those who are depressed are more likely to consume alcohol (Lamis et al. 2010) and those who consume alcohol are more likely to be depressed (Fidalgo et al. 2009). Such co-morbid conditions increase the likelihood of relapse for alcohol abuse and higher numbers of disorders are associated with greater impairment and a higher risk of suicidality (ABS 2008).

The relationships between depression, alcohol and suicide are not clear, yet they all share some common intervening variables (Frances et al. 1987). Yaldizli et al. (2010) found that among those who abused alcohol and were depressed, hopelessness, delusions and hallucinations were the most common predictors of a suicide attempt. Furthermore Conner et al. (2003a) reported that people who abused alcohol and who died by suicide were more likely to have major depression or bipolar disorder, be male, older and have interpersonal relationship problems than people who abused alcohol but did not attempt suicide. In addition, personal loss or threat of loss (Murphy 2000), anti-social personality disorder (Conner et al. 2003b), prior history of suicide attempts and aggression (Buri et al. 2009), low education, unstable work environments, family history of suicide (Giupponi et al. 2010) and impulsivity (Hufford 2001) have all been linked to suicide among individuals with an alcohol disorder.

A previous suicide attempt is a major risk factor for subsequent suicidality; a risk that is elevated in people with an alcohol disorder due to their particularly high rate of repetition of attempts. Hawton et al. (1997) found that 53% of those with an alcohol disorder who attempted suicide had a history of previous attempts, compared to 29% of those who attempted suicide but did not have an alcohol disorder. Furthermore, the risk of subsequent attempts within 12 months was 17% and 11% respectively. Previous attempts and risk of subsequent attempts were even higher for people who abused other substances.
The link between alcohol abuse and suicide is significant for both women and men. Alcohol disorders are more common in men, however females with alcohol disorders are considered to be more severely affected by their disorder and attempt suicide more often than males in the same situation (Murphy 2000). Studies have found that suicide risk remains even in those with remitted alcohol disorders, implying the necessity to consider recent and remote histories of alcohol abuse in those being treated for depression (Conner et al. 2000).

**Impact of Alcohol Abuse on Others**

The impact of alcohol abuse has consequences that extend beyond the individual and can affect partners, families, co-workers and the community. A recent study commissioned by the Alcohol Education and Rehabilitation (AER) Foundation found that almost one third of Australian adults were negatively affected by the drinking of a close acquaintance over a 12-month period; the majority of whom were reported to be family members (Laslett et al. 2010). Statistics show that nearly 25,000 domestic violence assaults reported to police involve alcohol and that 33% of all substantiated cases of child maltreatment record alcohol as a factor; although survey data indicates that the true incidences may be much higher (Laslett et al. 2010). Considering child abuse and domestic violence contribute to substantial risk of suicide, the impact of alcohol on suicide is likely to be underestimated in previous studies that have focused on individuals with alcohol disorders.

Studies have also shown that children of adults who abuse alcohol or other drugs are at increased risk of physical, academic, social and emotional problems (Conners et al. 2004). The long-term effects of alcohol abuse such as financial difficulties, relationship problems, domestic violence and physical ill health are also likely to impact on the family members of those with an alcohol disorder.

**Drinking Culture and Population Level Effects on Suicide Rates**

A common method of measuring the relationship between alcohol and suicide has been to examine population level data. This allows an analysis of the society-wide effects of alcohol on suicide. Time-series analyses of Canadian data revealed that, historically, the suicide rate decreased by as much as 5% as alcohol consumption decreased by one litre per capita (Ramstedt 2005). The inverse is also true. This is more pronounced for women and is mirrored by analysis undertaken of USA alcohol consumption and suicide rates which found a 6% variation in female suicide rates corresponding to an increase/decrease per litre of alcohol per capita, which amplified to 16% when measuring spirits consumption alone (Landberg 2009). The authors of these studies hypothesised that gender variations may be attributable to the burden of social stigma attached to female drinking and also to social and psychological harm caused by male partners heavily drinking. Conner et al. (2003b) found heavy drinking, regardless of frequency, was associated with suicide ideation in men, while even light but frequent drinking was associated with suicidality in women. Conner et al. (2003b) conclude that this may be attributable to the social stigma also identified by the previous authors. In addition they hypothesised that women who are depressed may tend to be light, regular drinkers, whereas men who are depressed may concentrate their drinking in less frequent but more intense episodes.

In Europe and Russia, the association between population level alcohol consumption and suicide has been more apparent for males than females. Comparisons of country data allows for analysis of the cultural implications of alcohol consumption for suicidality. For example, studies comparing the alcohol and suicide relationship across Europe have found that in those countries that are considered to have a binge-drinking culture, the relationship between alcohol and suicide is much stronger than in other countries where people may consume the same quantity of alcohol but more consistently across the week (Norstrom 2005; Landberg 2008; Rossow et al. 2007*). A binge-drinking culture is generally associated with proportionally higher levels of spirit consumption. This has been further explored by a study of Russian drinking habits which showed that an increase in one litre of vodka per capita resulted in a 9.3% increase in male suicides (Radvodovsky 2009). An Estonian study found alcohol-related suicide fell for both sexes during a period of rigorous alcohol restrictions (Varnik et al. 2007).

To further examine the effect of drinking behavior on suicide rates, Pfaff et al. (2007) examined alcohol-related suicide in elderly Australians concluding, that similar to younger people, drinking behavior is more indicative of risk than volume of alcohol consumption in older people. The authors found that binge drinking was much less common in the elderly, but the impact of this behavior on suicide was significant as binge drinking in older people was indicative of greater psychopathology than was present in younger binge drinkers.

*included Australia in their analysis.
Drug Abuse
Experimental with substances is relatively common among adolescents with trends showing that most young people who use illegal drugs decrease their intake as they reach adulthood. However, a percentage of people will continue, and possibly escalate, their drug abuse to increasingly harmful levels. The misuse of prescription drugs, inhalants and other stimulants are also features of substance abuse among adolescents and adults. This has huge negative implications for the health and wellbeing of the drug user and on the rest of society.

Suicide is a major cause of death among drug users (Stenbacka et al. 2010). Similar to alcohol abuse, the relationship between drug abuse and suicide is complex. The association has been well established, yet causal links remain unclear.

As with alcohol, there are three possible explanations for individuals who abuse drugs becoming suicidal.

- The biological and psychological effects of the abuse of substances can lead to short term suicide risk. The risk varies according to the chemicals components of the substance.
- Long-term substance abuse can lead to social issues such as financial stress, criminality, physical ill health or family breakdown, resulting in distress and social exclusion and thus suicide risk.
- Social disadvantage, childhood adversities, personal traumas and mental illness contribute to a risk for both substance abuse and suicide concurrently.

The second two explanations are thought to be the most salient. This is primarily as the same suicide risk factors apply to drug users as apply to the general population (for example mental illness, social exclusion, life traumas), yet drug users have a much higher exposure to these risk factors than the general population. Thus their risk is greatly elevated.

There is a growing body of evidence showing very high prevalence of co-morbid mental illness and substance abuse disorders (Bonomo 2004). Depending on the methodology employed, the type of drug studied and the location of the study, research suggests that the risk of suicide among drug users is between four and fourteen times that of the general population (Harris & Barraclough 1997).

Drug taking as a method of suicide accounts for approximately 12% of suicides in Australia (ABS 2010). This includes suicides by people with drug dependence and those who don’t regularly use drugs. The intent of death by drug overdose is hard to classify as accidental overdoses are a common consequence of drug abuse. Thus, the number of suicides by drug overdose may be underestimated in official statistics.

Factors which Increase Suicide Risk among those with Drug Abuse Disorders
As the relationship between drug abuse and suicide is not a simple causal relationship, it is necessary to examine the factors which generate suicide risk among drug-dependent individuals. Delving into the social determinants of drug use, Spooner (2005) postulates that it is the complex interplay of the individual and their environment across their lifespan that results in some people using drugs while others do not. This also extends to suicidality among drug users; most drug users will not attempt suicide, yet due to a series of factors and pathways to risk, some drug users attempt and die from suicide.

High rates of co-morbid drug abuse disorders and psychiatric disorders are found in young people entering AOD treatment (64.5%)(Swadi & Bobier 2002). Similarly, 60% of homeless young people have co-morbid drug and psychiatric disorders, with 26% of homeless youth experiencing multiple disorders (Slesnick & Prestopnik 2005). Roy (2003) examined the characteristics of drug users who attempted suicide. Using interview questions, Roy established that drug users who were young, female, had a history of depression, had a family history of suicide and who abused alcohol were significantly more likely than other drug users to attempt suicide. This supports the findings of earlier studies such as Adams and Overholser (1992) who, in addition, found elevated suicide risk among drugs users who had a family history of alcohol abuse.

Children of parents who abuse drugs are at higher risk of drug abuse themselves, and also have higher rates of mental illness and suicidality than drug users whose parents are not users (Westermeyer et al. 2006). The proportion of drug users who attempt suicide is higher among those who have experienced childhood adversities, in particular, emotional and sexual abuse (Lloyd et al. 2007).
Of patients attending AOD treatment who reported a recent suicide attempt, 52% associated that attempt directly with an adverse childhood experience (Rossow & Lauritzen 2001). The link between childhood factors and subsequent suicide attempts among drug users may be reflective of the pathways to risk that they experience to both substance abuse and suicide concurrently.

The younger a person is at the time of onset of hard drug abuse, the greater the suicide risk (Cho et al. 2007). Abstaining from drug use reduces risk (Wilke 2004). Wilke (2004) found that high self esteem is as significant as abstinence for preventing suicide in recovering drug users. Individuals engaging in intravenous polydrug use are at higher risk of suicide than those using one drug or those with an alcohol disorder (Wilcox et al. 2004).

Ilgen et al. (2007a) reported that the longer a person used hard drugs, such as cocaine, the more likely they were to report a suicide attempt after attending treatment. The individual and environmental conditions that dispose an individual to long-term drug abuse and the social and physical effects of sustained drug use have long-term consequences for individual wellbeing and suicide risk.

Homelessness is strongly associated with substance abuse and mental illness; both are high risk factors for suicide. A study by Prigerson et al. (2003) found that substance abuse contributed to an even more significant risk of suicide among older mentally-ill homeless men, with less significant associations found in younger men. In addition, homeless people reported exceptionally high rates of trauma; an independent risk factor for both substance abuse and suicidality (Hodder et al. 1998).

The criminal justice system, which deals with disproportionate numbers of people with substance dependence disorders is often ill-equipped to respond to the needs of such prisoners. Forced abstinence and drug substitution practices carry psychological and physical risks for prisoners and treatment services are often over burdened (Carter & Hall in press). The suicide risk of prisoners with substance dependence disorders is elevated and requires targeted strategies including substance abuse and mental health services, staff training and prisoner rehabilitation programs.

Drug use is common among the GLBTI community, with twice as many same sex attracted youth using intravenous drugs as their heterosexual peers (Hillier et al. 2010). The impact of GLBTI drug abuse and dependence and subsequent mental illness or suicidality has not been widely studied.

Types of Drugs

While many of the risk factors associated with substance abuse and suicide are pertinent no matter what the pattern or class of drug used, the use of certain drugs can result in a higher or varying degree of suicide risk. This relates to the chemical components, physical and psychological effects of the drug and its addictiveness.

Cannabis

Cannabis, the most common illicit drug used in Australia is often perceived as a ‘safe’ drug. However, cannabis users are estimated to have 10 times higher risk of suicide than non users (Beautrais et al. 1999). The authors of this study surmise that the association between cannabis use and suicide arises due to the prevalence of co-morbid mental disorders in cannabis users as well as the tendency for cannabis-dependent individuals to come from socially-disadvantaged backgrounds; independent risk factors for suicidality. A review of the literature by Calabria et al. (2010) found weak evidence of a direct link between cannabis use and suicidality.

Other studies have found that cannabis use increases the risk of mental illness in young users, exacerbates the symptoms of mental illness and contributes to other risk factors for suicidality such as poor school or work performance, unemployment, financial problems and other drug use (Mental Health Council of Australia 2006). Independent of the psychosocial risk factors prevalent among young users, cannabis use by adolescents is linked to major depressive disorders in later life (Marmorstein & Iacono 2011). Recent research into psychosis, a recognised risk factor for suicide, has further shown that cannabis users who develop psychosis do so over two years earlier than non-cannabis users, indicating a causal relationship with cannabis in some psychosis patients (Large et al. 2011).
**Cocaine**
Cocaine dependence is correlated with elevated suicide risk for those who abuse cocaine only, and especially for those who use it alongside alcohol or opiates. In addition, there is increased risk for those who use it for a prolonged period (Ilgen et al. 2007a), female users and those with family histories of suicidal behavior or childhood trauma (Roy 2001). Like other substances, cocaine dependence and co-morbid psychiatric illness increases suicide risk.

**Heroin**
Heroin users are 14 times more likely to die by suicide than their non-drug using peers (Darke & Ross 2002). Lifetime suicide attempts among heroin users are reported to be between 35% (Vingoe et al. 1999) and 40% (Darke & Ross 2001). Using a case-controlled study, Maloney et al. (2007) conclude that the causes of suicidality among opioid-dependent individuals are the same as the general population, however they experience risk factors more frequently and thus have much higher rates of suicide.

Depression as a risk factor for suicide has particular salience for heroin users, who suffer from depression at much higher rates than the general population. Ross et al. (2005) undertook a study of heroin users entering treatment across Australia 37% of whom had previously attempted suicide. They reported high degrees of psychiatric co-morbidity with 49% reporting severe psychological distress, 28% having current major depression and 42% having a lifetime history of post-traumatic stress disorder. Personality disorders were also prevalent with 72% meeting criteria for antisocial personality disorder and 47% screening positive for borderline personality disorder.

In comparison to the general population heroin users are more likely to be unemployed, experience social dysfunction, have mental illness and have contact with the justice system (Darke & Ross 2002). As with the general population, low educational attainment and family conflict are predictors of suicidality among heroin users (Philips et al. 2004). In addition, Bennet & Higgins (1999) observed the prevalence of polydrug use among heroin users was linked to increased suicide risk.

While heroin users are most commonly men, research shows that female heroin users are more likely to attempt suicide, first attempt at an earlier age and prior to their heroin use and attempt more often than their male counterparts (Philips et al. 2004; Darke & Ross 2001). This indicates that the pathway to risk of heroin abuse among females may be more closely aligned with suicide risk factors than male pathways to heroin abuse.

Despite the high rates of suicide and suicide attempts in heroin users, heroin is not often reported to be a method of suicide (Darke & Hall 2003). Heroin users are more likely to report using another drug as a means of intentional overdose (Vingoe et al. 1999). Heroin overdoses are common among users but are most likely to be self-reported as accidental (Darke & Ross 2001; Heale et al. 2003). However, the number of unintentional heroin overdoses is correlated with increased risk of suicide by another means (Bradvik et al. 2007). It is hypothesised that the rarity of heroin as a means of intentional overdose reflects the use of heroin as a means of stabilising emotional distress and thus the perception among users that it is life saving and not associated with suicidality.

**Methamphetamines**
Suicide is a major cause of death for methamphetamine users. The link between methamphetamine use and psychosis is well established, yet its association with suicidal behaviours has been less documented (Darke et al. 2008). Approximately one quarter of methamphetamine users report a lifetime suicide attempt, and depression, anxiety and suicidality are more frequently reported the longer a person has been using methamphetamines and among those who use it intravenously (Darke et al. 2008). Among methamphetamine users, female gender and a history of mental illness are correlated with suicide attempts (Glasner-Edwards et al. 2008). In a record linkages study, Kuo et al. (2010) reported that suicide deaths amounted to nearly one third of all deaths among methamphetamine-dependent patients. The effects of methamphetamine use can be long lasting, with psychosis often occurring during withdrawal and depression being reported many months following last usage (Zweben et al. 2004).
Inhalants
The inhalation of noxious solvents such as paint, petrol and household substances is associated with psychological problems such as depression, anxiety, psychosis and suicide (Cairney & Dingwall 2010). Survey data reveals that the severity of inhalant use corresponds with increased likelihood of suicide ideation and suicide attempts in users (Howards et al. 2010). In Central Australia and South Australia respectively, nearly 25% and 28% of deaths where inhalants were reported as a factor were recorded as suicide (Access Economics 2006; Wick et al. 2007). The prevalence of suicide ideation among inhalant-dependent individuals is 55% to 67% and remains high for people who use inhalants but aren’t classified as dependent (Howard et al. 2010). The association between inhalation and suicidality remains when controlling for other psychiatric symptoms and precipitating factors, indicating the possibility that it presents a unique risk factor (Freedenthal et al. 2007). Nearly 33% of inhalant-dependent women reported a lifetime suicide attempt; nearly twice that of men in the same cohort and significantly higher than inhalant non-users (Howard et al. 2010).

Indigenous Alcohol, Drug Abuse and Suicidality
Indigenous Australians experience a higher burden of disease attributable to mental disorders than the rest of the population, with alcohol and illicit drug use being the largest contributors to this burden (Vos et al. 2003). This is partly responsible for the higher suicide rate among Indigenous Australians. Nearly 46% of Indigenous men over the age of 15 report binge drinking at least once during a two week period (AIHW 2011). Indigenous communities experience alcohol dependence and harmful use at 4.5 times the total population rate, with 1.2% of all deaths attributable to alcohol related suicide (Vos et al. 2003). The detrimental effects of petrol inhalation are also an issue largely confined to remote Indigenous communities (Cairney & Dingwall 2010). Illicit drug use is responsible for 3.4% of the total burden of disease in Indigenous communities with drug-related suicide contributing to 0.4% of the total deaths in these communities (Vos et al. 2003). The causes of excessive substance abuse in Indigenous communities include economic marginalisation, discrimination, cultural dispossession and cultural assimilation difficulties, family conflict and/or violence and family history of alcohol misuse (AIHW 2011).

The Prevention of AOD Disorders and Suicide
Over the past 50 years, as the evidence showing the detrimental effects of substance abuse on individual and social wellbeing has emerged, substantial public investment and policy attention has been directed towards preventing and ameliorating the impacts of such abuse on society. For example, the National Preventative Health Strategy aims to deter alcohol consumption by curbing advertising and increasing taxes, restricting supply through education and law enforcement methods and attempting to improve access to treatment (Commonwealth of Australia 2009). Similarly, the National Drug Strategy is focused on drug demand, supply and harm reduction measures (Commonwealth of Australia 2011). The results of such traditional individually focused prevention methods have been questionable with AOD abuse trends fluctuating and emerging in new forms.

Increasingly, policy makers are being encouraged to take a wider societal view of the causes of AOD abuse and thus the sites of prevention (Spooner 2005). Research on the social determinants of AOD abuse has merged ecological and developmental perspectives, which identify the periods and environmental conditions that predispose a person to AOD abuse throughout their lifetime (Spooner & Hetherington 2005). Periods of risk include the early years of development, life stage transitions and periods trapped in negative life pathways; all of which depend on social, economic and cultural environments at the structural level, and cognition, emotional wellbeing, resources and knowledge at the individual level.
Specific areas recommended for targeting to prevent AOD abuse include the following two areas. Firstly, programs to protect early stages of youth development, especially for those under five years of age but including all ages up to adulthood, can prevent the development of AOD abuse behaviours (Braveman et al. 2010; Vimpani 2005). Secondly, social inclusion measures, often underpinned by socioeconomic factors, can offer protection against suicide across the lifespan. These two factors are closely linked, as shown by the Australian Early Childhood Development Index (2011) which reports that children from the lowest socio-economic group are the most likely group to suffer from developmental vulnerabilities including social and emotional stressors, both of which are related to increased risk of AOD abuse later in life.

In Australia social inclusion measures have not traditionally been aligned with AOD abuse, however have focused on many of the causal and intermediary factors of AOD disorders such as unemployment, social disadvantage, poor child development, disabilities and issues prevalent in high risk groups such as Indigenous Australians. The Australian Social Inclusion Board (ASIB) has expressed particular concern about the welfare of people experiencing intergenerational disadvantage. To break this cycle the Board has recommended targeting young people at risk of long-term disadvantage and improving employment outcomes in low-income families (ASIB 2010).

Despite the recognised benefits of social inclusion measures, the impetus to enact them is often constrained by the lack of political will to invest in areas that have seemingly weak links to social problems (Braveman et al. 2010). In situations of limited resources, it is politically unfavourable to direct funding to upstream determinants of social problems while many individuals require support and services at the coalface of an issue. To counteract this, it is essential to raise awareness of the causes of AOD abuse and thus support for ecological models of public health.

Educating people on the risks of AOD abuse is a common public health model of prevention often used in school and general public advertising strategies. Australian school-based programs include Get REDI (Resilience Education and Drug Information), Mindmatters and Rethinking Drinking. International initiatives such as the Drug Abuse Resistance Education (DARE) program and Alcohol Misuse Prevention Study (AMPS) are also utilised in Australia. The value of these types of programs has been questioned due to the limited evidence of their effectiveness and some concerns about adverse consequences (National Centre for Education and Training on Addiction 2010). However evidence-based and appropriately implemented school-based programs, especially those that utilise a whole-school approach, hold some merit due to the practical opportunities for targeting young people in school settings (Loxley et al. 2005).

Social marketing campaigns such as the ‘Cannabis Can Leave You Permanently Out Of It’ campaign in New South Wales (NSW) have shown good recognition and message outtake results although the impacts on behavior are harder to establish. The Department of Health and Ageing’s (DoHA) ‘Don’t Turn a Night Out Into a Nightmare’ alcohol campaign survey found that 30% of the target audience reported that the campaign had made them decrease their drinking levels (DoHA 2009). Social marketing is effective in reinforcing community awareness of the problems of AOD abuse and can pave the way for further interventions such as increasing alcohol taxation and restricting alcohol advertising (Loxley et al. 2005).

**Treatment Services for AOD Disorders**

Australia has an established and comprehensive drug and alcohol treatment system that has many effective and innovative services (for example, the drug injectors services in Kings Cross, NSW). Yet despite this, there remains a limit to the capacity of services to treat the volume of people in need of services and also the variable needs of individuals. The perception that addiction is insurmountable and the stigma associated with AOD disorders also dissuade people from seeking help for their addictions.

The potential for alternative interventions and improved training of primary health care professionals to address the gap in need has been recommended by Loxley and colleagues (2005). Such interventions have been largely sidelined due to Government resourcing issues (Commonwealth of Australia 2009).

Alternative sites of treatment include self motivation models such as Alcoholics Anonymous, or community or workplace programs. Under the National Binge Drinking Strategy the Australian government has delivered $14.4million in community grants to initiatives which aim to curb risky drinking. These initiatives target various age and cultural groups, but are all community led and geographically based.
Selective and Indicated Approaches to AOD Disorders and Suicide Prevention

A common theme leveled at the prevention of suicide among those with alcohol and drug disorders is the lack of integration between the two professional fields of AOD abuse and suicidality. There is also limited resourcing for AOD or mental health services to undertake a significant role in the prevention of suicide in AOD patients. Patients requiring holistic care are at risk of being siloed into one course of treatment or the other, and often the professionals who treat them have a limited knowledge of their full range of needs. However, this is not a universal experience and many revered programs are in place to treat AOD disorders and suicide risk concurrently, often focusing on the underlying causes of both.

Treatment for Co-morbid Conditions

Screening for co-morbid pathologies and suicidality in AOD abuse treatment situations is recommended as screening saves lives and encourages patients to stay engaged in treatment programs (Swadi & Bobier 2003; SAMHSA 2009). As there is a high prevalence of co-morbid psychopathologies among those with AOD disorders, clinicians are challenged by the need to prioritise one treatment over another. Yet Swadi & Bobier (2003) propose that regardless of whether AOD abuse occurs as a ‘primary’ or ‘secondary’ pathology, its treatment should be recognised in its own right. Thus the causes and effects of AOD abuse should be researched and targeted to encourage abstinence; while underlying issues are also resolved. Baker et al. (2009) found that integrated treatment for depression and alcohol abuse produced superior short-term outcomes over treatments that focused on one issue alone.

If a suicide attempt or suicide plan is discovered during assessment of an AOD abuse patient, immediate action is required. Potentially effective treatments include the use of anti-depressant medication and psychotherapy interventions such as cognitive behavioural therapy and interpersonal therapy (Cornelius et al. 2006). Findings from the USA and the UK show that those who get consistent, long-term AOD treatment are less likely to subsequently suicide than those who receive short AOD treatment episodes and experience disjointed service access (Ilgen et al. 2007b; Appleby 2000).

Suicidal patients may be more responsive to AOD disorder treatment in inpatient settings than outpatient (Ilgen et al. 2005). However, should inpatient treatment for AOD abuse be required, special care should be taken as there may be a risk of hospitalisation, forced abstinence and the associated stressors triggering suicidality independently. Follow-up care following treatment episodes is very important. Studies of drug-related suicides in the UK have shown that, of those who suicide following treatment, their risk of suicide is commonly thought to be low or absent when they leave services, necessitating follow-up care regardless of risk anticipated (Appleby 2000). Family members should be informed and advised to be vigilant prior to the discharge of a patient from AOD abuse treatment if the patient has ever displayed any level of suicidal ideation (Cornelius et al. 2006).

Using data from the Drug Treatment Outcome Survey, Agosti and Levin (2006) found that the prognosis of recovery from AOD abuse was as good for those who had attempted suicide as it was for those who had not. Yet depression remained prevalent among those who had attempted suicide, even after abstinence, necessitating clinical vigilance to ensure suicidality and AOD abuse relapse did not occur (ibid). Ilen et al. (2004) reported that AOD abuse patients who attempted suicide were likely to receive slightly longer and more individualised treatment than their counterparts who had not attempted suicide, possibly contributing to the similar treatment outcomes in both groups.
Despite some promising advances, there is still little research undertaken into treating co-morbid AOD abuse and suicidality. In a review of the published literature on suicide among AOD abusing adolescents, Esposito-Smythers & Spirito (2004) found no studies measuring the impact of combined treatment programs. This is in part due to the common exclusion of suicidal people from participation in studies on AOD abuse but also reflects the lack of attention given to the co-occurrence of these two related but distinct issues (Cornelius et al. 2004).

**Recommendations**

People with AOD disorders are at a higher risk of suicidality than their peers. This is due to the complex interplay of biological, environmental and situational factors that cause and are caused by AOD abuse and the concurrent or subsequent increased risk of suicide.

**Suicide Prevention Australia makes the following recommendations:**

- Efforts to prevent the development of AOD disorders should be supported by further research and evaluations to investigate possible improvements to current strategies.
- Co-morbid mental illness and AOD abuse is a significant risk factor for suicide and a complex issue that requires improved and targeted best practice programs.
- While research and resources clearly need to be directed towards treatment facilities and programs for AOD-affected people who are at risk of suicide, further coordination and collaboration between AOD and suicide prevention sectors could generate improvements in care in a cost effective and efficient manner.
- Gatekeeper training for AOD workers and primary health care workers is recommended so that they can recognise and respond to suicide risk. AOD treatment and prevention training is also recommended for suicide prevention professionals.
- Continuity of care and active follow up are required following treatment to ensure that suicide risk does not remain and the risk of AOD abuse relapse is reduced.
- The difficult roles that professional play at the interface between AOD abuse and suicidality must be supported by training, professional care and adequate debriefing practices.
- Culturally and socially appropriate services should be made available especially for Indigenous Australians.
- A focus on treating people whose AOD abuse is already established misses the opportunity to intervene before either AOD abuse or suicidality becomes a problem. Social inclusion, early childhood programs and life-stage support show much promise for reducing the vulnerabilities experienced by the cohort of people who are at risk of AOD abuse and drug-induced or independent suicidality.
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