Introduction

The term ‘alcohol’ describes a series of organic chemical compounds, but only one type (ethyl alcohol or ethanol) is found in drinks intended for human consumption. Alcohol is produced by fermentation - the action of yeast on liquids containing sugars and starches. In its pure form alcohol is a clear, colourless liquid with a pungent odour and burning taste. Alcoholic drinks vary in colour and taste because of other ingredients that are added to them [1].

Alcohol is a psychoactive (mind-altering) drug [2][3], and is one of the most widely used drugs worldwide [4][5]. Classified as a depressant drug, alcohol slows down activity in the central nervous system, affecting concentration and coordination, and slowing down reflexes and the response time to unexpected situations [1][6].

Alcohol use in Australia

From the early colonisation of Australia to the late 19th century, spirits were the most widely consumed alcoholic beverage. The consumption of alcohol fluctuated in the 1900s, before and after the First and Second World Wars. More recently, advances in refrigeration and brewing have resulted in the development of large scale commercial brewing of beer, and a shift away from the consumption of spirits [7]. Over the past century Australia has been depicted as a predominately male, beer drinking culture [7][8]. While Australia remains a beer drinking country, wine consumption has increased more than threefold since the late 1940s [9][10], and there has been a general trend in the

More detailed information about alcohol in Indigenous people can be found at:

http://www.healthinfonet.ecu.edu.au/alcoholuse_review
brewing industry towards beverages which are perceived to be ‘lighter’ in terms of colour, calorific content, and alcohol content [10].

In 2003, Australia was ranked 22nd in the world in terms of per capita consumption of pure alcohol (7.2 litres per person) [7]. In the same year, the consumption of alcohol was a contributing factor in the deaths of 3,430 Australians [9]. Alcohol is second only to tobacco as the major cause of drug-related mortality and hospitalisation in Australia, with more than 31,000 deaths being attributed to risky or high-risk alcohol consumption between 1992 and 2001 [11][12]. In 2004-05, the social cost of alcohol to the Australian community was almost twice that of illicit drugs ($15.3 billion compared with $8.2 billion [4][13].

Findings from the 2010 National drug strategy household survey (NDSHS) showed that 20% of people consumed on average, more than two standard drinks of alcohol per day, putting them at increased risk of harm from alcohol-related injury and disease over their lifetime [14]. The NDSHS also found that 28% of people increased their risk of accident and injury by consuming more than four standard drinks of alcohol in one session, once a month. These statistics remained steady from 2007 to 2010 [14]. According to the NDSHS, the excessive consumption of alcohol in Australia is perceived to be more of a serious concern than other drugs for people in the community [14].

The last decade has seen an important shift in the public health perspective of drinking, moving from an exclusive focus on the amount consumed (low-risk, risky and high-risk drinking) to incorporating the patterns of consumption (risks of drinking on occasions and over the life-time) [11]. Community attitudes have also changed, as the Australian society is more likely to be aware of irresponsible patterns of drinking [10].

Effects of alcohol use

Alcohol is the most widely used drug in Australia. It is used for many reasons in different social and cultural contexts [2][9][11][15]. Most people consume alcohol at levels that do not place them at harm [4], and at relatively low levels, alcohol can have a health benefit for some individuals from middle age onwards [2][3][4][10]. However, drinking alcohol even at low or moderate levels can have harmful effects on health through illness or injury [11]. It is well known that the excessive consumption of alcohol in the short-term (binge drinking), or long-term (chronic drinking), has both short-term and long-term health effects resulting in greater costs to a person’s health and social wellbeing [6][10][11].

People who regularly drink unsafe levels of alcohol place themselves at an increased risk of chronic ill health and premature death [10]. Alcohol-related problems are a major cause for concern at local, national and international levels and have substantial social and economic implications for the individual, their families and workplaces, and society as a whole [6][10][11]; and can affect any member of society, including the majority who use alcohol in moderation or abstain [16].

Short-term health effects

There are several short-term physical effects associated with the consumption of one to three standard drinks per hour. These include [6][17]:

- a change in heart rate
- a reduction in body temperature
- dilation of the small blood vessels producing a warm flushing
- stimulation of appetite
- increased urination
- reduced muscle coordination.

Alcohol slows down the messages sent between the brain and the rest of the body. This can make a person feel relaxed and more confident, but may also reduce concentration and slow the reflexes [6][11]. The initial effects of alcohol may reduce tension or inhibitions. With more alcohol, the effects extend to motor and sensory centres in the brain, causing delayed reaction to stimuli. For example, a person who has been drinking will likely be slower applying the brakes if a car ahead stops suddenly [10].

With increasing alcohol concentrations in the body, movement and coordination rapidly become more difficult. Confusion, blurred vision and poor muscle control are among some of the immediate effects of alcohol consumption. Excessive alcohol consumption over a short
period of time often results in a hangover the next day. Commonly referred to as ‘binge drinking’, this form of excessive drinking involves drinking heavily over a short period of time, or drinking continuously over a number of days or weeks. Binge drinking is harmful because it results in immediate and severe intoxication [1]. The hangover usually occurs several hours after drinking has stopped and the alcohol has been removed from the body. Symptoms include headaches, dehydration, tremors, dizziness, nausea and vomiting [17].

Long-term health effects
Alcohol use over the longer term is a major cause of ill health, increasing the risk of a number of disorders. It is associated with hypertension (high blood pressure) which can affect heart function [1]. Impairment of the brain and liver functions can be permanent, and if the person’s diet is also poor, this can further affect their health [1]. The effects of alcohol use are often compounded and exacerbated by other risk factors such as smoking, dietary factors, or the use of other drugs [10].

For women, drinking alcohol during pregnancy increases the risk of reduced fetal growth which can lead to permanent growth and behavioural problems for babies and children [18].

Long-term health consequences associated with harmful alcohol include [6][11][17]:

- Alcohol dependence - once a person has become dependent on alcohol it is much more likely that drinking will continue in a manner that could harm both the drinker and others.
- Cancer - alcohol is a carcinogen and chronic heavy drinking has been shown to cause cancers of the mouth, throat and oesophagus, as well as liver, bowel and breast. Smoking in conjunction with heavy drinking hugely increases the risk.
- Cardiovascular disease - harmful alcohol use is associated with cardiomyopathy (reduced heart muscle strength), and is a causal factor in high blood pressure, haemorrhagic stroke and heart failure.
- Cirrhosis of the liver - the most common cause of illness and death associated with chronic harmful alcohol use.
- Cognitive problems and dementia - high levels of alcohol use affect the brain and continued levels of chronic drinking over time can lead to cell damage and cell death. This affects cognitive skills, memory, and reasoning skills.
- Mental health conditions - mental health conditions including depression, anxiety, bi-polar disorder and schizophrenia can be affected by drinking alcohol, which can lead to poorer health outcomes for people with mental health conditions.
- Pancreatitis - pancreatitis is inflammation of the pancreas, which can occur suddenly and severely (acute) or be ongoing (chronic). Alcohol consumption is the most common cause and people who drink excessive amounts of alcohol are most at risk of developing pancreatitis.

Social consequences associated with alcohol use
In addition to the health problems associated with harmful alcohol use, certain patterns of drinking may have social consequences. These range from minor acts of vandalism or offensive behaviour to far more serious antisocial behaviour, which can result in violence or injury to others [7][10][11]. Alcohol use has been shown to be a major contributor to injury through interpersonal violence, particularly assaults, domestic violence and child abuse [7], and is a factor in some cases of suicide [11]. It can also contribute to absenteeism and reduced productivity in the workplace [2][7][19]. Financial problems, legal problems, work problems, sexual problems, accidents and poor personal appearance, are amongst the wide array of social problems associated with harmful alcohol use [6].

Drinking guidelines
The National Health and Medical Research Council (NHMRC) first published the Australian alcohol guidelines to assist in reducing alcohol-caused deaths and related harm in 2001 (at the request of the National Drug Strategy Committee in 1996) [10]. These guidelines advised that male drinkers should drink no more than an average of 40g of alcohol (four standard drinks) per day, and females no more than an average of 20g of alcohol (two standard drinks) per day, to prevent chronic health problems. The recommendation was also made that, providing there are no other situational or individual risk factors (such as driving or pregnancy), men should drink no more than 60g of alcohol (six standard drinks) per day, and women no more than 40g of alcohol (four standard drinks) per day to prevent acute conditions associated with bouts of intoxication, such as alcohol-related injuries [20].
Table 1. Summary of guidelines for low risk drinking

<table>
<thead>
<tr>
<th>For risk of harm in the short-term:</th>
<th>Low risk (standard drinks)</th>
<th>Risky (standard drinks)</th>
<th>High risk (standard drinks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males On any one day</td>
<td>up to 6 on any one day,</td>
<td>7-10 on any one day,</td>
<td>11 or more on any one day</td>
</tr>
<tr>
<td></td>
<td>no more than 3 days per week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females On any one day</td>
<td>up to 4 on any one day,</td>
<td>5-6 on any one day,</td>
<td>7 or more on any one day</td>
</tr>
<tr>
<td></td>
<td>no more than 3 days per week</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For risk of harm in the long-term:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk (standard drinks)</td>
</tr>
<tr>
<td>Risky (standard drinks)</td>
</tr>
<tr>
<td>High risk (standard drinks)</td>
</tr>
<tr>
<td>Males per week</td>
</tr>
<tr>
<td>Females per week</td>
</tr>
</tbody>
</table>


In 2009, the NHMRC introduced revised guidelines that depart from specifying 'risky' and 'high risk' levels of drinking [11]. The new guidelines seek to estimate the overall risk of alcohol-related harm over a lifetime and to reduce the level of risk to one death for every 100 people. There is no longer any difference in the guidelines based on gender; the guidelines are universal for adults over 18 years (guidelines 1 and 2). Specific guidance is also provided for children and young people (guideline 3), and pregnant and breastfeeding women (guideline 4).

- Guideline one: to reduce the lifetime risk of harm from alcohol-related disease or injury, no more than two standard drinks should be consumed on any day;
- Guideline two: to reduce the risk of injury on a single occasion of drinking, no more than four standard drinks should be consumed;
- Guideline three: recommends avoiding alcohol for those under 15 years, and delaying the initiation of drinking for those aged 15 to 17 years for as long as possible;
References

1. Alcohol facts (2011) Australian Drug Foundation


6. Alcohol: drug facts (2011) NSW Health


16. Health Department of Western Australia (1999) The effects of alcohol on the body: alcohol fact sheets for health professionals. Perth: Health Department of Western Australia

17. Alcohol and pregnancy and fetal alcohol spectrum disorder resources for health professionals (2009) Telethon Institute for Child Health Research

18. Pidd K, Berry JG, Harrison JE, Roche AM, Driscoll TR, Newson RS


The Australian Indigenous HealthInfoNet is an innovative Internet resource that contributes to ‘closing the gap’ in health between Indigenous and other Australians by informing practice and policy in Indigenous health.

Two concepts underpin the HealthInfoNet’s work. The first is evidence-informed decision-making, whereby practitioners and policy-makers have access to the best available research and other information. This concept is linked with that of translational research (TR), which involves making research and other information available in a form that has immediate, practical utility. Implementation of these two concepts involves synthesis, exchange and ethical application of knowledge through ongoing interaction with key stakeholders.

The HealthInfoNet’s work in TR at a population-health level, in which it is at the forefront internationally, addresses the knowledge needs of a wide range of potential users, including policy-makers, health service providers, program managers, clinicians, Indigenous health workers, and other health professionals. The HealthInfoNet also provides easy-to-read and summarised material for students and the general community.

The HealthInfoNet encourages and supports information-sharing among practitioners, policy-makers and others working to improve Indigenous health – its free on line yarning places enable people across the country to share information, knowledge and experience. The HealthInfoNet is funded mainly by the Australian Department of Health and Ageing. Its award-winning web resource (www.healthinfonet.ecu.edu.au) is free and available to everyone.