

Chapter 9 Specific populations

This chapter reviews management of alcohol problems in adolescents and young people, pregnant and breastfeeding women, Aboriginal and Torres Strait Islander Australians as well as people from other cultures, older people and cognitively impaired patients.

Adolescents and Youth

Recommendation	Strength of recommendation	Level of evidence
9.1 NHMRC guidelines recommend that not drinking alcohol is the safest option for children and young people under 18 years of age.	D	IV
9.2 Screening and brief intervention for tobacco, alcohol and other drug use should occur routinely. Binge drinking and polydrug use are common among adolescent problem drinkers.	D	IV
9.3 A broad medical and psychosocial history is needed to work effectively with young people.	S	
9.4 Engagement and therapeutic relationships require an understanding of adolescent development and a cognitively and developmentally appropriate approach.	S	
9.5 Brief interventions may suit some young people drinking excessively and/or experiencing alcohol-related harms.	A	Ia
9.6 Motivational interviewing, cognitive behavioural and family therapies have been shown to be of benefit in reducing alcohol and other drug use and related harms.	A	Ia
9.7 Limited evidence exists on the role of pharmacotherapies in reducing alcohol use in adolescents.	B	II
9.8 Adolescent drinkers may experience a range of psychosocial crises. In these cases, outreach and crisis interventions should be engaged.	D	IV
9.9 Mental health disorders, including depression, suicidal ideation, anxiety, sexual abuse and antisocial behavior, are common in young people with alcohol and other drug problems, and should be addressed in the treatment plan.	D	IV

Introduction

There has been considerable concern shown in the media, both in Australia and in the UK and Europe over youth drinking, especially binge drinking. However, as latest figures show, it is the young adult age group in Australia that has increased drinking at levels of risk for long-term harm, not the teenage group (Australian Institute of Health and Welfare 2008). More evidence for underage drinking is shown in data from the European School Survey Project, suggesting that young people in the UK are among the heaviest drinkers in the world (Hibell et al. 2004).

The adolescent years are a period for experimentation and socialisation with peers, which may include engaging in high-risk substance abuse behaviours.

The 2002 national survey on the use of alcohol by Australian secondary school students (White and Hayman 2004) found that experience with alcohol was high among secondary school students. Alcohol consumption became more common as age increased:

- by the age of 14, around 90 per cent of students had tried alcohol;
- by the age of 17, around 70 per cent of students had consumed alcohol in the month prior to the survey; and
- the proportion of students drinking in the week prior to the survey increased with age, from 19 per cent of 12-year-olds to reach a peak of 50 per cent among 17-year-olds.

Experimentation is much more common than progression to regular use. Binge drinking and deliberate drinking to become intoxicated is common, with 8.8% percent of those aged 14-19 years and 16% percent of those aged 20-29 years drinking at risky or high risk levels for long-term harm (Australian Institute of Health and Welfare 2008). This rate has fallen in Australia in the 14-19 year age group, compared to 2001 figures, but has risen in the 20-29 year age group (see Chapter 2).

Rates of drinking above NHMRC 2001 guideline levels among 14–19 year-olds are similar to the rates for the general population — about 9 per cent for alcohol-related disease risk (long-term harm) and 39 per cent for accident and injury risk (short-term harm) (Australian Institute of Health and Welfare 2008). People in the 20–29 year age group show the riskiest drinking profile. About 60 per cent of this group drink above NHMRC 2001 guideline levels for accidents and injuries and about 16 per cent drink above NHMRC 2001 guideline levels for alcohol-related diseases (Australian Institute of Health and Welfare 2008).

Among school students aged 16–17 years who report drinking in the past week, there has been a slight increase in numbers drinking above NHMRC 2001 guideline levels for accidents and injuries (White and Hayman 2004). This may be because of changes in the type of alcohol young people are drinking. The 2002 survey found that among male adolescent drinkers, the proportion consuming beer decreased while consumption of spirits, in either their un-premixed or their premixed form, increased. Among adolescent female drinkers, the proportion drinking premixed spirits as opposed to un-premixed spirits increased significantly (White and Hayman 2004).

Polysubstance use is common among young people and it is therefore important to screen for use of tobacco and other drugs in addition to alcohol. Around 16% of 14-19 year olds smoke cigarettes (Australian Institute of Health and Welfare 2005). Uptake of cannabis use usually peaks around the age of 16-17 years. Around 25% of 14-19 year olds and 54% of 20-29 year olds report using cannabis in their lifetime. Weekly use occurs in 20% of 14 to 29 year olds and daily use in 10-15% (Australian Institute of Health and Welfare 2005).

Excessive alcohol use in adolescence is also associated with a wide range of other co-existing problems, including difficulty with relationships (especially with parents), homelessness, poor school performance, low employment prospects. Early alcohol use also increases the likelihood of alcohol abuse and alcohol dependence continuing into adulthood; the risk highest appears associated with heavy alcohol consumption before 16 years. Early intervention with adolescents at risk of alcohol problems is therefore very important. The NHMRC Guidelines 2009 recommend that children and young people under the age of 18 not drink alcohol at all (see Guideline 3 in Chapter 2)

Assessment

Working effectively with young people experiencing difficulties with alcohol requires the establishment of good rapport. Barriers to effective consultation with adolescents have been extensively described in the past two decades and can be classified into four broad categories: availability, accessibility, acceptability and equity of health services (Tylee et al. 2007). Concerns about confidentiality has been identified to be a particularly significant barrier to seeking professional assistance among young people (Sanci et al. 2005). A non-judgemental approach is needed that encourages the young person to be honest about reporting ongoing difficulties with alcohol.

A broad medical and psychosocial history is needed to work effectively with young people. A familial history of heavy alcohol and drug use also impacts on adolescents. Social and environmental factors, such as being exposed to a family culture that accepts heavy drinking, may contribute to development of dependence in the children of heavy drinkers. DSM-IV criteria for alcohol use disorders have limitations when used with adolescents (Martin and Winters 1998).

'Problem drinking' in young people is variably defined and may refer to quantity of alcohol consumed, frequency of drinking and/or to adverse outcomes attributable to drinking. Adolescent alcohol problems commonly constitute recurrent binge drinking, and related short term adverse consequences, including trauma, assaults and memory loss. Adverse outcomes related to alcohol consumption in young people are highly correlated to male gender and conduct disorder (Toumbourou et al. 2007).

A psychosocial history includes information about the social, cultural, educational and vocational background of the adolescent. There are different acronyms such as HEADSS that provide a framework for taking a broad psychosocial history from adolescents (see Chapter 9 of the Guidelines for the Treatment of Alcohol Problems).

What is the difference between adult and adolescent drinking?

Adolescents tend to take more than one drug at a time (polydrug use), are more inclined to binge drink, and are at a time of rapid social and physical change in their lives. Excessive alcohol or drug use in adolescence is implicated in a wider range of co-existing life problems such as homelessness, poor performance at school, difficult

parental relationships and low employment prospects. In addition, regular heavy alcohol or other drug use frequently inhibits adolescent development, especially in impairing cognitive maturation and reducing educational achievement (Bonomo et al. 2004). Early alcohol use also increases the likelihood of adult heavy drinking and dependence, with the risk highest if drinking begins before 16 years (Pitkanen et al. 2005; Bonomo et al. 2004). This provides motives for the importance of screening and early intervention with adolescents at risk before problems occur.

Treatment

Engaging adolescents and families in treatment

Engaging adolescents in treatment is a critical issue. The principles are similar to treatment of other chronic disorders in young people. Establishment of good rapport is required (see Section on Assessment above).

Engagement and therapeutic relationships require an understanding of adolescent development and a cognitively and developmentally appropriate approach. Young people are influenced by the 'here and now' rather than future benefits of changing current drinking patterns. It is also important for health professionals to remember that young people are more interested in achieving the goals of adolescence rather than focusing on improving their health. Given this, treatment goals need to be framed as 'relevant' to young people. Approaches include examination of how alcohol affects their appearance, peer-reputation, ability to socialize, recreational, educational, employment or sporting achievements, or impact upon finances. These discussions need to be delivered by the health professional at a level that is developmentally and cognitively appropriate. Working with the young person to develop concrete short term goals (weeks to months) is recommended.

Encouraging the young person to participate in negotiation of treatment plans facilitates engagement in treatment and empowers change (Sawyer et al. 2007). In some cases, disengagement with family may have occurred as a result of heavy drinking and other drug use. Families are an integral part of the adolescent's world and it is therefore important to try to assist the young person to re-build the connection. Depending on the individual circumstance this may be through mediation by the health professional or more formally with family counselors.

In cases where adolescents are not engaging well with alcohol or drug services, specific outreaching and proactive services that cater appropriately for their developmental stage and incorporate a consideration of their cultural background, lifestyle and in many cases their family are required.

Psychosocial treatments

Early intervention for alcohol problems in young people is important. Alcohol and other substance use interferes with normal adolescent brain development, and neurodevelopment, especially in regions linked to regulation of behaviour and emotion is not complete until early adulthood (ref). Once young people have developed an alcohol use disorder, abstinence appears an unlikely outcome of treatment (Cornelius et al. 2003; Winters et al. 2000).

Brief interventions may suit some young people drinking excessively and/or experiencing alcohol-related harms. Brief interventions, motivational interviewing, cognitive behavioural therapies and family therapies in general have been shown to

be of benefit, especially in conferring improved knowledge about alcohol related harms and at least a short term reduction in alcohol and other drug use (Toumbourou et al. 2007; Grella et al. 2001; Winters et al. 2000; Spooner et al. 2001).

Certain factors pre-treatment predict outcomes. A poorer prognosis is associated with more severe alcohol problems at the outset (Anderson et al. 2007) and with other drug use problems (Chung et al. 2003). Poor psychosocial functioning pre-treatment and lack of longer term engagement in health services are also associated with negative outcomes (Chung et al. 2003). Abstinent peers in a young person's social network, on the other hand, increase the odds of remaining abstinent four-fold (Anderson et al. 2007).

Few differences in outcome have been found when comparing treatment settings and types of adolescents (Winters et al. 2000; Spooner et al. 2001; Rice et al 1993), although as with adult services, longer treatment retention is associated with better outcomes (Winters et al. 2000). Studies of longer term outcomes from inpatient and outpatient treatment settings are less readily available.

Many of the research studies on adolescents have examined treatment impact on substance abuse generally, not specifically alcohol, and the previous literature review included papers about other substances for this reason. We include only the studies on alcohol here.

Psychosocial treatments: Earlier studies

A Cochrane Review was published in 2002 (Foxcroft et al. 2008) which showed very mixed evidence for interventions for alcohol misuse with young people. Two of the US studies included in that review were Monti et al. (1999) and Marlatt et al. (1998); in these, brief and motivational interventions appeared to be effective for adolescent heavy drinkers. Monti and colleagues (1999) found that a brief intervention, used with older adolescents in an emergency department setting after an alcohol-related event, resulted in fewer alcohol-related injuries and reduced the likelihood to drink-drive compared with adolescents who received standard hospital care (Monti et al. 1999). Similar results were obtained by Marlatt et al (1998 in a high school setting).

In addition, a study not mentioned in the Cochrane review, (Borsari and Carey 2000), found that college students who were binge drinkers and received a single-session of motivational interviewing exhibited significant reductions on the number of drinks consumed per week and the number of times drinking alcohol was recorded in the month. Also in the month to follow up, the frequency of binge drinking fell significantly on number of drinks consumed per week, the number of times drinking alcohol and the frequency of binge drinking when compared to a no-treatment group. All these trials had small sample sizes (from 60 to 94 participants).

Psychosocial treatments: Recent studies

During the past decade, much progress has been made in treating adolescent alcohol use disorders with evidenced-based modalities developed specifically for adolescents (Deas 2008). This review by Deas discusses psychosocial treatments such as family-based interventions, motivational interviewing, behavioural therapy and cognitive-behavioural therapy as well as the limited pharmacotherapy studies available. All of the studies used assessment tools validated for use in adolescent populations. The authors' conclusions are that, overall, great strides have been made

in the area of adolescent alcohol treatment, and the treatment modalities used have more than adequate potential for replication.

There is little recent rigorous evidence on youth-oriented interventions from the UK or Europe (McArdle 2008). However, we found some recent work from the Netherlands, Australia and the USA.

A pilot randomised controlled trial in Australia (Bailey et al. 2004) aimed to identify whether a brief motivational interviewing and cognitive behavioural-based alcohol intervention group program was feasible with young people at risk of developing a problem with alcohol, and to assess the short-term effectiveness of the intervention. Sample size was 34 and the follow-up intervals were at 1 and 2 months post-treatment. The intervention took place over 4 weeks of group sessions. The Intervention group showed an increase in readiness to reduce their alcohol consumption and reduced their frequency of drinking both at post-treatment (4 weeks after randomisation) and the 1-month follow-up assessment, while the control group reported increased drinking at the 2-month follow-up assessment. The control group also increased hazardous drinking and frequency of binge drinking compared to the Intervention group. These results provide preliminary evidence for the effectiveness of the program in training young people to set limits on alcohol consumption and reduce consumption, and also to increase their awareness of safe drinking levels and the effects of alcohol abuse.

Four US studies were conducted in different settings; one in the course of a family practice visit (Boekeloo et al. 2004) and three in emergency departments (Spirito et al. 2004) (Maio et al. 2005) (Monti et al. 2007). The Boekeloo trial aimed to determine whether office-based interventions changed adolescents' alcohol beliefs and alcohol use, with largely contradictory findings. Participants were 409 12- to 17-year-olds seeing primary care providers for general check-ups, randomised to 3 groups. Most (79%) were African American, 44% male; 16% currently drank. All received a randomised audio program; usual care group (I) listened to self-selected music, group II had an audio program about alcohol with alcohol self-assessment just prior to check-up and group III had the same program with an additional brochure. At exit interview, Groups II and III reported they knew that less alcohol was needed for impaired thinking and also reported a greater intent to drink alcohol in the next 3 months than Group I. At 6 months, Group III reported more resistance to peer pressure to drink, and Groups II and III reported more bingeing than Group I. At 1-year follow-up Groups II and III reported more bingeing in the last 3 months than Group I; Group II reported more drinking in the last 30 days and in the last 3 months than Group I. The authors' conclusions are that brief office-based interventions were ineffective in reducing alcohol use but may increase adolescent reporting of alcohol use.

Conflicting evidence is provided by three emergency department studies with adolescents; however the motivation may have been different between the participants. One trial (Spirito et al. 2004) tested whether a brief motivational interview (MI) would reduce alcohol-related consequences and use among adolescents treated after an alcohol-related event. Patients aged 13 to 17 years (N = 152) with a positive blood alcohol concentration were recruited in the ED and randomly assigned to either MI or standard care. Both conditions resulted in reduced quantity of drinking during the 12-month follow-up; alcohol-related negative consequences were relatively low at baseline and remained low at follow-up. Adolescents who screened positive for problematic alcohol use at baseline reported significantly more improvement, decreasing both the average number of drinking

days per month and the frequency of high-volume drinking if they had received MI. The authors conclude that that brief interventions are recommended for adolescents who present to an ED with an alcohol-related event and report problematic alcohol use. (Level Ib evidence)

The other, also a randomised controlled trial (Maio et al. 2005) used a laptop computer to deliver both the screening and the intervention. It also had a much larger number of subjects (n=580) aged 14-18 years who attended ED with a minor injury. Main outcome measures were Alcohol Misuse Index (AMIDX) and binge-drinking episodes. Follow-up occurred by telephone at 3 and 12 months. Overall, there were no significant effects on alcohol misuse or binge drinking (effect size 0.04). Subgroup analysis suggested that the intervention may have had an effect among subjects who had experienced drinking and driving (5% of the sample). The conclusions of the study were that the intervention was ineffective in decreasing alcohol misuse.

Another trial in ED was conducted by Monti et al (2007) with 198 18-24-year-old patients who were either alcohol positive upon hospital admission or met screening criteria for alcohol problems. Participants were assigned randomly to receive a one-session motivational intervention (MI) that included personalised feedback, or the personalised feedback report only (FO). All received telephone contact at 1 month and 3 months. Six months post-intervention MI participants drank on fewer days, had fewer heavy drinking days and drank fewer drinks per week in the past month than did FO patients. These effects were maintained at 12 months. Twice as many MI participants as FO participants reliably reduced their volume of alcohol consumption from baseline to 12 months. Reductions in alcohol-related injuries and driving offences and increases in alcohol treatment-seeking were observed across both groups at both follow-ups with no differences between conditions. This study provides new data supporting the potential of motivational intervention to reduce alcohol consumption among high-risk youth.

Thush et al (2007) investigated the effectiveness of a targeted intervention program aimed at 107 at-risk adolescents in a randomised clinical trial in schools. This program combined intervention methods which have been proven effective in reducing drinking in young adults, such as an expectancy challenge, cognitive behavioural skill training and brief motivational feedback. The intervention contained the new element of discussing biological, cognitive and social risk factors for developing alcohol problems; outcome measures were cognitive determinants of drinking behaviour, moderating alcohol use and the development of alcohol-related problems. The intervention was effective in changing several of the targeted cognitive determinants; however, despite this, the intervention group did not show a significant difference in decrease of drinking at posttest compared with the control group. These results did not yield support for any differential long term effects of the intervention. The authors therefore conclude that although the intervention successfully changed important cognitive determinants of drinking, a more intensive intervention is needed to change subsequent drinking behaviour.

These studies suggest that an alcohol-related injury that results in presentation to the acute hospital context provides more impetus for reducing drinking than does attendance at a family practice or participation in school-based program; however further research is required to confirm this.

Pharmacotherapies

The evidence base for pharmacotherapy for alcohol use disorders in young people remains limited (Deas 2008). Naltrexone has been confined to case reports (Lifrak et al. 1997; Wold et al. 1997) and two small open label studies (Deas et al.2005; Leeman et al. 2008). Acamprosate was examined in one small RCT (Niederhofer et al. 2003). These studies demonstrate short term benefits; however, longer term outcomes were not described.

Addressing comorbidity

Treatment of young people with alcohol problems needs to include screening for a history of sexual abuse and screening and management of common mental health disorders especially depression, suicidal ideation, anxiety, and antisocial behavior. Reduced substance use has been noted when co-morbid mental conditions are appropriately treated (Toumbourou et al. 2007; Roberts 2007).

Pregnant and breastfeeding women

Recommendation	Strength of recommendation	Level of evidence
9.10 Women who are or may become pregnant should be advised of new NHMRC guidelines that recommend abstinence. Clinicians who provide advice to pregnant women should familiarise themselves with the risk analysis described in those guidelines. Women who drink alcohol sparingly (less than one standard drink per drinking day without intoxication) may be reassured that there is no consistent evidence this is harmful.	S	
9.11 Breastfeeding women should be advised of current NHMRC guidelines that recommend abstinence from drinking. If a woman wishes to drink, it is recommended that she breastfeeds before drinking. Otherwise, wait until the blood alcohol returns to zero (one hour per standard drink consumed) before resuming breastfeeding. It is not necessary to express or discard milk before this time.	S	
9.12 Brief interventions are recommended for use during pregnancy, including the partner where relevant. Follow-up evaluation of response to the intervention is important.	B	II
9.13 If a woman presents intoxicated during pregnancy, hospital admission is recommended to assess fetal safety, maternal safety, and for comprehensive assessment and care planning.	D	IV
9.14 Alcohol withdrawal during pregnancy should be managed in a general hospital, ideally in a high-risk maternity unit in	S	

consultation with a specialist drugs-in-pregnancy team. Diazepam may be given as needed to control withdrawal. Nutritional intervention should be initiated, including parenteral thiamine, folate replacement and assessment for other supplementation in hospital.		
9.15 Women who present during pregnancy with serious alcohol (and/or other drug) problems should be admitted to an appropriate hospital unit for stabilisation, comprehensive assessment and care planning.	S	
9.16 Assertive follow-up is recommended for antenatal care, substance misuse treatment, and welfare support and child protection.	S	
9.17 Pharmacotherapy to maintain abstinence from alcohol cannot be recommended during pregnancy due to insufficient safety data.	S	
9.18 Assertive antenatal care, including monitoring of fetal growth and health, is recommended.	S	
9.19 Management of infants with neonatal alcohol withdrawal should be undertaken in consultation with a specialist unit.	S	
9.20 Infants born to women who have consumed alcohol regularly during pregnancy should be carefully assessed for fetal alcohol spectrum disorders by a pediatrician aware of the maternal history, with further management directed by the appropriate experts.	S	
9.21 Assessment of the family unit is an essential aspect of managing substance use in women. Intervention should be directed to the whole family unit to reduce consumption of alcohol.	S	
9.22 Indigenous women should be offered referral to culturally appropriate clinical services.	D	IV
9.23 Comprehensive mental health assessment is an essential component of an integrated care plan for pregnant women with alcohol problems.	S	

Introduction

The negative effects of alcohol on the developing foetus were described about 40 years ago, with the first articles published in the 1970's (Jones and Smith 1973; Ouellette et al. 1977; Cooper 1978). Jones was the first to coin the term foetal alcohol syndrome (FAS). More recently, the designation foetal alcohol spectrum disorder (FASD) has emerged, which characterises a spectrum of problems (Sokol et al. 2003). Characteristics include unusual facial features and poor physical, cognitive and behavioural outcomes; in addition, alcohol exposure is a strong predictor of premature or preterm birth and low birth weight for gestational age. Heavy drinking

(defined in one study as 1 or more drinks per day) was associated with a 5-fold increase in the likelihood of low birth weight (Jaddoe et al. 2007).

Therefore it is imperative to advise all pregnant women, or those planning a pregnancy, to avoid drinking alcohol altogether. While low levels of drinking are not always necessarily associated with FAS, it seems sensible to advise every woman to abstain. Women who are or may become pregnant and should be advised of new NHMRC guidelines that recommend abstinence. Women who drink alcohol sparingly (less than one standard drink per drinking day without intoxication) may be reassured that there is no consistent evidence this is harmful. Similarly, breastfeeding women should be advised that abstinence is recommended.

Brief interventions are recommended for use during pregnancy, including the partner where relevant. Follow-up evaluation of response to the intervention is important.

Brief interventions in pregnancy: Randomised controlled trials

A subanalysis of data from ProjectTrEAT (Fleming et al. 2002) was carried out to evaluate the results of the intervention on the 205 women at 48-month follow-up (Manwell et al. 2000). A significant treatment effect was found in reducing both 7 day alcohol use ($p = 0.0039$) and binge drinking episodes ($p = 0.0021$) over the 48 month follow-up period. Women in the experimental group who became pregnant during the follow-up period had the most dramatic decreases in alcohol use.

Another trial of a brief intervention with 304 pregnant women also studied the effect of including the woman's partner in the single intervention session, given by a nurse practitioner or the doctor (Chang et al. 2005). All women had screened positive on the T-ACE questionnaire. Fewer than 20% of participants (median 11.5 weeks of gestation) were abstinent at study enrolment, averaging more than 1.5 drinks per episode. Nearly 30% had 2 or more drinks at a time while pregnant. Prenatal alcohol use declined in both the treatment and control groups, based on a 95% follow-up rate. Factors associated with increased prenatal alcohol use after randomisation included more years of education, extent of previous alcohol consumption, and temptation to drink in social situations. Brief interventions for prenatal alcohol reduced subsequent consumption most significantly for the women with the highest consumption initially ($p < 0.01$). The effects of the brief intervention were significantly enhanced when the partner participated ($p < 0.05$).

A study with 255 participants examined the efficacy of brief intervention given by a nutritionist and also assessed outcomes for the newborns (O'Connor and Whaley 2007). Women in the intervention group were 5 times more likely to report abstinence compared with women in the assessment-only (with no intervention) condition. Newborns whose mothers received brief intervention had higher birth-weights and birth lengths, and foetal mortality rates were 3 times lower (0.9%) compared with newborns in the assessment-only (2.9%) group.

A larger trial used a brief motivational intervention delivered to 830 nonpregnant women at risk (defined as drinking more than 5 drinks per day, and not currently using contraception). They were randomised to receive four counselling sessions and one contraception consultation, or information only (Floyd et al. 2007), with the aim of preventing alcohol-affected pregnancies (AEP). Follow-up was at 3, 6, and 9 months. Results showed that across the follow-up period, the odds ratios (ORs) of being at reduced risk for AEP were twofold greater in the intervention group: 3 months, 2.31 (95% confidence interval [CI] = 1.69-3.20); 6 months, 2.15 (CI = 1.52-3.06); 9 months,

2.11 (CI=1.47-3.03). Between-groups differences by time phase were 18.0%, 17.0%, and 14.8%, respectively.

These studies provide clear evidence for the effectiveness of intervention for alcohol with non-dependent women who are pregnant or contemplating pregnancy.

Aboriginal and Torres Strait Islander Australians

Recommendation	Strength of recommendation	Level of evidence
9.23a Given late presentation of alcohol problems, active detection is recommended.	D	IV
9.24 Indigenous Australians, like all other Australians should have access to the full range of treatment services, including early intervention and where appropriate, relapse prevention medications.	D	IV
9.25 Indigenous Australians should be offered access to trained Indigenous health care workers and services where possible.	D	IV
9.26 Non-Indigenous clinicians should work in partnership with Indigenous health professionals and/or agencies to improve treatment access and appropriateness for communities.	D	IV
9.27 A respectful, holistic and integrated approach to assessment and management is necessary, considering the patient in the context of both the family and the community.	D	IV
9.28 Indigenous cultures and customs vary. Use of language and approach to communication should be appropriate for both the individual and the community.	D	IV
9.29 Given the high prevalence of physical and mental comorbidities in the Indigenous population, clinicians should consider the possibility of physical and/or mental comorbidity in all presentations.	A	I
9.30 The ongoing impact of colonisation should be considered and efforts to provide a range of treatment options for alcohol problems to Indigenous population should be combined with wider community measures addressing both alcohol misuse-related problems and underlying social determinants of alcohol misuse.	D	IV

Introduction

The number of people identified as being of Aboriginal and/or Torres Strait Islander origin in the 2006 Census was 455,000, representing 2.3% of the total Australian population, of whom 90% identified as Aboriginal. Around three-quarters (76%) of the Indigenous population were living in major cities and regional areas in 2006, with the remaining 24% in remote areas (Australian Institute of Health and Welfare and Australian Bureau of Statistics 2008). In contrast, only 2% of non-Indigenous people live in remote areas.

Indigenous Australians are less likely to drink alcohol than are non-Indigenous Australians; however, among those who do drink, a greater proportion consumes alcohol at risky or high-risk levels, often resulting in serious harm to themselves and others. Indigenous Australian youth are nearly 2½ times more likely to die from alcohol-related causes than are non-Indigenous. Overall, 60% of Indigenous Australian drinkers are estimated to directly or indirectly experience some alcohol-related harm compared with 35% of non-Indigenous Australian drinkers (Australian Institute of Health and Welfare 2008). Early intervention is required before serious harms and problems emerge.

Evidence for the effectiveness of treatment specific to Indigenous clients is scant. However, guidelines have recently been developed for the management of alcohol problems in Indigenous primary care settings (Commonwealth Government Dept of Health and Ageing 2007). This practical guide provides recommendations for managing intoxication, withdrawal, medical and psychiatric comorbidity, and for providing screening, brief interventions and continuing care.

A number of evaluations of individual clinics or programs have been undertaken (Gray et al. 2000) with mixed results, and limited data are available in some cases. We could not locate any completed trials for treatment of Indigenous clients with alcohol use disorders. Challenges in implementing randomised controlled trials in Indigenous settings have been described e.g. (Sibthorpe et al. 2002; Brady, M. et al. 2002).

Appropriate ways to conduct research in Indigenous communities were highlighted in an article by Foster et al, emphasising that the communities need to take control over the research (Foster et al. 2006). The paper provides a model for conducting research for Indigenous community-controlled organisations and can inform non-Indigenous researchers about ways of working with those communities to address substance misuse and other health problems.

There has been very limited research into the best approach for detecting alcohol problems earlier among Indigenous Australians. Qualitative research by Brady et al (2002) during their trial of brief intervention showed that they had limited success using AUDIT in an urban Aboriginal health centre. The Indigenous health workers said they felt 'intrusive' at first asking the questions; question 8 (How often during the last year have you had a feeling of guilt or remorse after drinking?) sometimes needed clarification, and health workers believed that clients sometimes 'fudged' their responses. This may have been influenced by the closeness of this particular community. Anecdotally, in other settings the AUDIT and its shorter form, AUDIT-C, have been used successfully.

A number of constraints to delivering brief interventions in this particular health service included lack of time, crowded waiting rooms, patients who became irritated

when alcohol was raised as an issue, and the "...severity of illness and the complexity of the physical, social and psychological problems with which patients present" (Brady et al. 2002). However, again, anecdotally in other settings Indigenous Health Workers have delivered opportunistic brief intervention and found it acceptable to the patient. Indigenous persons with past alcohol dependence at times report having stopped because of the advice of a doctor (Brady 2001).

Caution needs to be applied in using questionnaires and instruments designed for and by the dominant Australian culture, as they may give misleading results (Chikritzhs and Brady 2006). One brief questionnaire has been developed and validated specifically for use in the Indigenous setting. This questionnaire, known as the Indigenous Risk Impact Screen (IRIS), jointly screens for alcohol and other drug disorders, as well as mental health disorders (Schlesinger et al. 2007). It has been applied in a number of settings, particularly in Queensland, and an associated brief intervention has been developed.

One survey of an Indigenous community-controlled health service revealed that nearly half (42.6 percent) of all consultations (N = 583) were with Indigenous health workers, not GPs, a finding with relevance for the implementation of alcohol screening and treatment services (Thomas et al. 1998). Further, almost all patients (96.1 percent) saw an Indigenous health worker before seeing a GP. Female patients made up on average 57 percent of all the consultations in the survey.

In remote areas, the range and quality of general and specialist health care facilities are below the level of those in regional centres. In addition, both distance and limited availability of qualified health workers present obstacles to treatment, including early intervention.

Treatment in specialist settings

There may be many barriers to Indigenous clients in accessing mainstream alcohol treatment services (Teasdale et al. 2008). While there are few data on how to improve access specifically to alcohol treatment services, methods used in services for injecting drug users including more flexibility, increasing Indigenous staffing and cultural appropriateness have increased service uptake.

While indigenous-specific services may be more culturally acceptable, Brady (1995) found that the range of available services at that time was limited. She points out that Indigenous drinkers show varied patterns of alcohol use and it should not be assumed that one treatment approach will be appropriate for all Indigenous patients (Brady 1995). Available Indigenous treatment services have a strong orientation towards the disease model of alcoholism and the 12-step facilitation model. Brady (1995) stresses the need for a range of treatment options, including brief interventions and motivational interviewing. Brady also points out that approaches using 'culture as treatment' (the notion that reclaiming culture will in itself heal the alcohol problem) are more likely to work if "...they succeed in helping clients to form peer groups (both adolescent and adult) which disvalue drug and alcohol use and which assist individuals to deal with the persuasive pressures of their kin and associates".

Where studies exist, Gray (2000) found that effectiveness of specialised treatment programs was equivocal. There is some suggestion that sobering up centres have been a catalyst to further local actions to address alcohol misuse and associated harm and certainly the regular visitors present a pressing case for referral to

treatment. The sobering-up centres do not pretend to solve the problems of alcohol abuse in the community, but play a vital role in keeping people out of police custody, reducing alcohol-related harm and offering practical care in a safe environment for a short time (Brady et al. 2006). They also provide opportunities for brief interventions by drug and alcohol workers and other personnel. An evaluation of two residential programs and one non-residential program concluded that attendance at a family oriented program had modest effects on drinking behaviour and that community-based field workers are an essential complement to residential programs (Gray et al. 2000; Gray et al. 2006).

Community-wide measures to reduce alcohol problems

Chikritzhs et al discuss the results of some strategies implemented in the Northern Territory (NT) to reduce alcohol-related harm (Chikritzhs et al. 2005). The Living With Alcohol (LWA) program incorporated education, increased control on alcohol availability, and expansion of treatment and rehabilitation services. An important component of this program was the support and engagement of communities to address alcohol (Chikritzhs et al. 2005). Trends in age-standardised rates of acute and chronic alcohol-attributable deaths in the NT were examined before, during and after the combined implementation of the LWA program and an alcohol beverage levy. The program was associated with significant declines in acute alcohol-attributable deaths in the NT overall, as well as Indigenous deaths between 1992 and 1997. A significant but delayed decline in chronic deaths was evident towards the end of the study period (1998 – 2002). The authors conclude that the combined impact of the LWA program, the levy, and the programs and services funded by the levy reduced the burden of alcohol-attributable injury to the NT in the short term and may have contributed to a reduction in chronic illness in the longer term. The results of this study present a strong argument for the effectiveness of combining alcohol taxes with comprehensive programs and services designed to reduce the harm from alcohol, and underline the need to distinguish between the acute and chronic effects of alcohol in population level studies. Unfortunately, ongoing funding for this program was not provided.

One of the most successful methods to reduce alcohol consumption and associated harm is to implement restrictions on the sale of alcohol, either by hours (of opening), persons (by residency) or quantity allowances, including complete bans on supply ('dry' areas) and reducing the density of outlets (Hogan et al. 2006). The best results are achieved by plans that have been initiated by the Indigenous communities themselves in consultation with residents, elders, and organisations such as Land Councils in partnership with other agencies such as police, hospital and health workers and tavern or club licensees; and often accompanied by State Government support (Martin and Brady 2004; Brady 2007; Conigrave et al. 2007). Such 'dry' areas have only been feasible to set up and maintain in more isolated communities. Currently, measures are being trialled in urban areas such as families declaring their houses as dry and obtaining the support of agencies, such as Housing Commission to enforce this (anecdotal evidence). Research conducted in the general Australian population measuring the impact of the enforcement of responsible service of alcohol can reduce harms (Loxley et al. 2004), so this would be expected to also be effective in other specific population groups.

Older people

Recommendation	Strength of recommendation	Level of evidence
9.31 Older Australians should be screened for alcohol use and related harms (such as trauma, exacerbation illness, drug interactions, violence or physical neglect) across a range of health and welfare settings.	D	IV
9.32 Brief interventions should be employed for older people drinking at risky levels or experiencing alcohol-related harms (such as falls, driving impairment, drug interactions).	A	Ia
9.33 Concurrent physical or mental illness, medications, social conditions and functional limitations need to be considered when assessing older drinkers.	D	IV
9.34 Abstinence can be associated with marked physical, mental and cognitive improvements; alternatively, alcohol use may have been masking underlying illness. Consequently, the severity and management of concomitant physical and mental conditions should be reviewed several weeks to months after cessation of drinking.	D	IV
9.35 Withdrawal management of older dependent drinkers requires close monitoring, nutritional supplements, careful use of sedative medication, and management of comorbid conditions.	S	
9.36 Caution should be exercised when prescribing medications to older drinkers. Short-acting benzodiazepines (such as oxazepam, lorazepam) are preferred for alcohol withdrawal management over long-acting benzodiazepines (such as diazepam).	D	IV
9.37 Psychological and pharmacological treatment approaches should be tailored to physical, cognitive and mental health of older patients.	D	IV

Introduction

Australia, like other developed countries, has a rapidly ageing population. The 2006 national census indicated that the number of Australians aged 65 years and older was 2,644,374 representing 13.3% of the total population (Australian Bureau of Statistics 2007). Over the next 50 years the number of older people in Australia is expected to increase to 6.5 million, representing approximately 25% of the total population (Australian Bureau of Statistics 2000).

The term older-person has been defined by the United Nations (2003) as any person over 60 years of age. However, in Australia, the term older-person has been used to refer to anyone aged 65 years and older. As this definition can encompass people whose ages vary by many decades, the term older-person has been further divided into three age groups: people aged 85 years and older; people aged 75 to 84 years and those aged 65 to 74 years (Australian Association of Gerontology 2005; Broe 2004; Maddox 1985; Selvanathan and Selvanathan 2004).

Based upon the 2007 National Drug Strategy Household Survey (Australian Institute of Health and Welfare 2008), of Australians aged 60 years and older, it is estimated that:

- 15.6% drank alcohol on a daily basis and 34.6% drank alcohol on a weekly basis;
- 14.9% of older men and 7.5% of older women drank at levels that potentially put their health at risk in the short term;
- 7.4% of men and 5.5% of older women drank at levels that put them at risk of long term harm.

As with younger populations, older people drink alcohol for a variety of reasons. However, increased alcohol use amongst older people can be associated with later life events such as bereavement and loss, and related conditions such as social isolation and psychiatric co-morbidity. Retirement can also have an impact on drinking. Some authors (Alexander and Duff 1988; Ekerdt et al. 1989; Perreira and Sloan 2001) have argued that retirement can increase alcohol consumption as it is associated with a loss of status, a sense of rolelessness and feelings of social marginalisation.

Although some people may increase their alcohol consumption after retirement, epidemiological evidence indicates that alcohol consumption does tend to decrease with increasing age and that declining health is an important predictor of declining alcohol use (Khan et al. 2006; Paganini-Hill et al. 2007; Moos et al. 2005). In Australia, depending on the methodology used to assess harm, the prevalence of women potentially at risk from alcohol varies from 1% to 26% (Fleming 1996). Amongst men, these figures vary from 7.9% to 23.8% (Australian Institute of Health and Welfare 2005; O'Halloran et al. 2003). The lower estimates of at-risk alcohol consumption have typically arisen from studies based upon NHMRC alcohol guidelines, whereas the higher estimates have occurred in those studies which have used screening tools such as the AUDIT (Saunders et al. 1993b). The issue of screening for the presence of alcohol-related problems amongst older people is however problematic, as some of the diagnostic criteria used in screening instruments may be inappropriate (e.g. employment) for use with older people (Dawe et al. 2002). In addition, harmful and hazardous drinking in elderly people is not adequately described by the use of quantity/frequency screening measures alone as older people have lowered tolerance to alcohol, may have chronic illnesses, be taking medications (Evans 2000) or have functional impairments that need to be taken into account as part of any comprehensive assessment.

Benefits of light to moderate alcohol use in older adults

There are a number of studies that suggest that light to moderate alcohol use (one to two drinks per day) may convey some health benefits to older adults, including:

- reduced bone loss in males and females (Bakhireva et al 2004; Mukamal et al. 2007);

- reduced risk of cardiovascular conditions such as heart failure (Bryson et al. 2006), stroke (Mukamal et al. 2005) and atherosclerosis (e.g. Mattace-Raso et al. 2005).
- reduced risk of cognitive impairment and dementia in older adults (e.g. Mukamal et al. 2003; Cassidy et al. 2004; Ganguli et al. 2005; Deng et al. 2006; McGuire et al. 2007).

Although there have now been more than 100 epidemiological studies suggesting that moderate alcohol consumption is cardio protective (Gulbrandsen and McCormick 2007), recent critical literature has found that people who never drink were at no greater risk than light drinkers (Fillmore et al. 2003). Because of the systematic error of misclassification that has occurred in much research (Fillmore et al. 2006), the contention surrounding alcohol's cardio protective effects is likely to continue (e.g. Ellison et al. 2007; Rimm et al. 2007). In addition, confounding factors such as diet need to be considered; in one study people who drank a little wine with meals tended to consume a more healthy diet (higher intake of fish, vegetables, and more use of olive oil) (Tjonneland et al. 1999). While research continues, the comment by Goldberg (2003) is relevant: "If alcohol were a newly discovered drug (instead of one dating back to the dawn of human history) we can be sure that no pharmaceutical company would develop it to prevent cardiovascular disease"(p.164).

In contrast, the mortality data from the Australian Longitudinal Study on Women's Health (ALSWH) on the cohort of women aged 70 -75 years in 1996 demonstrated that women who did not consume alcohol or drank rarely had a higher rate of mortality than women in the low-level consumption category. Non-drinkers also scored lower on General Health, Physical Functioning, Mental Health and Social Functioning subscales of the SF-36 (Byles et al. 2006). US studies among men (Mukamal et al. 2003) and women (Stampfer et al. 2005) found protective effects from moderate drinking, and a reduced risk of Type 2 diabetes in both sexes (Djousse et al. 2007).

Health risks of alcohol use in older adults

Older people warrant special consideration in relation to alcohol use for a number of reasons. Four of these reasons include: the physiological changes that occur with ageing; medication use; the link between alcohol and cancer; alcohols impact on cognitive function and the conflict surrounding alcohol's impact on coronary vascular disease.

Important age-related physiological changes include a reduction in total body water and changes in hepatic metabolism of alcohol, producing a higher blood alcohol concentration for a given dose.

A higher blood alcohol concentration (BAC) can be produced with a standard quantity of alcohol if it is absorbed more quickly, eliminated more slowly or the total body water (TBW) for distribution is less (Vogel-Sprott and Barrett 1984). While neither alcohol absorption nor elimination are affected with ageing, TBW does decrease with age (Schoeller 1989; Watson et al. 1980). TBW also varies across gender with females having a lower TBW (on average) than males. As women of all ages have less lean muscle mass than men, they are more susceptible to the effects of alcohol. With age there is a decrease in lean body mass versus total volume of fat, and the decrease in total body mass increases the total distribution of alcohol in the body (Blow and Barry 2002).

There is an increased possibility of drug interactions: many older people take medications that may have interactions (and may be contraindicated) with alcohol.

While older people comprise between 12% and 15% of the population of most developed nations, it has been estimated that they use approximately 33% of all prescription medicines (Evans 2000). They also have a high use of over-the-counter medications, the most common of which are analgesics, vitamins, antacids and laxatives (Evans 2000). Problems can result from the concomitant use of many prescription drugs commonly used by older people and alcohol (Tanaka 2003). For example, alcohol increases the sedative effects of antidepressants, antihistamines, muscle relaxants, benzodiazepines and opioids (National Institute on Alcohol Abuse and Alcoholism 1995). This interaction can have serious consequences such as increasing the risk of falls, motor vehicle accidents and overdose (Tanaka 2003; Weathermon and Crabb 1999). Alcohol use in combination with non-steroidal anti-inflammatory drugs (NSAIDs) can result in stomach bleeding, gastric inflammation and liver damage (Bush et al. 1991; Dart 2001; Kaufman 1999; Korrapati 1995; Tanaka 2003).

There is an increased risk of falls and impaired driving ability in older people who drink alcohol (Chikritzhs and Pascal 2005). Cognitive function, and in particular memory, may be more vulnerable to the effects of alcohol in older drinkers.

Between 1994 and 2003 over 10,000 Australians aged 65 years and older died from alcohol attributable injury and disease caused by risky and high-risk drinking (Chikritzhs and Pascal 2005). There is also evidence that over the past decade alcohol-attributable hospitalisations amongst older people have increased in Victoria, Tasmania and Western Australia. The most common causes of alcohol attributable hospitalisations were: falls, supraventricular cardiac dysrhythmias, and alcohol dependence (Chikritzhs and Pascal 2005).

Long term alcohol use is also an important consideration in relation to cancer. In Australia in 2001, it was estimated that 2,791 (3.2%) of all new cases of cancer and 1,291 cancer deaths were attributed to alcohol consumption (Australian Institute of Health and Welfare and Australasian Association of Cancer Registries 2004). In their most recent publication, the World Cancer Research Fund and American Institute of Cancer Research (2007) expert panel concluded that since the mid-1990's the evidence that alcohol is a cause of cancer has become stronger and that there is ample evidence from case-control and cohort studies of a dose-response relationship between alcohol and breast cancer. The panel also stated that "the evidence that alcoholic drinks are a cause of pre-menopausal and post-menopausal breast cancer is convincing" (p.168) (World Cancer Research Fund/ American Institute for Cancer Research 2007).

The issue of alcohol and cognitive function is also complex. Several longitudinal studies have shown an association of light drinking (up to 20/10grams of alcohol per day for men and women respectively) with a reduced risk of cognitive impairment and dementia (Bryan and Ward 2002; Cassidy et al. 2004; DeCarli et al. 2001; Deng et al. 2006; Ganguli et al. 2005; Lyndsay et al. 2002; McGuire et al. 2007; Rodgers et al. 2005; Ruttenberg et al. 2002; Zimmerman et al. 2004). Conversely, other research shows no association (Truelsen et al. 2002; Tyas et al. 2001) or an acceleration in cognitive deterioration (Anttila et al. 2004) and the development of early onset dementia (McMurtray et al. 2006). Complementing the psychometric testing on cognitive function has been research examining the association between alcohol use and brain atrophy. Anstey et al. (2006) conducted MRI brain scans on a sample of

478 persons aged 60 to 64 years and found evidence of a positive association between brain atrophy and alcohol consumption.

Who to target for screening and interventions?

Diagnosis of alcohol use disorders may be difficult, as alcohol use and related disorders may be mistaken for the effects of aging or other conditions.

Every person over the age of 60 should be screened for their concomitant alcohol and other drug use, with a particular focus on patients on multiple medications, medications such as sedatives. Alcohol abuse or dependence may mimic the effects of aging and many conditions prevalent in this age-group. A high index of suspicion and thorough history taking can aid early detection and appropriate management.

As with younger age groups, screening is recommended in general practice settings, general hospital wards, emergency departments and community counselling settings. As older people are unlikely to present at traditional alcohol or other drug treatment settings, it is important that opportunistic screening in mainstream and gerontology settings occur.

What is effective?

Older people have typically been excluded from large scale outcome studies, but there is some evidence that brief intervention and other treatment options are also valid with older people (Gordon et al. 2003). Brief interventions in this age populations are effective in significant reductions in overall alcohol use and frequency of excessive drinking.

Brief interventions for older people: Randomised controlled trials

One randomised controlled trial evaluated the economic cost and benefits of brief intervention for at-risk drinking older adults (Mundt et al. 2005). This trial with 24-month follow-up tested the effectiveness of brief physician advice in reducing alcohol use, health care utilisation and other consequences among adult problem drinkers aged 65 or more. Patients were screened for problem drinking in 24 community-based primary care practices; 158 were randomised into control (n = 71) or intervention (n = 87) group. Intervention group patients received two 10- to 15-minute physician-delivered counselling sessions including professional advice, education and contracting using scripted workbooks. The intervention group demonstrated significant reductions in alcohol use (p= 0.001) and frequency of excessive drinking (p= 0.03) compared with the control group over 24 months, but no significant differences emerged in economic outcomes, including hospital days, emergency department visits, office visits, medications, lab and x-ray procedures, injuries, legal events or mortality. The authors conclude that the economic results of brief intervention in this age group are less certain than the effects on alcohol consumption; older adult problem drinkers may require more intensive and costly interventions to achieve economic benefits similar to those seen in younger adults.

Another trial reproduced similar effects of brief intervention on alcohol consumption with the conclusion that brief intervention is as effective for elderly patients as for younger (Gordon et al. 2003). This study compared patients in 2 treatment arms (brief advice [BA] and motivational enhancement [ME] with one control arm [SC]. Patients were assessed at 1, 3, 6, 9 and 12 months. Post-hoc analysis compared the elderly (≥ 65 years, n=45) with non elderly (n=256) patients over all outcome

measures. During the 12 months following intervention, the elderly in ME, BA, and SC intervention arms increased the number of days abstained, decreased the number of drinks per day, and reduced the number of total days per month drinking. There were trends toward decreases in the alcohol consumption measures in the ME and BA treatment arms compared to SC. The elderly patients' response to all interventions was similar to that of the younger cohort. (Level 1a evidence) However, the refusal rate was high (75% of eligible patients) and the sample size was correspondingly small (Zimmerman et al. 2004).

Assessment and screening

Routine screening for alcohol consumption amongst older people is recommended as older people tend not to discuss their drinking and health professionals can often mistake the effects of alcohol for a physical or mental health problem.

- Attention should be given to assessing alcohol related harms in this age-group (including falls, exacerbation of medical conditions, drug interactions, violence or abuse).
- Comprehensive assessment should include physical and mental health, chronic pain, social conditions, overall general functioning, and a review of medications.

Older drinkers taking other medications, in particular those taking multiple medications or psychoactive medications (e.g. sedatives, anti-depressants), should have medications reviewed by their medical practitioner to assess for any drug interactions. See Appendix xx for alcohol-drug interactions.

Withdrawal management for dependent drinkers

Older dependent drinkers attempting alcohol withdrawal should be closely monitored, generally in a supervised withdrawal setting (detoxification unit or hospital).

- Poor diet and housing, physical inactivity, and concomitant illness may make patients more vulnerable to complications during withdrawal such as dehydration, nutritional deficiency (e.g. Wernicke's), hypertension or infections.
- Patients should receive adequate thiamine, rehydration and nutritional support, and close monitoring of other conditions (e.g. blood pressure, blood glucose, mental state).
- Diazepam has the potential for over-sedation due to accumulation in older people (delayed hepatic clearance of long-acting active metabolites). Shorter acting benzodiazepines such as oxazepam or lorazepam should be considered as first line medication for moderate to severe alcohol withdrawal (see Chapter 5). Doses should be titrated according to clinical effect.

The severity and management of concomitant physical and mental conditions should be reviewed several (2 to 4) weeks after cessation of drinking and completion of withdrawal. Abstinence can be associated with marked improvements in other conditions (e.g. hypertension, cognitive function, mental state); alternatively, alcohol use may have been masking underlying illness.

Treatment of dependence

Treatment is becoming of increasing importance as the population ages; however, to date there are very few experimental studies conducted with the older age groups, especially those aged over 70. Most studies are longitudinal studies or retrospective analyses of data.

One retrospective study compared long-term outcomes for men and women (Satre et al. 2007). These authors examined participants at seven-year follow-up to assess the outcomes for women (n = 25) and men (n = 59) aged 55 and over in an outpatient addiction program. It measured demographic characteristics, alcohol and drug use, psychiatric symptoms, Addiction Severity Index, treatment length, and outcomes. At seven years, 76.0% of women reported abstinence in the prior 30 days versus 54.2% of men (p = 0.05). Logistic regression analysis found that longer treatment stay predicted abstinence. The authors conclude that their findings indicate that older women have better long-term addiction outcomes than older men, but treatment length is more significant than gender in predicting outcome.

Cognitively impaired patients

Recommendation	Strength of recommendation	Level of evidence
9.38 A brief assessment of cognitive functioning should be a routine part of assessment upon treatment entry.	S	
9.39 More detailed diagnostic and functional assessment should be carried out where brief assessment suggests that a patient suffers from significant cognitive deficits.	S	
9.40 The possibility of improvement in cognitive functioning should be taken into account by allowing a sufficient period of abstinence from alcohol to elapse before finalising treatment planning.	D	IV
9.41 Where cognitive impairment is confirmed, information presented to patients should be concrete and patients should be given opportunities to practice behaviours taught in treatment.	B	II
9.42 Clinicians should engage cognitively impaired patients in treatment by providing information about treatment, discussing different treatment options and maintaining contact with the patient.	S	
9.43 Cognitively impaired patients should be taught relapse prevention strategies.	D	IV

Introduction

Chronic excessive alcohol use has been consistently associated

with cognitive impairment, including impairments in decision making, problem solving cognitive flexibility and propensity for risky behaviour (e.g. Moselhy et al, 2001; Davies et al. 2005; Glass et al. 2009). Higher frequency and a longer duration of alcohol consumption are associated with greater decline of frontal lobe function of alcohol-dependent patients (e.g. Fein *et al.*, 1990). It has been suggested that cognitive impairment in alcohol dependent patients is associated with frontal lobe dysfunction (Noel et al. 2001; Uekermann and Daum 2008; Chanraud et al. 2007).

Many studies suggest that impaired cognitive functioning is related to poorer treatment outcome, particularly for treatments that require the acquisition of new skills. Thus, a brief assessment of cognitive functioning should be an integral part of the assessment procedure and results should be used to guide treatment planning (Allsop et al. 2000) (see below). If significant impairment is suspected, a more thorough assessment by an appropriately qualified professional is indicated. Where severe cognitive impairment is present, treatment in an inpatient facility may be more effective than outpatient treatment (Rychtarik et al. 2000).

People who suffer from alcohol abuse or dependence may have difficulty processing all the relevant information about their problem and may be inflexible about changing behaviour (Goldman 1995). Cognitive impairment can impair motivation, attention span, the capacity to evaluate situations critically and the ability to acquire new skills, but they can and often do improve with a period of abstinence from alcohol (Goldman 1995). Where cognitive impairment is apparent, treatment elements that require heavy cognitive processing should not be used as they are likely to be ineffective (Allsop et al. 2000).

There is significant variability in the severity of cognitive deficits present in patients (Harper 1998). Many studies suggest that a substantial minority or perhaps a majority of patients seeking treatment for alcohol dependence will exhibit signs of cognitive impairment after the withdrawal phase has passed (e.g. Parsons et al. 1994). Cognitive impairment is especially pronounced in early abstinence (Loeber et al. 2009).

Wernicke-Korsakoff's syndrome (WKS) is the most common form of cognitive impairment associated with alcohol abuse and dependence (See Chapter 5). WKS is a potentially fatal neurological disorder caused by thiamine (vitamin B1) deficiency (Harper et al. 1998). Much confusion persists regarding the existence of a separate alcohol related dementia, because of the under-recognition of the variability of cognitive impairment manifested in WKS (Sechi and Serra 2007; Torvik 1991). Although the hypothesis has aroused enormous interest, the tangible basis for ethanol neurotoxicity remains to be demonstrated.

Further, thiamine deficiency is now recognised as a primary underlying cause of cerebellar degeneration and peripheral neuropathy associated with alcohol abuse (Sechi and Serra, 2007) although these conditions were for many years thought to be attributable to ethanol neurotoxicity. Of course, WKS may be seen in patients with thiamine deficiency from any cause. For example in patients with gastrointestinal tract disease, recurrent vomiting, malignancy, or other medical conditions, or even in people lost in the bush or at sea without food for some time (Donnino et al. 2007). One of the most common causes of WKS may be iatrogenic, arising from inadequate clinical management of patients at risk of severe malnutrition or requiring refeeding,

where dietary supplementation does not include sufficient thiamine (Sechi and Serra, 2007).

To understand the wide variability in clinical manifestations of WKS, and therefore the importance of thiamine treatment in many patients with alcohol abuse or dependence, it is instructive to briefly review evidence regarding the variable spectrum of clinical symptoms in WKS. Although sometimes still described as though different conditions (Sechi and Serra, 2007), the neuropathology of Wernicke's encephalopathy (WE) and Korsakoff's syndrome (KS) is identical, recency of onset varying widely in individual patients (Harper et al. 1986; Torvik 1991).

Most patients observed to have an acute episode of WE will display the severe cognitive impairment of KS at follow-up (Victor et al., 1989). Beyond the period of acute hospitalization and the well established benefits of high dose thiamine on the acute symptoms of WE (Thomson, et al., 2002; Victor et al., 1989) some patients with WKS recover from the severe illness, including from the severe cognitive impairment, although recovery may occur over months or years. It is surprising how little appreciated is the potential for cognitive recovery despite Korsakoff highlighting the potential for recovery in his original case descriptions (Korsakoff, translated by Victor and Yakovlev, 1954). At the present time we have poor understanding of the factors underlying recovery of cognitive impairment after severe episodes of WKS, the obvious explanation being refeeding and re-establishing adequate thiamine intake (Ambrose, Bowden and Whelan, 2001). Post recovery, obtaining a good self-report history of past episodes of WKS is obviously difficult because many patients have little or no clear recollection of their periods of exacerbation. The stereotype of a severe, permanent Korsakoff's amnesia requiring long-term, high-level care, although reiterated in recent editions of the Diagnostic and Statistical Manual (American Psychiatric Association, 2000) was recognised many years ago as an artefact of a clinical research strategy focussing on those patients with WKS who were most impaired. In contrast to patients suffering acute episodes requiring medical attention, many patients with WKS may have an insidious course with less obvious episodes of exacerbation and then recovery (Bowden, 1990; Lishman 1998).

Perhaps the most important variant of cognitive impairment associated with WKS is dementia-like deterioration (Bowden 1990). Indeed, it has been suggested, on the basis of large retrospective post-mortem series, that the most common explanation for a clinical diagnosis of dementia associated with alcohol abuse and dependence is unrecognised WKS neuropathology (Lishman 1998). The classic diagnostic triad of WKS, namely eye signs, cerebellar signs and mental impairment is known to have low diagnostic sensitivity, perhaps somewhere between 1-20% (Torvik 1991). Some years ago, Harper and colleagues (Caine et al, 1997) published revised clinical diagnostic criteria for WKS in patients with a history of alcohol dependence. These criteria comprised *any two* of the following signs in patients with a history of alcohol dependence: dietary deficiencies, cerebellar signs, eye signs or cognitive impairment. This revised diagnostic approach was shown to have better than 90% diagnostic sensitivity and 90% specificity against the gold standard of post mortem identification. To date there is only one RCT cited in the Cochrane review of thiamine treatment for WKS and alcohol related dementia (Day et al. 2004). Clearly there is a need for further detailed study of these issues.

Although thiamine fortification of bread making flour was recommended by the NHMRC in 1987, the poor diets of many alcohol abusing and dependent people may diminish the benefits of this initiative (Feeney and Connor 2008). In addition, in the

absence of systematic evaluation there is no tangible evidence that this initiative has led to changes in the incidence of WKS. Fortification elsewhere has not prevented a high prevalence of reported cases of WKS (Feeney and Connor 2008; Sechi and Serra 2007). It is likely that the perceived prevalence of WKS in diverse clinical settings still depends greatly on the vigilance of clinicians (Victor et al. 1989). The most important implications for treatment of WKS and cognitive impairment associated with alcohol abuse and dependence is to assume that WKS is the cause of any symptoms of cognitive impairment, instituting prompt with high dose intramuscular or parenteral thiamine (Thomson et al. 2002).

Effect of cognitive impairment on treatment efficacy

Although many studies have examined cognitive impairment in alcohol dependent patients, few studies have systematically examined the effect of cognitive impairment on treatment outcomes. However there is reason to believe that cognitive deficits may impact on some of the skills and behaviours taught in treatment because impaired cognitive functioning impacts on a variety of processes, such as impulsivity, planning and decision-making skills (Smith and McCrady 1991). There is some evidence suggesting that cognitive functioning relates to various aspects of treatment, including treatment outcome, but findings are mixed. In the late 1970s and early 1980s many studies claimed that cognitive impairment was one of the best predictors of poor treatment outcome (Allsop et al. 2000). Others have found no relationship between cognitive deficits and treatment success (Goldman 1995).

Does cognitive functioning affect treatment outcome?

Smith and McCrady examined the impact of cognitive impairment on drink refusal skills, acquisition and treatment outcome in thirty-three alcohol dependent males receiving inpatient treatment (Smith and McCrady 1991). Two month follow-up data indicated that patients with less cognitive impairment had better treatment outcomes. Overall, patients with less impairment tended to respond more rapidly than more impaired patients on a behavioural test of drink skills, patients higher in verbal abstraction were significantly better in their ability to describe an effective drink refusal, higher abstraction patients and patients with generally greater learning ability demonstrated marginally different improvement on a quiz about effective drink refusal strategies from pre to post training and individuals higher in verbal abstraction evidenced greater outpatient aftercare involvement. These data suggest that cognitive deficits adversely affect treatment outcome. Further, the authors suggest that the relationship between cognitive impairment and aftercare involvement indicate that impaired individuals may be vulnerable to relapse. While suggestive, these data should be viewed cautiously due to the small sample size.

One study examined the relationship between executive function impairment, change process factors and substance use outcomes in a sample of substance users (N = 118) participating in intensive 12-step treatment (Morgenstern and Bates 1999). Change processes were self-efficacy, commitment to abstinence, negative substance abuse expectancies and affiliation with Alcoholics Anonymous. More than half of the sample showed some form of executive impairment, but executive impairment did not predict worse substance use outcomes six months following treatment. However, change processes were strongly related to outcome for unimpaired individuals but weakly related for impaired individuals, suggesting that impaired and unimpaired individuals traverse different pathways in achieving equivalent outcomes.

Although Smith and McCrady reported that cognitive impairment adversely affected treatment outcome for drink refusal skills training, executive impairment was not found to adversely affect outcome for twelve-step treatment in Morgenstern and Bates' study. Although these results could be taken to suggest that compared to 12-step programs, cognitive behavioural interventions may be too difficult for cognitively impaired individuals, there is not enough evidence to make such a judgement. Outcomes could differ due to the treatments given, type of cognitive functioning assessed and the measures used, outcome measures, length of follow-up or type of patients participating, as Smith and McCrady examined alcohol dependent patients, whereas Morgenstern and Bates examined patients with substance abuse.

Is cognitive impairment associated with an increased risk of relapse?

In a study examining gender differences in reasons for relapse after treatment, Saunders et al. (Saunders et al. 1993a) found that the best predictors of a return to drinking were comparatively low cognitive abilities plus few prior periods of abstinence. The authors postulated that low neuropsychological scores may suggest the inability to acquire new skills during treatment, and/or could be indicative of past heavy drinking and acquired brain damage, with the concomitants of impulsivity and poor planning. Interestingly, in this study high scores on executive functioning were predictive of poorer outcomes for women but not for men. This finding is confusing, but suggests that cognitive functioning may affect treatment outcome differently for men and women.

Allsop, Saunders and Phillips (Allsop et al. 2000) also investigated factors hypothesised to influence the relapse process, with a focus on the roles of self-efficacy, alcohol dependence and cognitive functioning. Participants (N = 60, male) were recruited from patients attending an alcohol treatment unit. Poorer cognitive functioning was significantly associated with being categorised as a problem drinker at six-month follow-up, which is consistent with results reported in other studies (Parsons et al. 1990). Poorer cognitive functioning was also associated with higher risk of lapse over the 12-month follow-up. The authors speculated that those with comparatively poor cognitive functioning might have had difficulty learning new skills. Further, poor cognitive functioning may impair the ability to make the decision to change and increase the likelihood of poor decision-making skills, which would increase the risk of relapse.

Do outcomes for cognitively impaired patients differ according to treatment setting?

In a study focused on the impact of treatment setting on treatment outcome, Rychtarik and colleagues (Rychtarik et al. 2000) found that patients low in cognitive functioning appeared to benefit more from inpatient than outpatient care. However, Alcoholics Anonymous attendance appeared to moderate and perhaps mediate this effect. Among this population of inpatients there was a tendency for low cognitive functioning to be associated with higher Alcoholics Anonymous attendance, whereas no significant relationship was suggested for patients who received outpatient treatment. The authors speculate that successfully increasing Alcoholics Anonymous attendance among outpatients low in cognitive functioning may negate any additional benefits derived from inpatient care.

Cognitively impaired patients: Randomised controlled trials

In a study designed to test the patient-treatment matching hypothesis (Cooney et al. 1991), patients (N = 96) were randomly assigned to aftercare group treatment with either coping skills training or interactional therapy. Two-year outcome data indicated that patients with cognitive impairment had better outcomes in interactional treatment, and patients without cognitive impairment had better outcomes with coping skills treatment. An explanation of this finding is that cognitively impaired participants found the coping skills treatment too complex, whereas the interactional therapy may have been less cognitively demanding. This would suggest that keeping treatments simple would improve outcomes for persons suffering from cognitive impairment.

In Project MATCH's first post-treatment report (Project MATCH Research Group 1997), cognitive impairment was found not to interact significantly with treatment type on treatment outcome. That is, treatment outcomes for cognitively impaired patients were similar, regardless of whether patients received motivational enhancement therapy, cognitive behavioural therapy or 12-step facilitation. However, the 3-year follow-up (Project MATCH Research Group 1998) showed that patients whose social networks were more supportive derived greater benefit from 12-step facilitation compared to motivational enhancement therapy. Readiness to change and self-efficacy were the strongest predictors of long-term drinking outcome. It is further posited in another article by Buckman et al that cognitive impairment may increase the positive influence of the social network on drinking outcomes (Buckman et al. 2007). These findings suggest that patients with cognitive deficits respond in different ways, but almost equally well, to motivational enhancement therapy, cognitive behavioural therapy and twelve-step facilitation. In an attempt to replicate Project MATCH findings, a pragmatic, multi-centre RCT with blind follow-up at 12 months examined six matching criteria on drinking outcomes (Heather et al. 2008). Although specific aspect of cognitive impairment were not examined in this study, one treatment matching criterion was general psychiatric morbidity, but none of the matching variables were shown to enhance treatment outcome (Heather et al. 2008).

Although evidence about the impact of cognitive deficits on addiction treatment outcome is limited, available research consistently indicates that cognitive impairment mostly in is common in alcohol dependent patients seeking treatment. There is no clear evidence from a systematic study at the present time for the benefits of treatment matching (i.e. treatment type based on some patient attributes) being more effective than non-matched treatment.

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