



Foundation for Alcohol
Research & Education



It's time to have the conversation: Understanding the treatment needs of women who are pregnant and alcohol dependent

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¹ World Health Organization (2010). *Global strategy to reduce the harmful use of alcohol*. Geneva: WHO.

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Summary

This report presents a narrative literature review of treatments available to pregnant women who have alcohol use disorders and findings from interviews with key stakeholders regarding current treatment practices and areas requiring improvement.

Societal norms on alcohol use are contradictory and conflicting. Whilst for the most part widely available and accepted, alcohol consumption is regarded with disapproval and shame during pregnancy. This contradiction and associated stigma places unnecessary guilt on women and is in the large part responsible for women's lack of disclosure of drinking during pregnancy.

Such is the stigma and guilt associated with alcohol use during pregnancy that only a minority of pregnant women with alcohol use disorders access treatment. There are also large barriers to treatment that include the fear of losing custody of children and practical barriers associated with the availability of services, access, transport, and childcare.

In addition women are more likely to attribute their problems to mental health issues rather than alcohol use and seek treatment through mental health services or primary care. Often these women are not referred to specialist drug and alcohol (D&A) services. Clinicians interviewed as part of this research reported there are areas where multidisciplinary teams are established and work well but it is clear that services for the treatment of substance use in pregnancy are sparse and, where available, are mainly located in metropolitan areas.

Unfortunately there is limited research on effective treatments available for pregnant women with alcohol use disorders. Trials focussing on at risk women have reported reduced alcohol consumption but treatment trials of pregnant women with alcohol use disorders are lacking. The evidence for the safety and effectiveness of pharmacological treatments is also limited. Although pregnant women are difficult to recruit into these studies, methodologically rigorous research into psychosocial and pharmacological treatments for this population is required.

This research reports on information gathered from 11 semi-structured qualitative interviews with clinicians that treat pregnant women with problematic alcohol use provided expert clinical advice on current treatment practices and the gold standard for treatment and factors that impinge on this approach. The clinician interviews supported evidence from the literature review reflecting that whilst the prevalence of alcohol use disorders in the population is higher than disorders related to illicit drugs the reverse is noted in specialist treatment services; problematic alcohol use in pregnant women is rarely seen. The interviews with the key stakeholders highlight that despite work aimed at improving the detection of alcohol use, screening and referral rates remain low.

Treatments need to be supportive, multidisciplinary and accommodate the woman and her children. A gold standard approach to treatment should incorporate community education about the chronic and relapsing nature of addiction

Overall, the evidence from the literature review and the expertise of the clinicians as part of research undertaken for this report suggests that there has been little progress in the treatment and recruitment of alcohol dependent pregnant women into treatment in the last decade.

This report puts forward the gold standards for the treatment of alcohol dependence in pregnancy. These standards should incorporate the following principles:

- That standardised screening is undertaken of all pregnant women on their alcohol use. This screening should be undertaken by health professionals that see pregnant women and should be accompanied by the provision of education, brief intervention, and continued monitoring where appropriate.
- That all pregnant women who screen positively for alcohol-use disorders should be offered access to treatment and that this treatment should be matched to the severity of the disorder being experienced by the woman. Treatment should include inpatient admission for detoxification if necessary.
- That all pregnant women who are alcohol dependent should be offered extended hospitalisation post-delivery and birth with help and support. The woman should also be offered assertive follow-up of the mother and child through the child's formative years. This follow-up should assist to the woman in areas of healthcare, social services, housing and parenting support.
- That treatment of pregnant women who are alcohol dependent should be undertaken by a multidisciplinary team. This would include alcohol and other drug services, obstetric care and the involvement of the woman's general practitioner.

Recommendations for improvements to services for alcohol dependent pregnant women

This report presents the results of a literature review of what treatment options are available to pregnant women who have alcohol use disorders and the outcomes from interviews with clinicians on the current treatment practices. The following recommendations highlight the areas that require improvement for the support and treatment of pregnant women with alcohol-use disorders.

Education and training

- Community and health professional education campaigns are needed regarding alcohol use in pregnancy.
- A zero tolerance approach to stigma is required. This would include educating health professionals on using a non-judgemental approach when asking questions regarding alcohol use, as well as educating them on the extent of alcohol use in the population, reasons for continued alcohol use and the relapsing nature of alcohol disorders.
- Ongoing education and training is required for health professionals in primary care to improve detection and referral.

Screening and referral

- Implementation of standardised screening of all pregnant women by primary health care professionals including GPs and midwives is recommended. Screening should include brief intervention and follow-up where indicated and referral to specialist services for alcohol dependent women where applicable. Women requiring referral may need additional support throughout the referral process.
- It is important the screening is provided in non-judgemental environment and questions on alcohol use continued throughout the pregnancy. Due to the associated stigma women may take a while to disclose problematic alcohol use and only do so when rapport with their treatment provider is established.
- Audits and evaluations of current screening practices should be conducted in antenatal services.

Services

- There is a need to identify and increase the number of specialist addiction services accessible to pregnant women including residential services for women and their children.
- Referral pathways need to be clarified and documented for primary health professionals and specialists. Communication between complementary services (e. Maternity and drug and alcohol services) needs improvement in some areas.

- Although difficult, barriers to services require attention. Practical barriers regarding accessible transport and provision of child care need to be considered in service planning.
- As alcohol use disorders are often comorbid with other mental health conditions such as anxiety and depression, access to appropriate complimentary treatment needs to be considered.
- Programs supporting women in violent domestic situations need to be continued.

Follow-up

- Assertive follow up is required there is a need to establish links to ongoing care post-delivery for both the mother and baby.
- The ongoing care should involve continued assessment of alcohol use, providing referrals to appropriate mental health services, social services, parenting and contraception information.

Research and evaluation

- Public health and education campaigns need to be evaluated to determine efficacy.
- Policies regarding screening and referral to treatment should be audited and evaluated. In addition, there needs to be evaluation of screening, brief intervention and referral to treatment to identify the 'gold standard.'
- Resources for women that have alcohol use disorders need to be developed to provide substantial information on effects of alcohol and the treatments available to them.
- There needs to be more rigorous research into safety and effectiveness of psychosocial and pharmacological treatments for pregnant women with alcohol use disorders.

Policy implications

- Additional funding is needed to support the education of health professionals and the service provision required for this population.
- Additional funding is needed to implement standardised policies regarding screening and referral to treatment.
- Additional funding is required for rigorous research into safety and effectiveness of psychosocial and pharmacological treatments for pregnant women with alcohol use disorders.

Acronyms

AIHW	Australian Institute of Health and Welfare
AUDIT-C	Alcohol Use Disorders Identification Test - Consumption
BAC	Blood Alcohol Concentration
D&A	Drug and Alcohol
DOCS	Department of Child Services (NSW)
DSM	Diagnostic and Statistical Manual of Mental Disorders
FAS	Fetal Alcohol Syndrome
FASD	Fetal Alcohol Spectrum Disorders
ICD10	International Classification of Diseases, Version 10
NDSHS	National Drug Strategy Household Survey
NHMRC	National Health and Medical Research Council
SES	Socio-Economic Status

Introduction

Alcohol consumption by pregnant women is a significant public health issue. Alcohol is a known teratogen associated with a range of adverse effects in pregnancy and beyond including increased risk of miscarriage and still birth, reduction in fetal growth, birth defects, developmental delay, growth retardation and neurological abnormalities (1-6). Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term to describe a range of effects from prenatal alcohol exposure including Fetal Alcohol Syndrome (FAS) at the most visible end of the spectrum.

The current National Health and Medical Research Council's (NHMRC) *Australian Guidelines to Reduce the Health Risks from Drinking Alcohol* (Alcohol Guidelines) recommend abstinence during pregnancy and when planning a pregnancy (7). As there is no known safe level of alcohol use in pregnancy it can be argued that any alcohol consumption is problematic in pregnancy. The most current research provides strong evidence for the negative effects from moderate to high alcohol exposure during pregnancy but the evidence for negative effects at low alcohol consumption levels is weaker (8).

The focus for this report is on pregnant women with alcohol use disorders. This study includes a narrative review examining alcohol consumption among pregnant women in Australia and information on the treatment services available to them. The study also incorporates results from interviews with clinicians that treat pregnant women who use drugs and alcohol on their treatment practices and suggested areas for improvement.

Methods

Literature review

A review of the literature was conducted to examine alcohol consumption among pregnant women in Australia and the treatment services available to them for problematic alcohol use.

Databases including Embase, Medline and PubMed were searched for articles relating to alcohol use, pregnancy and treatment, excluding papers not published in English. In addition, for Australian specific data, government reports were searched for information on alcohol consumption in pregnancy and drug and alcohol treatment services.

Interviews with stakeholders

The aim of the stakeholder interviews was to develop a comprehensive understanding of the issues that affect the provision of care to pregnant women with problematic alcohol use. Following this, the information from the literature review was combined with the interview data to construct recommendations on best practice approaches to treatment.

Participating Sites

Participants were recruited through three NSW based drug and alcohol services;

- Drug and Alcohol Clinical Services, Newcastle Community Health;
- Drug Health Services, Sydney Local Health District (Royal Prince Alfred Hospital Zone);
and
- Drug and Alcohol Services, Western Sydney Local Health District,

These services provide care for people experiencing problems associated with their drug and/or alcohol use, including pregnant women.

Clinician interview

Clinicians' were recruited if they had known expertise in alcohol management broadly, or treated alcohol-dependent women. They were subsequently emailed an information and consent form. They were then contacted directly (by telephone) and asked if they were willing to participate and/or asked to recommend other colleagues. The semi structured telephone interview was conducted by a trained research interviewer at a time convenient to the participant. The interview contained questions regarding the service where the clinician works, the clients they treat, their current treatment practices and their suggestions for improvement.

Client interview

Women accessing drug and alcohol services that have been pregnant in the past 10 years were informed about the study through a flier displayed at drug and alcohol services and/or through information statements provided by clinical staff. The information statement and fliers contained researcher contact information. Potential participants were provided with contact details of the researcher and asked a few questions to ensure they were eligible (i.e. have been pregnant in the past 10 years and drank during at least one of their pregnancies). Women that were eligible and that agreed to participate were to take part in a semi-structured face-to-face interview conducted by a trained research interviewer at a time convenient to the participant. The interview was to take approximately 45 minutes to complete and participants were to be reimbursed 30 dollars.

Analysis

The interviews were transcribed and analysed for themes in NVivo9.

Quotes from the interviews are used to highlight issues identified in the literature review. In some instances within the quotes bold font is used to focus the reader to issues considered by the authors to be significant.

Results

Literature review

The prevalence of drinking in pregnancy

Alcohol consumption is common among Australian women with the vast majority (83.6%) of women aged 14 years and over reporting alcohol use in the past year (9). Although most women drink at low levels a minority will classify as having an alcohol use disorder. In the National Survey of Mental Health and Well Being, 9.8% of women reported harmful alcohol use and 2.4% alcohol dependence (10). In the 2010 National Drug Strategy Household Survey (NDSHS) 11.3% of women aged 14 years and over drank at levels for risk of alcohol-related harm in their lifetime and 10.9% reported risk of injury from drinking on a single occasion (defined as more than four standard drinks) at least yearly, 10.1% monthly, 7.0% weekly and 1.8% every day or on most days.

Of women who gave birth in Australia in 2008, 41.2 % were aged between 20-29 years (11) and alcohol consumption is common among this age group with 86.1% of women aged 20-29 years reporting drinking alcohol in the past year (9). A significant minority (16.8%) of these women reported that they drank more than four standard drinks on one occasion at least weekly and 1.7% reported doing so every day or on most days. As about half of all pregnancies are unplanned this rate of drinking by women of child bearing age is of concern as some fetuses may be exposed to alcohol before the woman is aware that she is pregnant. (12, 13).

In the most recent NDSHS survey, most pregnant women either reduced their alcohol consumption (45.5%) or abstained from drinking (52.0%) once they were aware of the pregnancy (9). This is consistent with data from the Women's Health Australia longitudinal study that found that women who were currently pregnant were more likely to be abstinent or to rarely drink, although 3% reported drinking at risky levels (14). More women in the most recent NDSHS survey abstained during pregnancy (40.0% in 2007 to 52.0% in the 2010 NDSHS) suggesting an increasing awareness of not drinking as the safest option (9). Consistent with these findings, a recently published study found a decline in the proportion of women drinking during pregnancy in 2007 and in 2011, however there was no change in the proportion of women drinking at high risk levels (defined as more than five standard drinks or more on one occasion) at any time in their pregnancy or after the first trimester (15), indicating a need to focus intervention resources to this high risk group.

As with previous research, examination of the 2007 NDSHS found, that older age was significantly associated with alcohol use in pregnancy, after controlling for other psychosocial characteristics (16). This suggests a level of alcohol dependence in this group, making abstention more difficult. Other research has found high risk consumption during pregnancy is associated with lower education and single marital status and low level consumption is associated with older, more highly educated women (15). Any intervention efforts targeted at the high risk, possibly alcohol dependent, group of women needs to consider these possibly distinct subgroups.

In addition to national survey data, data are available from individual research studies and jurisdictional reporting mechanisms (17, 18). In each state and territory the Midwives Data

Collection provides prenatal data on obstetric conditions, procedures and outcomes, neonatal morbidity and birth defects for every birth in Australia (of at least 20 weeks gestation, or if gestation is unknown at least 400g birth weight). Although not a standardised data collection, self-reported alcohol use in pregnancy is included on prenatal forms in Tasmania, the Northern Territory (NT) and the Australian Capital Territory but only published for the NT. In 2006 in the NT, 8% of non Indigenous and 14% of Indigenous women reported alcohol use during the first visit with a midwife, decreasing to 4% of non Indigenous and 8% of Indigenous women at 36 weeks (19).

Correlates of alcohol use in pregnancy

A systematic review of fourteen studies from a range of countries examining predictors of alcohol use during pregnancy found that the most consistently reported predictors were pre-pregnancy alcohol use (quantity and frequency) and having been abused or exposed to violence. High income and a positive alcohol dependence screen were less consistent predictors of alcohol use in pregnancy. The effects of SES are contradictory, while any alcohol consumption in pregnancy occurs more often in higher SES women, heavy drinking is more common in their lower SES counterparts (20). Unemployment, marital status and education level were found to be predictive of alcohol use in pregnancy infrequently (21). Risk factors for having a child with FASD include heavy alcohol consumption in pregnancy, already having a child affected by FASD, high gravidity, living in a non-metropolitan area and being of older age at delivery (22, 23).

Accessing treatment for alcohol problems

Alcohol is the most commonly reported drug of concern among people seeking treatment in alcohol and drug services in every state of Australia except Tasmania (24). The main treatment provided for problematic alcohol use was counselling (44%), most often in a non-residential (61% of episodes) or residential treatment facility (21%) (AIHW 24). The type of treatment available and received differed by geographical location. Counselling was the most common form of alcohol and drug treatment episode in very remote areas with two thirds (67%) of those seeking treatment receiving counselling. In major cities counselling was provided in 41% of treatment episodes. Withdrawal management (detoxification) was lowest in very remote (0.7%) and remote areas (6%) compared to major cities (17.7%) (AIHW 24). This reflects the distribution of services, with the vast majority of drug and alcohol specialist services being located in metropolitan areas.

Research suggests women are less likely to use specialised alcohol and drug treatment services and are more likely to use primary health care than their male counterparts (25). Only a small proportion of pregnant women who drink at problematic levels are identified and treated. One review suggests only 10 to 50% of substance-using pregnant women will access treatment services (26).

Birth Outcomes for women with alcohol problems

Research in Australia involving linked data found only 0.1% of births recorded in NSW between 2000 and 2006 were to women who had had an alcohol-related admission during pregnancy, the majority of whom resided in regional and remote areas (27). Another study in NSW over a 5-year period (1998–2002) found 342 of the 416,834 birth records analysed were coded positive for maternal alcohol use (i.e. for at least one alcohol-related ICD-10-AM diagnosis). The outcomes for these women and neonates were much poorer than those born to women with no alcohol-related admissions; deliveries involved more general anaesthesia, neonates born to women in the alcohol group were smaller for gestational age, had lower Apgar scores at 5 minutes, and were admitted to special care nursery more often (6). Apgar scores are widely used to assess the health of a newborn immediately after birth and at five minutes to determine whether a newborn needs immediate medical care. The Apgar scores are based on five criteria: Appearance, Pulse, Grimace, Activity, Respiration, with higher scores indicating better health. Research using linked data in Western Australia examined a cohort of alcohol exposed pregnancies (i.e. all women with an ICD-9 or ICD-10 alcohol-related diagnostic code, indicating heavy alcohol consumption) recorded from 1983 to 2007 and compared their rates of cerebral palsy to an unexposed group (28). As in NSW the alcohol-related diagnosis was recorded in only a small number of cases. The study found rates of cerebral palsy in non-Aboriginal children were higher in the group with a maternal alcohol-related diagnosis and concluded that harmful alcohol use is a modifiable risk factor for cerebral palsy. The authors also found an increase in cerebral palsy in Aboriginal children when a maternal alcohol-related diagnosis was made in the year prior to pregnancy suggesting a potential lack of identification of alcohol use disorders during pregnancy(28).

Barriers to care and treatment preference

For women seeking alcohol treatment, a number of issues have been identified that affect the amount and type of treatment received (29). Firstly Australian research suggests that women with a comorbid affective disorder are more likely to seek treatment (30), but that women are more likely to attribute their problems to mental health rather than alcohol use and hence are more likely to be seen in mental health or general practice rather than specialist substance treatment centres (25, 31). In addition, there are only a limited number of specialist services that treat pregnant women². Yet being able to offer women a choice of treatment increases the probability of entering treatment (33). The lack of available services is therefore a factor in under treatment.

Secondly, there are a number of barriers to treatment for substance use disorders for pregnant women. These include: fear of losing custody of their children; social stigma; lack of childcare; lack of transportation; and a lack of access or priority for pregnant women (34,

² For example in NSW, a review of substance use in pregnancy services in 2007-08 reported the drug use in pregnancy programs are situated mainly in the Greater Sydney area, including services in Inner and Eastern Sydney, Sutherland/St George, Royal Prince Alfred Hospital, Nepean health services, Westmead and Blacktown health services. There is also a service in the (former) North Coast Area Health Service that covers the restructured Northern and Mid North Coast LHDs (i.e. Port Macquarie, Coffs Harbour, Lismore, Grafton, Tweed Heads). In addition there are collaborative broad-based psychosocial risk management services that involve maternity, drug and alcohol and others (eg. social work). Some cover entire former Area Health Services (AHS) while others are situated in particular cities or hospitals that run high risk pregnancy clinics.³² NSW Department of Health. NSW Health Review of Substance Use in Pregnancy Services. North Sydney: NSW Health, 2009.

35). The most common barriers cited by women for not seeking treatment are: not wanting to give up alcohol; being afraid they would lose their children to care; being afraid there would be no-one there to look after the children if they went into treatment; and their partner did not want them to go into treatment. In one study, compared to women who did not accept an offer of treatment, those who accepted treatment had more severe problems, were more likely to have had treatment previously, were more likely to have partners who also used alcohol and were much more likely to have experienced sexual or physical abuse during pregnancy (34). Factors that promote treatment seeking in women include support from someone significant and acknowledging that sharing the problem with others was a relief. Feelings of shame and the perception that alcohol problems were incompatible with femininity were hindrances for treatment seeking (35, 36).

Types of treatment for problematic alcohol use

Psychosocial, screening and brief interventions

A Cochrane systematic review (to 2007) of psychosocial interventions for pregnant women enrolled in alcohol treatment programs found no trials for psychosocial interventions compared with other interventions for treating alcohol dependence in pregnancy (37). The authors concluded that controlled trials need to be conducted with this population to determine the most effective therapy for pregnant women seeking treatment for alcohol dependence. There have been trials designed to reduce alcohol use in pregnant women but many of these have not specifically focussed on pregnant women currently in alcohol treatment programs, indicative of women having an alcohol use disorder. Trials have focussed on reducing alcohol use in at risk pregnant drinkers and women that are not pregnant and that are alcohol dependent or require specialist alcohol treatment.

It has been proposed that brief intervention should be at least as effective with pregnant women as with other client groups (38). Although only a few brief intervention trials have been conducted with pregnant women, these women are generally motivated to reduce their alcohol intake, and it is mooted that the contextual change provided by the pregnancy provides an opportunity to break drinking behaviour patterns.

Screening, brief intervention and referral to treatment for alcohol use in the prenatal care setting has been found to be effective in reducing alcohol use among women with heavier alcohol use (39-41) with some evidence to suggest that positive effects are enhanced when a partner participates (40). Although women with the heaviest alcohol use were not included in all these studies and were referred to specialist treatment. Women who were currently in treatment for drug or alcohol abuse were excluded from the Chang et al study (40) and 24 of the 369 pregnant women in the O'Connor (42) study were referred to alcohol treatment instead of being included in the study. This was a pilot study comparing the receipt of written information on the risks of drinking during pregnancy with a one-hour empathetic, client centred, motivational interview. The authors found that among women that reported the highest blood alcohol concentration (BAC), greater reductions in drinking were seen among those that received the motivational interview compared to the control (information only group) (41). The authors concluded that a motivational interview for women who are at greatest risk is effective while a simple assessment and advice may suffice for women with lower consumption levels.

There are a number of standardised measures to screen for alcohol use including; the T-ACE (Tolerance, Annoyed, Cut Down, Eye Opener) (43), the TWEAK (Tolerance, Worry, Eye Opener, Amnesia, Cut Down) (43-45), the AUDIT (Alcohol Use Disorders Identification Test), (46) and the AUDIT – C. The AUDIT-C (a shorter version of the AUDIT which includes three consumption questions) has been validated in pregnant women in the US but not in Australia (47). A systematic review of prenatal screening instruments to identify high risk drinking in pregnancy found these instruments had high sensitivity in detecting risky drinking (48). However, this high sensitivity comes at a cost of lower specificity (i.e. more false positives), so for every woman identified correctly, as many as three women could be identified as drinking at risky levels when they are not. In addition, as these screening tools focus on high alcohol intake they may miss women drinking at low to moderate risk levels.

Despite the potential benefits of screening, brief intervention and referral there is no standardised national screening of alcohol consumption in pregnancy in Australia although there has been recent Australian research regarding best practice for asking about alcohol consumption in pregnancy. The study report provides suggestions for detailed questions for both research and clinical practice, including the recommended use of validated instruments such as the AUDIT-C as a rapid screening in clinical practice (49).

Surveys conducted in Western Australia found that less than half (45%) of health professionals caring for pregnant women routinely asked them about their alcohol use. About one-third sometimes asked about alcohol use, one-third only asked if certain risk factors were present and 12% reported they did not ask. The vast majority of health professionals (96%) agreed that education/information about the effect alcohol may have on the fetus should be readily available to women of child-bearing age (50). Providing education to health professionals resulted in an increase in the proportion of health professionals who routinely provided pregnant women with information about the consequences of drinking alcohol during pregnancy (51).

It is recognised that health professionals have limited time and undertaking all the recommended screening and prevention is not always practical given their priorities to immediate care. To assist, computer delivered interventions have potential. A randomised pilot study conducted in the US in 2011 to assess the acceptability and feasibility of a computer delivered brief intervention for alcohol use in pregnancy showed promise (52). Women who received a brief intervention showed decreased alcohol consumption and higher birth weight babies. Further research is warranted in this area although it is recognised that women with more severe problems may require specialist treatment including supervised withdrawal.

Pharmacological interventions

There are effective pharmacological treatments to assist in the symptoms associated with withdrawal from alcohol (eg. benzodiazepines, valproate) and to maintain abstinence from alcohol (eg. disulfiram, naltrexone and acamprosate) although there is evidence to suggest that pharmacotherapy may be underutilised in the treatment of alcohol use disorders more broadly (53, 54). There are very few studies that investigate the use pharmacological treatments for alcohol among pregnant women (55). This is in part due to hesitation of pharmaceutical companies and clinicians to conduct trials with women who may become pregnant as well as difficulties in recruiting women (particularly from minority groups).

A Cochrane systematic review of pharmacological treatments for pregnant women found no randomised or quasi-randomised studies that could be included in the review. There were no studies comparing two pharmacologic interventions or comparing a pharmacological treatment with a psychosocial treatment, placebo, or wait list/non-intervention (56). The main reason for study exclusion was inadequate study design including trials without control groups or only focussing on newborn outcomes. Case series, case reports and cohort studies of women who have used pharmacologic treatments for alcohol consumption during their pregnancy provided the evidence base. The review concluded that quality cohort studies with appropriate unexposed controls are required to assess potential confounders.

Alcohol withdrawal during pregnancy can have adverse maternal and fetal effects and inpatient admission is recommended if detoxification is required. This allows for the monitoring both of maternal and fetal wellbeing. Hydration and electrolyte levels should be monitored and benzodiazepine (diazepam) administered for symptomatic relief (57). While there is some data showing a higher risk associated with benzodiazepine use in the early stages of pregnancy, including oral clefts and other malformations, results are inconsistent (58). Benzodiazepine use in the latter stages of pregnancy has also been associated with postnatal withdrawal symptoms and floppy infant syndrome but these risks can be adequately managed in most women (57, 59). Nutritional and vitamin supplementation including thiamine, folic acid and pregnancy vitamins may be used in treatment/to aid with withdrawal? (60, 61).

The safety of medications such as acamprosate and naltrexone to reduce alcohol consumption and prevent relapse has been demonstrated among the broad population. However medication compliance is a significant issue (62). The data on teratogenic or toxic effects from these medications during pregnancy is limited and no definitive recommendations can be given. These medications are administered on a case by case basis after careful clinical assessment. There is an urgent need for research in this area.

Table 1 overleaf shows the classification of pharmacotherapies used in pregnancy in Australia.

Table 1: Pharmacotherapies for alcohol problems among pregnant women

Drug	Used for	Risks	Australian TGA pregnancy classification
Benzodiazepine	Management of alcohol withdrawal.	Early studies note minor congenital malformations, such as cleft palate after first trimester exposure. Later studies did not find this result. Pooled data indicated that the risk is very small, especially with short-term exposure. Benzodiazepines in the third trimester or close to delivery may cause floppy infant syndrome.	Category C
Carbamazepine	Anticonvulsant medication used in alcohol patients who have multiple episodes of withdrawal.	Contraindicated in pregnant women. A twofold increase in major congenital abnormalities has been found in epileptic women who took the drug during the first trimester of pregnancy.	Category D
Valproate	Alcohol withdrawal.	Produces neural tube defects and is hence precluded from use in pregnancy.	Category D
Thiamine	Prevention of Wernicke's encephalopathy and Korsakoff's syndrome in the mother.	Recommended.	Unlisted: see product information
Folic acid	Prevention of neural tube defects.	Recommended.	Category A
Disulfiram	Used in the abstinence phase of alcohol treatment and inhibits aldehyde	Evidence on adverse effects during pregnancy are scant and it is therefore not recommended for use.	Category B2
Naltrexone	Opiate agonist that reduces the positive reinforcement of alcohol.	Contraindicated in pregnancy and lactation. An Australian case study of 18 women reported naltrexone did not increase fetal abnormalities (63).	Category B3
Acamprosate	Reduces the hyperexcitable state that results from chronic alcohol use.	No information on studies in pregnant women was found.	Category B2
Clonidine	Alcohol withdrawal.	No controlled data from human pregnancy studies.	Category B3

Category A - Drugs which have been taken by a large number of pregnant women and women of childbearing age without any proven increase in the frequency of malformations or other direct or indirect harmful effects on the fetus having been observed.

Category B2 - Drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformation or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals are inadequate or may be lacking, but available data show no evidence of an increased occurrence of fetal damage.

Category B3 - Drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformation or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals have shown evidence of an increased occurrence of fetal damage, the significance of which is considered uncertain in humans.

Category C - Drugs which, owing to their pharmacological effects, have caused or may be suspected of causing, harmful effects on the human fetus or neonate without causing malformations. These effects may be reversible. Accompanying texts should be consulted for further details.

Category D - Drugs which have caused or are suspected to have caused or may be expected to cause, an increased incidence of human fetal malformations or irreversible damage. These drugs may also have adverse pharmacological effects.

Treatment framework and context

Although there is limited research focusing on pregnant women with alcohol use disorders, treatment with a comprehensive holistic framework appears to have the best maternal and neonatal outcomes (26). Education, monitoring and screening throughout pregnancy is effective for women who are low risk drinkers (64, 65). Education and abstinence is suggested for those at moderate risk, and these programs should include risk management, goal setting and monitoring. Where possible, alcohol dependent women who choose to withdraw from alcohol should be admitted to an inpatient unit and receive close medical supervision, including monitoring of both the mother and the fetus (66).

If women are not alcohol dependent but wish to stop drinking, other settings may include: partial hospitalisation; residential treatment; outpatient individual or group psychotherapy; family or couples therapy; and/or involvement in self-help groups. Supportive counselling for pregnant women with alcohol-related problems has been shown to help reduce alcohol consumption prior to the third trimester in two-thirds of cases (67).

Following delivery, discharge planning should include relapse prevention and referral to community services and primary care. Parenting groups are also recommended to provide support to women and enable continued contact with this vulnerable group (68). Following birth, treatment should focus on promoting infant/maternal attachment. Interventions that aim to increase the mother's self esteem and/or self-efficacy are also recommended; however, most treatment settings do not make provision for babies or for other children to be able to remain with their mothers whilst they receive this care (69). Overall, women should be engaged in treatment as early as possible in a supportive, culturally sensitive and non-judgemental environment. This will require a full health and psychosocial assessment (66). Factors associated with early attrition from treatment programs include high levels of drug craving and withdrawal, more prior drug treatment episodes, fewer medical and drug problems and more family and social and psychiatric problems (70).

There is no clear empirical evidence as to which treatment modality is best. A recent review of integrated treatment programs (programs that combine substance use treatment and pregnancy, parenting or child services) suggests they result in significant reductions in substance use and are more effective than no treatment, in reducing maternal substance misuse (71). A number of components of successful programs have been identified, these are: positive parent role models and parent training; self-help groups; outreach; case management; life skills management; family support services; lengthy follow-up; and referrals and support across a range of domains including medical, pharmacological, transportation, mental health, educational, vocational, legal and respite care (72). There is a need to conduct further research to identify effective programs for pregnant women who use alcohol (72).

Interviews with stakeholders

Client interviews

We had significant difficulty recruiting women who were alcohol dependent and were/had been pregnant despite broadening the eligibility criteria to women that had been pregnant in the past ten years and involving more recruitment sites. We were unable to recruit any participants for this component.

Clinician interviews

The previous literature review documented the research evidence regarding treatment of pregnant women with alcohol use disorders and some of the barriers to treatment. Overall it showed that only a minority of pregnant women with alcohol disorders access treatment services. At the same time it has been argued that pregnancy offers a window of opportunity to engage women in treatment by capitalising on the motivation to stop drinking for the benefit of the baby. Given this there is a pressing need to identify the barriers to seeking, receiving and completing treatment during pregnancy. These barriers include, but are not limited to; fear of being reported to social services, losing custody of their child/children and logistical issues such as access, transport and childcare. Pregnancy can be a time of significant physical and emotional stress, particularly among vulnerable women experiencing social difficulties, for example research suggests that domestic violence may commence or increase during pregnancy (73). The gold standard model of treatment is one, therefore, where flexibility is paramount.

With respect to antenatal services, in NSW (where the interviews were conducted), the first antenatal hospital visit for pregnant women is usually at the end of the first trimester, from 13 weeks gestation. In 2010 almost 80% of women in NSW had their first antenatal visit by 14 weeks (an increase from 62% in 1994) (74). However, women with drug and alcohol problems receive less antenatal care, presenting later on in pregnancy (75). Data from NSW has shown that that 30% of women with an alcohol use disorder presented in later stages of pregnancy compared to 10% of those without a disorder (27). Later access to care is associated with poorer maternal and neonatal outcomes.

In NSW, there are a range of models of care for pregnant women with problematic substance use, including alcohol. This includes perinatal consultation and liaison services operated from drug and alcohol treatment centres and multidisciplinary teams situated within specialist antenatal clinics (75). The availability of these services varies by geographical location, with services more prevalent in metropolitan areas and limited, if any, services available in some regional and many rural areas. At the same time research suggests rural and remoteness is associated with a disproportionately high number of alcohol related hospital admissions during pregnancy (27).

In specialist antenatal clinics a collaborative approach to the care of pregnant women with known substance use problems is the gold standard. Specialist clinics offer a service that is convened by staff from a number of different disciplines (obstetrics and gynaecology, maternal and child health, drug health, and social work). The objective is to address the myriad of physical and psychosocial problems that these women face to improve maternal and infant outcomes for the duration of the pregnancy and in the longer term. Referral to specialist antenatal clinics can occur via a number of pathways including community-based

general practitioners, drug and alcohol services, Aboriginal Medical Services, and women attending other antenatal clinics who screen positive for substance use.

It is important to note the profile of pregnant women in specialist clinics in NSW is one of severe disadvantage and poor health (75, 76). Further these clinics are largely addressing illicit drug use, with opiates the primary drug of concern (76), although women with alcohol dependence are likely to be referred to these clinics where they are available. In areas where there are no specialist clinics, pregnant women with drug and alcohol problems are seen in regular antenatal services by midwives and then referred to drug and alcohol clinicians if substance use is identified as a problem. In some areas this referral may be to a Consultation Liaison (CL) specialist, generally with a specialist nursing background who is available to generalist staff for advice and support.

This section analyses and presents thematic information from 11 semi-structured qualitative interviews with clinicians who treat pregnant women with problematic alcohol use. The aim of this was to get expert clinical advice on the gold standard approach to treatment and factors that impinge on this approach.

Results of interviews

Eleven telephone interviews were conducted with clinicians from a range of roles: addiction specialists, obstetricians, neonatologist, gastroenterologists, drugs in pregnancy registered nurses and clinical nurse specialists. One third were addiction specialists and the others were clinicians. The clinicians mainly worked in drug and alcohol services or in specialist antenatal clinics associated with large public hospitals in Sydney and Newcastle. The interviews ranged in duration from 16 to 40 minutes with an average of 23 minutes.

We attempted to also conduct interviews with women that were alcohol dependent and were/had been pregnant but were unable to recruit any participants for this component. We had significant difficulty recruiting women despite broadening the eligibility criteria to women that had been pregnant in the past ten years and involving more recruitment sites.

Settings

Respondents worked in specialist drug and alcohol services or high-risk antenatal clinics. Some worked mainly or entirely with pregnant women while a few also treated male drug and alcohol clients. A few reported they attempted to engage the partners or families of pregnant women with services where necessary. The clientele was, in the main, highly disadvantaged and alcohol problems often symptomatic of this environment.

'All the people that I see are women, obviously I see their partners as well but the majority are women, the youngest is 15 and the oldest 40. Most are lower socioeconomic group and majority of pregnancies are unplanned.'

Clinicians reported that other issues like domestic violence need to be addressed and are sometimes overlooked in this group.

'I mean one thing we haven't really discussed in term of looking at alcohol use in pregnancy we talk about the awareness of its teratogenic effects and the physical effects of it but of course what we see in practice a lot of the adverse effects relate to behaviour, violence and other things that are sort of co-factoring and that impacts again on pregnant women as it does outside of pregnancy. We know that things like domestic

violence have a relationship to alcohol and they are much more likely to occur in pregnancy.'

A range of substances were reportedly being used by pregnant women and this varied by type of service. Nicotine and cannabis were commonly reported. Given most of the clinicians were located in specialist drug and alcohol services, illicit drug use was also common and women were often in the Opiate Treatment Program (OTP), so methadone treatment was common.

'Cannabis and methadone – because we are a high risk referral to hospital we get most of the methadone referrals in the area...And cannabis probably the second most. And a smaller percentage of alcohol and amphetamines.'

Alcohol was not often reported as the primary drug of concern and all the respondents reported they did not see many pregnant women who were drinking.

'Probably two, one a year covering inpatient and outpatient.'

'At the moment I have about 30 women that I am seeing between two hospitals and of those probably two or three of them have had some alcohol.'

'It can vary, probably maybe 1 to 2 a month...currently I have 2 active women with alcohol dependence...but then I may have none for a long period of time. Probably over a year it may be as low as half a dozen.'

'Of the 50-60 patients that we know of (with drug and alcohol problems) probably only about three to four would admit to alcohol (a year).'

Screening and referral

Most participants felt that while there were many pregnant women drinking at risky levels in the antenatal services these women were not referred to the specialist services. This was largely attributed to the lack of effective screening and referral processes.

*'... In relation to women who drink alcohol they only get referred there if they get screened so I imagine there are many women who aren't screened or if they are screened for alcohol use, they underreport... so it really only **tends to be women with very significant history of alcohol use or previous pregnancy where alcohol has been an issue that get referred to that clinic**, it's a really small handful something like four to six pregnancies a year.'*

*'Women who are pregnant that present having a primary problem of alcohol is **very unusual**. We have a drugs in pregnancy unit here and we would get **maybe half a dozen a year**. Maybe. We had one about three months ago....no one would treat her, no one would detox her in pregnancy so they said they need to send her to a 'big specialist unit'. So I said to them there is nothing 'big' or 'specialist' about it but if you want to send her here, we will accept her but it's a long way to send somebody for treatment they could get at about 6 hospitals that are closer but they sent her and she was fine. That is like **ONE** case, that's how unusual that sort of presentation is.'*

*'Given what we know about the prevalence of alcohol consumption in the community, including during pregnancy and **the very, very small number of referrals that we see**, the only conclusion is that **there is very significant under treatment of this group**, and probably a lot of that may well be woman drinking at the milder end of the spectrum but it could well include women drinking at more harmful levels. It is a concern that a major referral hospital sees woman with these problems really infrequently so **I guess a lot of women are not being detected, not being offered treatment and may be continuing to drink.**'*

*'I imagine there are a lot of pregnancies that might get through [three regional hospitals were mentioned by the interviewee] where these issues aren't detected or if they are detected there are a lack of treatment options and probably **a lot of the time we don't find out about them.**'*

A number of participants previously worked in the private sector and noted there were significant issues with under detection.

'I think there are a lot of patients that have gone through without being identified and one potential area is the private system mainly because if they do some preliminary questioning it may not be necessarily emphasised in the admission process. Secondly, women do get away with not telling everything because it's such a brief process during the admission in the private system and in the public system there may be much more access to medical records that may provide or hint to the levels they are drinking so availability of information can provide or reduce the chance of missing a significant problem.'

Another reason for under-reporting was the shame and guilt felt by these women, coupled with the fear of involving child protection services and loss of their children to care.

'...Look at the prevalence of alcohol dependence only a very small percentage come into treatment and in pregnancy you have the added shame factor and you've got the fear of child protection services.'

'I suspect, my own personal theory on this ...there are definitely more women out there using alcohol at hazardous levels in pregnancy but the disclosure is probably not as easy as someone on a methadone program. I think it is easier for women to say yes I am on a methadone program than it is to say I am drinking at hazardous levels.'

Given the factors noted above: a disadvantaged and often chaotic lifestyle; poor screening and referral; and the guilt associated with continued drinking in pregnancy, these women did not present to services (antenatal and otherwise) until well on in their pregnancy, making the pregnancy even more high risk.

'Usually they say they stop [drinking] once they are pregnant but I try and ascertain how far pregnant they were when they found out they were pregnant. A lot of our clients do not find out they are pregnant until after the first trimester. We try to link them in to have a risk assessment with an obstetrician. A lot of our clients, whether its denial or not, are presenting when they are 20 weeks pregnant.'

'It is always good to engage them early, to have that time to work with them because sometimes they may be resistant to stopping and so the more times you have to see them the more chance you have to engage them. So identifying these women early is always a good thing.'

Respondents felt some women minimised their drinking when discussing it with a specialist. This was particularly so if they drank during a previous pregnancy and consequently given birth to a child with no apparent problems.

'...I would say most of the women... are willing to discuss that. I wouldn't say very willing. I mean it's a kind of bimodal distribution, once the idea that this is an issue, particularly if it's in the context of a broader discussion around pregnancy and substance use, I'd say maybe 60% of women fall into the category who say 'yes I agree I've got to talk to you about this' and about 40% of women with a problem would not acknowledge it even in pregnancy.'

'They tend to minimise how much they are drinking and I think often when we discuss the impact of alcohol on the baby they tend to minimise impact on the baby especially if they have had previous pregnancies they tend to keep on relaying back that there was nothing wrong with their other children and they drank that much or even more so they really don't think there will be anything wrong with this child.'

'I haven't had any problem [with disclosure] but of course because I'm labelled as a drug and alcohol doctor that means that if they don't want to come to me they've avoided me. So the people I actually see would be quite selected, and very much biased sub-set of the population. The people I see don't have a problem [disclosing].'

Respondents reported that, relative to illicit drugs, given the known associations with harm it was much more difficult for women to discuss problematic alcohol use in pregnancy;

'Probably more [women] find it easier to discuss other drugs than alcohol, I think that's the one they tend to minimise. I guess a lot of them are aware that it's a really risky behaviour in pregnancy and they'll minimise the drinking.'

'It's not infrequent that women will just say to the midwife or obstetrician that they will refuse to see us...and in that situation we can't see them.'

'I think there are some women who don't talk about it and in fact many of them may go undiagnosed and unscreened.'

'Limited opportunity for me to be able to get somebody whose alcohol dependent in and then you are kind of dealing with that stigma of location stigma. Where it might be difficult for an alcohol dependent woman to come to an OTP clinic and have to sit in that room with all those "drug addicts." That's problematic as well. That's part of the whole denial thing as well, part of that 'addiction knows no boundaries.' It's certainly my experience that this is the first time anyone's ever had that conversation with them about dependency about addiction many of these women don't see themselves as that way.'

Given the particular sensitivity around alcohol in pregnancy respondents felt it required great skill to engage and retain these women in treatment.

'...Ensuring that the woman understands the level of risk and that's tricky having that conversation it's often quite challenging to talk about the potential of brain damage for your baby when you are meeting somebody for the first time, I mean you are running the risk of her running out the door and never coming back again. So that's quite challenging to be able to have that conversation and then it's about putting a plan in place that is realistic with a view to abstinence and ensuring that is really assertively followed up.'

One clinician reported that "having the conversation" would be much easier if there was suitable information available. While there have been public health campaigns and labels on some alcoholic products that advise women not to drink in pregnancy and that drinking will harm their unborn baby, pamphlets with more substantial information were not available.

'One thing I am struggling with it at the moment is [the lack of] woman focussed literature that I can give her to say take this home and read it and get your significant other to read it as well ... I am struggling to find something that is written for women who are drinking in pregnancy, you know a little wallet card that exists is less than helpful really 'saying no is the safest option', yeah that's fine, we get that but we need to go a little bit deeper than that.'

There is lots of stuff around that we can give women for methadone, you are on methadone in pregnancy this is the potential effects, this is how we will be caring for you and your baby. We need something like that for alcohol. Unless I am missing something that is a really valuable tool, I'm not able to access anything that I can give her at point of care when we have had the conversation, here take this home and read it because we are going to continue to talk about it and work through it in a way that is non-threatening enough to maintain engagement. So it is not the scary 'oh right you drink your baby will have brain damage' and I'd run the risk of never seeing her again. The stuff I can find is lovely for professionals but not so good for the woman.'

We need to be a little bit more respectful of these women, they need more information than something the size of a business card I mean if we are serious about this, we need to be serious in the level of information we are giving these women as well.'

Treatment

Multi-disciplinary approach

A number of respondents acknowledged they were situated in specialist clinics where there was substantial expertise and established links between services, but that many pregnant women with problem drinking were not seen in these services. Even within the specialist services alcohol had not generally been the focus of treatment in pregnancy.

'[Antenatal care] wouldn't have a structured program because the number of cases is low and there are no staff with that defined responsibility. They would be treated within the drugs and pregnancy team so that would be undoubtedly be their role but as I said they would only have one case every couple of months where alcohol is the primary drug of concern, they may some women, chaotically poly drug using women but it's not the common experience though...even here.'

'I am operating in a very privileged context in the clinic that we run and I believe that yes they do operate quite well together. But I am aware that many women with significant

alcohol dependency problems are not being referred to my clinic. I am aware that we have only really scratched the surface with alcohol dependency and the focus has not been on that and I suspect that the people attending general antenatal clinic services probably don't get that degree of joined up care.'

In areas without a dedicated specialist service, there were difficulties reported in locating suitable services for pregnant women with alcohol problems.

'I find it really challenging in so far as the lack of services. It's very easy to get someone on a methadone program, it's really easy, come in; admit to using heroin, great we have an answer for this it's called methadone. We don't have that for alcohol in pregnancy so it's really around a lot of motivational interviewing looking at trying to devise a plan about reduction or in the acute setting perhaps an inpatient admission.'

Some clinicians reported that the processes they had in place worked well and this was usually when there were established relationships and good communication between teams.

'Our process actually works really well already because we have very good relationships with the antenatal clinic. There is also an outpatient service that looks at high risk pregnancy so even when they are then discharged the high risk pregnancy clinic can follow them up. Also there is a list of patients referred to the drug and alcohol service and we keep them on a white board so to speak and manage the cases up to post delivery.'

'I think we have pretty good links with social services on that side and with paediatrics.'

It was felt however that the existence and importance of a drug use in pregnancy service should be highlighted in the broader health community.

'Sometimes drug use in pregnancy services do not get seen as an important role. In some hospitals, some of the senior midwives do not see it as an important role. Some of them really do. I just think getting services recognised out there - that there are services provided out there for women and it's something that [sic] quite important.'

Whilst there was a variety in the configuration of services; there was general agreement about the approach to treatment which was woman centred.

'You need to categorise the level of their drinking. Some may not need medication and others might, some may not need an inpatient admission and others might. Let's just say they require an inpatient admission, we often admit them conjointly with the antenatal team so they get antenatal care as well as drug and alcohol services and often they are admitted in an antenatal ward even though it is a joint admission.'

'If it is a significant level of dependence and they need admission generally, if it is early in pregnancy, and the obstetrician is ok and withdrawal unit ok, then we'd admit them to the withdrawal unit. If there is high risk we'd approach the obstetrician about admission to hospital. We've got a very supportive obstetrician so generally that's not particularly difficult or a problem. And then follow up with some after care.'

The main treatment modalities were counselling and detoxification. Detoxification was undertaken either on the antenatal ward or in a specialist residential clinic, in a multidisciplinary team framework.

'We will use specialist residential facilities for alcohol detox particularly early in pregnancy where there is less anxiety about the possibility of precipitating labour or some obstetric problem occurring so we will organise for people to go into those facilities and provide medical sign off... However, we also do often admit people to the antenatal ward for alcohol and drug stabilisation including alcohol detox. When I say often, we probably admit one or two a month and fortunately our midwives and antenatal staff, because they get good inpatient support from drug and alcohol services are reasonably confident about managing that now so they will admit on no obstetric grounds.'

'We admit them and manage it [the alcohol problem] with diazepam as low a dose as possible, basically treating the withdrawal. We are mindful that with valium side effects have been reported. We only use the diazepam where it is needed and also we talk with an obstetrician ...And check that she is happy for us to use diazepam, but most times the view is that it's safer than the alternative.'

Given the considerable potential for maternal and neonatal withdrawal, a longer stay in hospital post-delivery was considered as an important component of treatment.

'In terms of alcohol dependent women there are obviously a number of issues around managing them depending upon firstly what their status is at the time leading up to delivery in terms of their alcohol consumption, how stable they are or not, whether there are any issues with the baby in terms of growth restriction, Fetal Alcohol Spectrum Disorders or early neonatal abstinence syndrome so we would hope that we would want to identify antenatally or in the immediate postnatal period any fetal abnormalities that we have to manage or prematurity.'

'Then we would generally encourage women to remain in hospital and so we would score the baby for withdrawal and manage that appropriately and obviously monitoring the mother for the postnatal period themselves for the possibility of acute withdrawal particularly if they haven't been engaged in antenatal care and haven't managed that before birth. So generally we would keep people in hospital, have input from drug and alcohol services to manage any withdrawal, from the paediatric services to manage neonatal abstinence syndrome and we would take the opportunity of counselling talking about their dependency issues and try to organise appropriate follow up services for ongoing management of that. We would also get input from our liaison psychiatrist service, where appropriate, and from social services as appropriate around that.'

'We say we think you should stay in hospital so we can monitor the baby for withdrawal and many women will be happy to do that but we take the few days as an opportunity for both education and assessing other needs.'

'All the women come through the specific clinic for the drug and alcohol and there is an alert for a birth alert so whenever they come in for delivery we are contacted and all these women will stay in the hospital for five days and we follow them up and give them support and see what other things they need. And they are linked up with our neonatologist at the children hospital all our mothers who use alcohol during pregnancy. This is routinely done for all our mothers who drink alcohol.'

In particular, a need for residential programs for women with children was identified.

'There is a real under-supply of residential programs that help women address the range of problems, not only their substance use problems but social problems and/or parenting problems where they can have long term admissions. So what happens now is community services intervenes and assumes custody [of the child] at birth or they don't, they sit back and wait and watch. There is not a high intensity treatment option in my mind that combines all of those things.'

Assertive follow-up

Alcohol use disorders are chronic and the potential for relapse is high. Given this, assertiveness in follow-up was regarded as a cornerstone of treatment for mother and child.

'We are very lucky in that we have a 'drugs in pregnancy unit' and they follow the woman through the pregnancy and for 18 months afterwards and they link them if the woman needs counselling, or relapse prevention medications or anything else they link them with the appropriate person.'

However, respondents noted that improvements could be made regarding follow-up post-delivery. Levels of follow up varied and although some reported adequate procedures were in place, many acknowledged that women with alcohol problems were not kept in contact with services. This contrasted to women with other substance use problems that required ongoing medication (eg. methadone or buprenorphine in OST programs) where contact was maintained. Women with alcohol problems were generally only seen in crisis with little ongoing support.

'We try to refer them to services before they have the baby you know counselling type services the relapse prevention services, we try and do that before they have the baby so they are not bombarded with all these new faces when baby is born. I work quite closely with the social work team at the 28 week mark and the 36 week mark we have preparation plans We involve the neonatologist, social work, if they are known to community services we try to involve them so we can work on a plan what is going to happen and what we can do what's best for the baby, once its born, and where we are going to take mum.'

'The consult liaison service case manages them until post-delivery and then they are sucked into the normal non pregnant stream for alcohol management.'

'I think the big thing that is the potential weakness is that we have the ability to focus care on women in the time of pregnancy and the immediate postnatal period. But then where they go in terms of services after that is much more haphazard. The longer term follow up is an issue.'

'We do have access to local relapse prevention counselling but that's really a series of six sessions and that's kind of it for that. We need to have something longer term in place because you aren't cured after six sessions so its access to other supports.'

'They are followed up a bit post-natally with midwifery, the family care team. I think they probably do get a bit lost if alcohol is their issue. If community services do get involved then community services have encouraged them to continue to seek support but yeah I

guess that they do kind of get a bit lost if community services aren't involved. It would be great if we could follow them up but we don't have the resources to do that.'

'I like that one of our public clinics actually has a clinic for our mums once they leave so the neonatologist goes to the public dosing point. So the mums from that area while they are going to have the medical review they can actually see the neonatologist at the same place. They are linked in if they need Hep C treatment all that sort of stuff. I think having a one stop shop in a place where you know they are going to have to come rather than making them go lots of different places cause they don't tend to follow up that way.'

Clinicians reported that many of their clients had unplanned pregnancies. Given this, and the fact that the first trimester was the one where rapid organ development occurred they felt it was important to offer contraceptive advice and services as core components of follow-up.

'Unless it's already happening... we need [to ensure] all school age kids 12 years and up to know that if there is any chance of getting pregnant, most is accidental pregnancy, but and to warn people who if you are into binge drinking. So prevention both in terms of contraception of people with known alcohol problems and education for all young women to think about contraception if they are going to be drinking heavily.'

In addition, ensuring the children of women who are alcohol dependent were followed up was considered important.

'Then after the birth, ongoing follow up for mum and then making sure that baby is known in a system and followed up.'

'In terms of the baby my biggest concern is around follow up for these kids. I think it's very clear that now these children need to be monitored for a number of years, we seem to be stuck in that 'you have got through the newborn period and you had check at six weeks and all is good' and I worry about these kids being lost to follow up and perhaps not accessing that growth and development, ongoing assessment by a specialised service.'

'Better education in nurses involved in early childhood care, possibly even looking at how teachers in preschools and primary school, how well their knowledge is of FASD and how they can pick up children who may benefit from early intervention process.'

'From our experience I can say we are not very confident in identifying the babies. Better education for everyone. FASD is something that evolves, the babies change as they grow older. Some features may become different as they approach primary school age and there is a wide spectrum of FASD features. Therefore, more education for people that are involved in their care would be good.'

'There has to be some form of continuity of care, so once the women are comfortable with the drug and alcohol service it is then cogent for the paediatric and neonatal service to be linked to the drug and alcohol service as a one stop shop....That unless you bring the service to where the at-risk population is you are just putting in extra treatment obstacles or treatment barriers for this population.'

Improving service delivery

Over and above the information already covered, respondents gave us a number of suggestions for improvement in service delivery. Firstly they suggested that more training and education for health professionals was required to improve rates of effective screening and treatment. Secondly, they noted the need for more detoxification services that were both willing and able to admit pregnant women. Thirdly there was a need for increasing the availability and accessibility of mental health services.

Education and training

The lack of trained health professionals, both specialist and mainstream, was considered pressing. Although respondents in this study felt confident in their capacity to engage this group of women they felt it wasn't as easy for midwives or other health professionals without specialist drug and alcohol training to do so. This was problematic as other professionals were the ones who would be called upon to identify and refer these women.

'It's really midwives asking the right questions, perhaps empowering the midwives a little bit to feel more confident. I mean it's easy for me to go and ask the questions but it's not so easy for the midwives and I am kind of reliant on the assessment that they do because if there assessment is 'you don't drink do you', 'well no' then I have lost that one she's never going to come to me. [That question] It's up there with 'your husband doesn't beat you does he?'

'The ongoing education is important regarding getting referrals. To make people aware that when they are doing their booking in and thinking maybe this is a problem and linking them in.'

'I think the basic problem we have is identification, once it gets to the [specialist] level our system is quite seamless, I think we have an established referral pathway and treatment pathway so the matter at hand is getting the women there.'

This training extended to education in clinical interviewing and delivering brief interventions.

'The main thing that is needed is further education for doctors and for other health staff on how to do a brief intervention properly. I think sometimes people don't raise the topic but also they sometimes just do it 'you need to stop drinking or you need to cut down'. So a bit of training on how to talk to people about alcohol using a brief intervention approach, using one of the evidence based brief intervention approaches or motivational interviewing. I think there is a bit of a skills shortage there.'

'Given the prevalence of alcohol use [in the general population] and that I imagine many women don't go to high risk antenatal clinics. Information at the level of primary health care as well at the level of obstetric or midwife care...but its more than just information, there is some skill obviously required in being able to discuss issues of alcohol use with women because they may well be concerned about their use and underreport their use.'

However, the lack of evidence on the association between low risk drinking and FASD was considered problematic for the delivery of training.

'Maybe there are some training issues for staff around managing alcohol in pregnancy something that we really don't spend much time on. So we give talks to GPs and periodic training of GPs and obstetrician would be very worthwhile. It's hard to get people to devote a lot energy to solving what doesn't seem to be a big problem particularly when there doesn't seem to be a solution. Why are you going to have a session to educate doctors when you are not sure if there is a problem, you are not sure about what advice to make and certainly not sure how to implement that advice. Doctors prefer clear, clarity and high quality evidence and if you have a situation with the opposite of that - no clarity and very limited evidence they feel that the education so called is actually a waste of time.'

Respondents felt it would be of help if the role of consultation liaison professional was expanded to take on substance use in pregnancy.

'I think the ideal model... not just to manage pregnancy, any hospital of a significant bed size ought to have a comprehensive drug and alcohol liaison service and that would include treatment of pregnant women. I think that is a big gap in service provision in Australia generally.'

Flexible detoxification services

Clinicians reported a lack of treatment options for alcohol dependent pregnant women; in particular there were a lack of detoxification facilities. A few noted that outpatient or home detoxification should be considered as there was reluctance in admitting pregnant women for detoxification in the later stages of pregnancy at some detoxification units and in some areas there were no detoxification services available.

'And then I guess for those women that actually have significant alcohol problems more than just say drinking at higher risk levels that need more intensive treatment, there aren't a lot of options.'

'Generally there is a state-wide shortage of detox units, rehabs and home detoxification services.'

Home detoxification or detoxification as an outpatient was reported as an option that would be particularly suitable for this group of women.

'We don't have an outpatient detox service unfortunately. That would be good like a home detox, a home visiting service. That would be great. That would mean that mum could have stayed home with her other children. There are not a lot of options available. The 'dependence of drug detox unit' are generally not hugely keen to have someone that is quite pregnant, if they are early on in the pregnancy they can go there but if they are later on they'd prefer they'd be detoxed here at hospital which is fair enough just cause the baby at that stage needs monitoring as well [as the mother] and they don't have the provisions. Outpatient counselling is the only other thing we offer them.'

It was reported that detoxification services in the non-metropolitan areas were even more limited.

'We are ok in the city, where I work we've got two hospitals with skilled inpatient detox but in rural centres there is a real shortage of detox units and a shortage of specialised drug and alcohol staff. For example in talking to people, doing a teaching session on the south coast of NSW and they were identifying that it was extremely difficult to get a anyone into a detox bed.'

However, both metropolitan and rural services were reported as reluctant to provide these women with any form of detoxification, particularly if maternity services were not co-located.

'Some hospitals will admit women in that situation... but there are rarely well developed D&A treatment programs that ..in those hospitals so that's a big gap across the state. In terms of D&A treatment services, many are very reluctant to admit women in any stage of pregnancy for withdrawal or for residential care and that's a big gap. There is no place that you can get a woman admitted to D&A services with a multiple pregnancy [twins and other multiples]. So anyone with a multiple pregnancy and substance use can't get a service.'

'We are really limited in terms of the options available for inpatient withdrawal management in pregnancy, certainly within this area health service we have an inpatient withdrawal management unit, we have two actually but they don't have the capacity to care for pregnant women.'

One is in a hospital that has no co-located maternity facilities so that is makes sense that that is not appropriate for women to go into a hospital that doesn't have a co-located maternity facility. The second service does have a co-located maternity facility but there isn't a relationship between the two services which is something that is a long term plan of mine to foster the relationship so we then have the capacity to utilise this service so we are pretty much limited on services, and the waiting list for an alcohol dependent women into detox is a three to four week wait and a baby can't wait for three to four weeks for a woman to get into treatment. That's pretty unacceptable.'

The other option that we would have [is to say to the woman] to come into the maternity unit and historically within this area health service that's not happened so there isn't that strong relationship between drug and alcohol and maternity services that can facilitate that process happening but it is something that we are in the process of addressing.'

Expanding access to mental health services and domestic violence support services

Clinicians acknowledged the extremely complex and sometimes violent nature of the lives these women lived and that these factors were sometimes overlooked.

'...We talk about the awareness of its (alcohol's) teratogenic effects and the physical effects of it but of course what we see in practice is that a lot of the adverse effects relate to behaviour, violence and other things that are sort of co-factoring.... we know that things like domestic violence have a relationship to alcohol and they are much more likely to occur in pregnancy.'

Clinicians reported improvements to services for mental health issues were needed. Given the often complex needs of the client group, more clinical psychologists and psychiatrists were required to address comorbid mental health issues.

'Within the service that we currently offer I think that we still have not satisfactorily addressed the issue of comorbidity: alcohol use and mental health. We don't currently have a psychiatrist as part of our service and I think that is a problem.'

'Shortage of psychiatrists – it's REALLY hard to get a patient assessed by a psychiatrist unless they are so far gone that they are an imminent risk to themselves or others. We need bulk billed psychiatrists at least half of our patients have joint mental health and drug and alcohol comorbidity.'

'In the outpatient services, most services can't afford clinical psychologists, so we have counsellors they do a good job but many of our patients have very complex needs and it would be great if we could afford more clinical psychologists. Our nurses are hopelessly overstretched just dealing with methadone and buprenorphine and the struggle to find any time at all to get involved in case managing our clients with alcohol dependence. So services in the community, better funding for drug and alcohol and mental health services in the community [is needed].'

'I think that the provision of a specialist inpatient area for women with perinatal mental health problems in particular and comorbid health problems would be an improvement [on current arrangements].'

'But what is not there, is a public clinic for patients with dual diagnosis... I wouldn't want the women to have a crisis every time they get access to mental health service and the problem is unless they have a very significant issue they are probably not known to the mental health service long term and it's very hard to prevent issues when they are in crisis in the current form of care. It would be good to have some sort of dual diagnosis clinic. We are working on providing that.'

In particular, the lack of residential programs for women with children was identified.

'There is a real under-supply of residential programs that help women address the range of problems not only their substance use problems but social problems and/or parenting problems where they can have long term admissions to. So what happens now is community services intervenes and assumes custody at birth or they don't, they sit back and wait and watch. There is not a high intensity treatment option in my mind that combines all of those things.'

Expansion of pharmacotherapy research

Whilst there are a number of well-established pharmacotherapies available to treat alcohol dependence, these were not available for pregnant women. This was noted by respondents as an area requiring considerable research.

'Another problem is there is a lack of research into the safety or effectiveness of anti-craving medications that are used outside of pregnancy situations (naltrexone etc) so it would be wonderful if there was more published research on the safety or otherwise of anti-craving medication for women that are pregnant.'

Barriers to be addressed

The barriers to treatment reported by the clinicians interviewed reflected those identified in the literature these were: social stigma; fear of losing of custody of their children; lack of childcare; lack of transportation; and a lack of access or priority for pregnant women (34, 35). This suggests little progress in this area in the last decade.

Stigma

The main barrier to service access was the substantial stigma associated with alcohol use during pregnancy, often as a result of the negative societal judgement imposed on these women.

'I think ...engagement is hard and sometimes people feel judged so I think that can be a barrier to women attending so I guess it is making sure they get into the right clinic with the right people and sometimes the barrier is the woman not wanting to engage so some people see alcohol as a normative behaviour and as socially acceptable so sometimes [it is] hard to engage them because in their social circle it is acceptable for them to drink.'

'The particular stigma of course related to any sort of substance use in pregnancy that makes it harder for women who have any substance use problems including smoking during pregnancy.'

It was reported that pregnant women (and possibly society at large) did not always identify alcohol as a drug. Education regarding knowledge of alcohol as a drug and the nature of alcohol use disorders is required to address the some of the issues relating to stigma around 'drug users.'

'Stigma, they don't want to be identified as a drug user.. I often have some of them say I am not a junkie, because they are not injecting, because alcohol or snorting a bit of amphetamine is ok because I'm not injecting. Educating the women on drug use [i.e that alcohol is a drug] so the stigma behind drug use is a big barrier.'

Currently it was felt the specialist clinics were largely addressing illicit drug use, with opiates the primary drug of concern (76). Hence the services available for alcohol dependent women were very Opiate Treatment Program (OTP) focussed. Respondents felt that women with alcohol problems did not identify as having a drug problem and were not comfortable accessing services for people who injected drugs.

'I find this population group the most challenging out of all the substance using or dependent women that I care for because of the shame around disclosure. The barriers are: the lack of a really good treatment protocol for outpatient management.... Who does she go and see for example?'

'I think these women should be seeing a staff specialist in drug health and when you work in a public OTP unit there can be barriers to women being able to access a staff specialist... from a service perspective it's very OTP focused and its often quite difficult to be able to negotiate the system... to get the woman in to see a staff specialist. I know that's not across all centres, I know that there are some centres where staff specialists in drug health actually go to antenatal clinics. [However] access to a staff specialist is very much around an OTP focus, based in OTP clinic and seeing OTP clients all day every day.'

Several respondents noted that the barriers were the same as for non-pregnant women with alcohol problems: identification, stigma, practical barriers and access to appropriate services. These barriers may be exacerbated in pregnancy due to additional shame and practical issues.

'I think they are pretty much the same barriers for access to service for any substance dependency. Firstly there is an issue of identification that there is an issue. Then there is a barrier issue in terms of attitudes both from women themselves because of their previous experience or their perceived experience of how their alcohol use will be seen by other people.

But there are also barriers in terms on how some health care professionals will view women who have a dependency problem, as being not as high priority as women who are sick because of non-dependency as it were, so there is the potential there in terms of indirect or direct discrimination that worries women. Then there are the practical barriers around if you have got a major disruption to the normal organisation of your life by virtue of the impact of alcohol; both financially and the getting out of bed and all the rest of it, the timing of the clinical services, the waiting around for a couple of hours that might be a real problem to face for somebody who is very alcohol dependent. Then there is the question of access to facilities in terms of supervised withdrawal and management of alcohol dependency. It's not ideal. And what I was alluding to before the potential for there to be lack of coordination between services is a barrier.,

Fear of involvement of child protection is seen as a barrier for pregnant women. Clinicians noted that they had a duty with regards to reporting but there was often misconception regarding some disclosure too.

'And also the hearsay about child protection stuff – a lot of women will come in and go... sometimes it will take the third or fourth visit before they really open up. I often say to them I know you have heard stories about people coming and removing their children because they have disclosed stuff but you usually find that women who have their children removed haven't had them removed for that reason. They continue on with substance use, they are not linking and engaging with services, they don't tell you that stuff. I try to say a community service is not about removing children, it is about working with families. And if you are doing all the right things then you really shouldn't have a great deal to worry about if you are doing the wrong things then you have cause to worry.'

'The concern is child protection getting involved, that is always there for them, worried if they disclose and seek help that that will draw the attention of community services.'

'The broader issue that women are concerned if they are honest about their alcohol dependency problem that it will lead to social service involvement and they see their children removed from them and that is not an unreasonable concern because it is a duty for us to notify DOCS and other agencies if we have concerns even antenatally.'

'I guess the social consequences of being caught are pretty high if you got other children as they'll be taken off you. That might be better for the child, it might be, I think that the evidence that it is better for the child is not incredibly clear. It might be but it is clearly worse for the mother. I can hardly think of a case that the mother benefits from having a child taken away from her and I am pretty unclear of the extent that it benefits the child

unless they are fairly extreme neglect, extreme, cause they are out of the frying pan and into the fire in a lot of cases.'

Women need to be reminded that the drug and alcohol service clinicians can work as advocates for them when there is community service involvement.

'We work as an advocate for the women with regards to community service. So their link to our service is a support factor to them with regards to child protection stuff. I really value that stuff. You do see women that really make an effort to change their substance use during their pregnancy. They do genuinely care for their baby. I am glad we can work with the mums to get that across. A lot of times they are thinking of the welfare of the baby, and I agree that is very important but thinking of the welfare of the mother and giving credit where they do make some dramatic changes in their lifestyle to accommodate that baby should be taken into consideration as well.'

The practical and physical barriers such as a lack of transport and child care were also mentioned.

'Not being able to drive. Don't have a car. Also the financial issue. Even if they have public transport a lot of these women cannot afford to get here.'

'Because of their social situation some are unable to come to our service. Some don't drive, don't have a car. So that is one of the issues that prevent the women coming to our services.'

'People don't have transport, they don't have housing, they don't have money. This is a group of patients with a lot of problems.'

'People who have alcohol problems or are disadvantaged don't necessarily have someone that can drive them. They can't drive themselves because they've lost their license. They might already have a couple of kids. Who minds the kids when they go in? There is a lack of family friendly services. For women there is Jarrah House and one only one or two other services where they can take a child but who minds other children?'

'Child care. For all our clients there is that fear of being judged and there is a little bit of that still of course, they are embarrassed about it, they are not encouraged to admit they need help so that a bit of a barrier for them. I guess that for some of the girls it can be a geographical barrier where they live further away from the high risk service.'

Consultation and communication

Problems with consultation and communication between services were identified as a barrier to providing appropriate treatment. Clarity around the treatment pathways and referrals processes was required so that facilities that are unable to provide direct services are still able to refer women appropriately. Clinicians reported that specialist services with skilled staff with appropriate expertise were beneficial.

'That is one of the barriers too – information from doctors especially private sector, [they are] very protective of their clients and don't like to hand information over which would be very valuable during pregnancy.'

'I think linking into services would be good. I think a lot of the people that drink alcohol sometimes have limited social support... so sometimes programs like Brighter Futures are

good for these women because they don't tend to have a lot of social support. And so using those kind of services could be good and trying to see them early on in the pregnancy and try to start have a therapeutic relationship with them.'

'I think there are a number of services that specifically exclude pregnant women and I can tell you that one of our detox in this area health area had a policy to exclude women that are pregnant., at one time they did not make alternate referrals for the women. Their attitude was 'we can't take pregnant women so you can't come here. Thank you for your call.' That I think is bizarre and ridiculous but it was happening. I think the first basic thing is that any service that feels it cannot treat pregnant women, must implement a referral pathway and actively engage that group of women into a service that can treat them with a specific pathway e.g. if our detox, said they can't treat pregnant women, they would have to identify who their treatment partner would be and identify how they will transfer or cross refer patients and that is after all a core common part of the health care system, there is no expectation that every health care unit will treat every health care problem so there is nothing intrinsically wrong with a service saying we won't manage this group of patients as long as they make a fair and efficient referral for the patient to a place that will treat them. I think that is one thing that must be in clearly in place for all services that are making a decision not to treat people.'

'It's quite reasonable I think to not treat pregnant women because if something went wrong they'd have to put them in a bus to come here so that's a bad idea. I think it's perfectly reasonable for treatment of people with severe problems in pregnancy to be treated in major obstetrics units, which means drugs and pregnancy units, there are very few of them but they are complicated. That's for the city so that's 2/3 of the population, so covers the bulk of the population but that there are still plenty of patients that don't live in cities so I think there would be difficulties with treatment pathways for non-metropolitan women. There certainly are even within the city. I think some clarity around treatment pathways, referral pathway process. Of course it's difficult because this a group of patients that are unlikely to do what you ask them to do, so even if you have a clear pathway in place that would help a bit but certainly wouldn't solve the problem.'

'We are trying to establish a more collaborative relationship with obstetric services so that perhaps we could offer it [detoxification] through maternity. From this health service in the past I have had to send women to Y from X to do a detox in their maternity unit because we haven't had that relationship here. Not only that, we don't actually have drug staff specialists on site seven days a week which is another service that would be required to do this properly as women need access to this specialist care and treatment seven days a week. It makes sense to concentrate that relationship building in one centre rather than across multiple centres to have kind of a centre of excellence for the care of this population, bearing in mind that we won't be doing it on a weekly basis and I'd rather it was done in one centre than a number of smaller centres even more infrequently.'

Australian drinking culture

Finally, respondents commented on the drinking culture in Australia, recognising that alcohol plays a substantial and not always positive role. It was suggested a broad cultural shift regarding the acceptability of alcohol was critical.

'Culture is the first problem. I guess in the Australian community alcohol is part of life and they may not see it as being a problem, there may be some embarrassment, there may be some social problems relating to their use or they may not acknowledge they have a problem. Education of the public, maybe even starting from the primary school age, needs to be implemented or more intensively.'

'I think alcohol dependency in pregnancy is on the one hand is a huge Pandora's box once you open it and start trying to get to the true extent of the problem you may find things that you didn't want to know about. I am sure we have only scratched superficially the extreme end of the spectrum. I think that along with obesity, after smoking, it [alcohol] is likely to be the next major lifestyle health problem that has to be addressed but that is not peculiar to pregnancy. There is the whole potential raft of issues and to some degree addressing those and getting resources for them is going to require a shift in cultural attitudes. In Australia where I don't think we are in the same mindset about alcohol yet as we are about smoking, certainly or even obesity. There is still the problem around not perceiving alcohol really as a problem from my perspective of managing people with alcohol dependency in pregnancy it certainly is a problem.'

'Obviously a very common issue is there are a lot of women that drink in early pregnancy and don't know they are pregnant and that a tough one to deal with. It's a population health issue.'

Discussion

Findings from stakeholder interviews support the literature that few pregnant women access treatment for alcohol use. Given the prevalence of alcohol abuse and dependence in women of child bearing age in Australia this suggests pregnant women with these problems are poorly served and as a consequence under treated. The clinicians interviewed acknowledged they are only seeing a small portion of women drinking at risky levels and suggested that improvements in screening and detection are critical.

Early identification and treatment of women with alcohol misuse problems is essential to improving maternal health and preventing alcohol exposed pregnancies. Screening for alcohol use is recommended for all pregnant women with the provision of education, brief intervention, and continued monitoring where appropriate. While admission questionnaires in public hospitals often included questions on drug and alcohol use the routine implementation of these have not been adequately assessed and women may also underestimate or under report the extent of their alcohol use. This lack of disclosure was felt to be associated with the stigma associated with alcohol use in pregnancy. While the clinicians in our study were confident in their ability to discuss alcohol use they acknowledged it would be different for some midwives and professionals in primary care. They stressed the need to remedy this through specific education and training of staff at the primary care level to increase confidence in discussing alcohol use and asking the appropriate questions. Research suggests that training health professionals can indeed improve their knowledge, increase routine screening and practice of providing information on the consequences of alcohol use in pregnancy (77, 78). As pregnant women who continue to drink alcohol have been found to present later to antenatal services, more assertive methods of early detection are needed to identify women who require more-intensive intervention (42).

Once a pregnant woman with an alcohol use disorder is identified it was reported that there are a lack of services and treatment options. To improve treatment for this group, specialist services need to be developed and the number and/or capacity of specialist services that treat pregnant women with alcohol increased. The availability of services vary by geographical location and not all services have the ability to treat this population but clear protocols for referral need to be established and implemented. Given the very nature of pregnancy there has been reticence to tests pharmacotherapies for alcohol use disorders with this population. However, as there is also a lack of methodologically rigorous trials of psychosocial approaches suggesting a broader bias and this requires careful consideration.

Respondents noted the main treatment options needed were detoxification and counselling. However, the lack of access to detoxification services was identified as an issue in some areas with a need to establish relationships between detoxification and antenatal care (drug and alcohol and maternal health). The expansion of Consultation Liaison services to prenatal care may be a cost-effective option. Access to professionals that can assist with comorbid mental health issues was also identified as an area for improvement.

Assertive follow up was recommended by many of the clinicians as currently there were inadequate methods in place to ensure women and their children were provided with continued care. A few clinicians reported that women with alcohol use problem were not linked into ongoing services and there is a need to establish links to ongoing care post-delivery.

To date the focus of specialist antenatal clinics has not been on alcohol but these had been set up initially, and most appropriately, to respond high rates of heroin use. Clinicians interviewed reported that alcohol was not the focus of their service and if it was they would probably not have the resources and capacity to deal with all women who drank at risky levels. The question therefore remains whether there needs to be a broader focus for these clinics or if different styles of service provision are appropriate. There has been some preliminary research into the provision of computer delivered interventions for this population and this may prove promising (52). Clinicians also reported many women who drink alcohol in pregnancy do not consider themselves “drug users” and were unwilling to attend services that also treated this group.

The use of pharmacotherapies in pregnancy is limited. There is conflicting evidence regarding the safety of benzodiazepine use in pregnancy. However, clinicians compare the risks associated with continued alcohol consumption with the risks of benzodiazepine use in the withdrawal process, and withdrawal is often the safer option. Diazepam is used in the detoxification of pregnant women under clinical supervision. There is limited evidence on the safety and effectiveness of pharmacotherapy such as acamprosate and naltrexone during pregnancy. This is an area requiring further research.

High quality intervention research with pregnant women with alcohol problems is required, including pharmaceutical and psychosocial trials. However given the substantial stigma attached to alcohol use in pregnancy recruitment into treatment trials is likely to be difficult. This is an area thwarted by a poor evidence base yet treatment among this group should be a priority in the prevention of FASD.

In this study we attempted to recruit women who drank alcohol during their pregnancy but were unable to do so. It is difficult to recruit women into trials due to the substantial stigma associated with alcohol use. Stigma was commonly reported by stakeholders and often cited as a reason that women do not disclose alcohol use in pregnancy and access services. This suggests a pressing need for community and professional education about the nature of addiction.

In sum, whilst the literature and stakeholders interviews clearly showed that while the specialist services were expert and committed, they were few and far between, particular in rural areas. Given this it would suggest a need for more clarity around referral processes and a rethinking of the way services are delivered. Given the substantial maturity of alcohol use research in general, the paucity of rigorous research with pregnant women is both perplexing and disturbing. This may part explain the pervasive stigma these women face and why they are reticent to access treatment. Surely it is now time to focus our attention on this group and hence assist both these women and their infants alike.

Conclusions

Figure 1 presents a pictorial view of a treatment framework incorporating results from the literature review and suggestions from interviews with clinicians. Women with alcohol use disorders are more likely to present with a mental health issue than an alcohol problem and often seek help for alcohol use in primary care. There have been previous resources developed for general practitioners and other primary health care practitioners' to identify women and treat pregnant women.

Screening, brief intervention and referral to treatment (SBIRT) tools often include the '5A's' - ask, assess, advise, assist, and arrange. Primary health care professionals are prompted to **ASK** women that are planning pregnancy, pregnant or breastfeeding about their alcohol use. The **ASSESS** component recommends the use of the AUDIT-C, a short screening tool that has been validated in pregnancy (47). It is recommended that women who score 4 or greater on the AUDIT-C and with other risk factors should be administered the full AUDIT screening tool, women who score 6 or greater on the AUDIT-C should also be administered the full AUDIT. Women that score at high risk levels on the AUDIT should then be referred to specialist treatment services. **ADVICE** is given for women drinking at other levels. Health professionals are then advised to **ASSIST** women by writing a healthy prescription for pregnancy and **ARRANGE** follow up appointments as required.

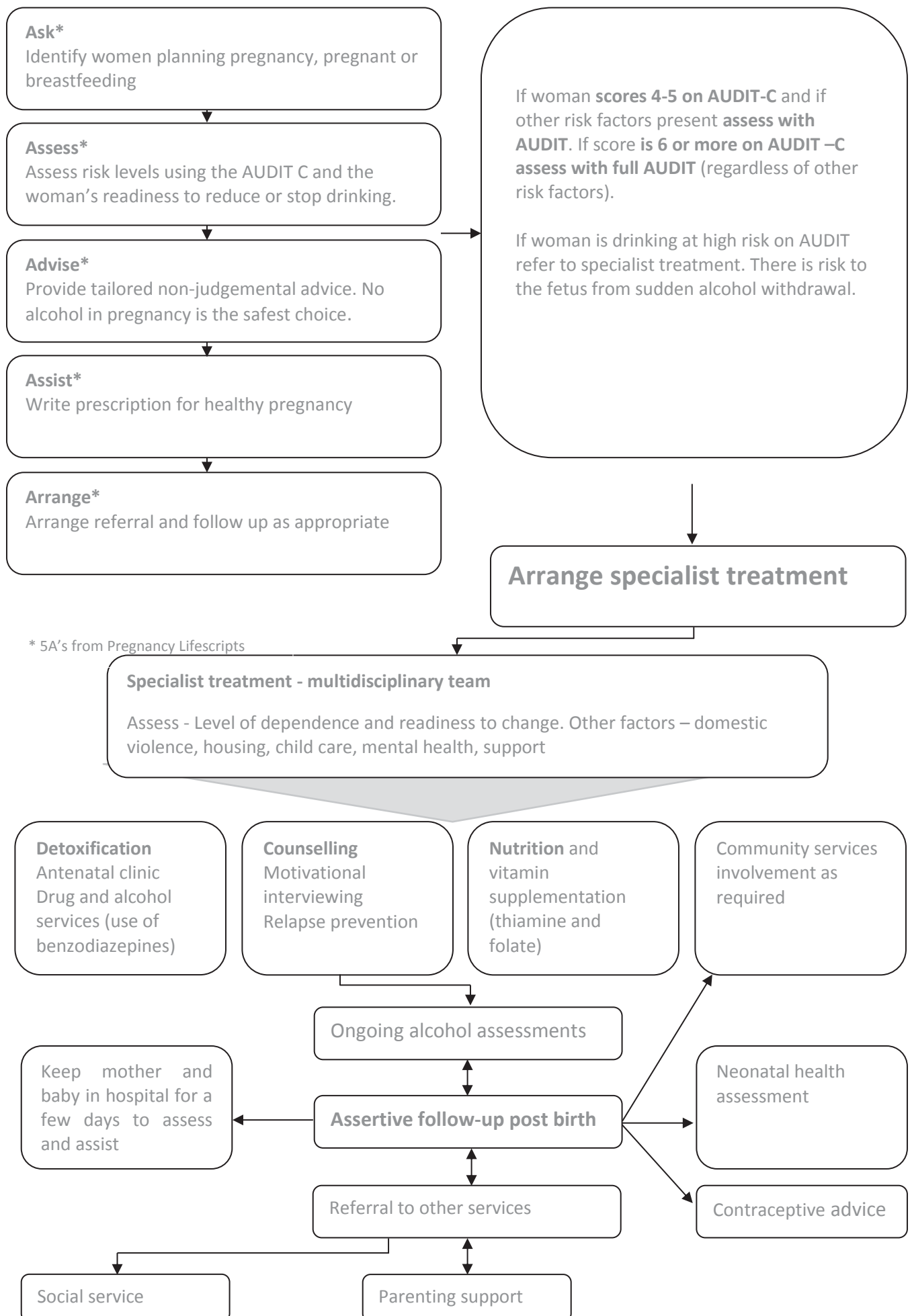
Access to specialist services is a particular issue in regional and rural areas as there are few, if any, specialist services. If pregnant women require alcohol detoxification they may need to be referred to larger centres or receive advice from experienced clinicians'. Home detoxification should be revisited as a possible option for women whose circumstances are such that she cannot attend as an inpatient.

Upon referral the specialist services will assess the women for their level of alcohol intake and readiness to change and whether withdrawal is required. The specialist clinics have multidisciplinary teams and also assess for contributing factors including domestic violence, housing, mental health and levels of social support. They also assess whether there are child protection issues.

Engagement and assertive follow up is the cornerstone of gold standard treatment for mother and child alike. The mother and baby should be assessed post birth. Ideally the woman should be encouraged to stay in hospital a few days to allow for assessment of both the mother and newborn. If neonatal withdrawal is going to occur it is most likely between 24 to 48 hours post-delivery and therefore hospitalisation for this period is recommended. Australian research has shown that a fifth to a quarter of mothers categorised as having an alcohol-related births will first present at delivery (intoxicated) (27). These mothers and babies will require additional scrutiny both in delivery and following the birth.

In addition to the immediate care post-delivery ongoing care is required. Referral to parenting support programs, ongoing alcohol assessments and contraception advice should be provided routinely. Given FASD is often not apparent until the early years; follow-up of mother and child should continue through the pre-school years. This will allow for the assessment of child health and support needs.

Figure 1: Treatment pathway for treating pregnant women with alcohol use disorders



Appendix A: Terminology regarding alcohol use

Alcohol use disorders

Alcohol use disorders are common disorders that can mimic and exacerbate a wide range of medical and psychiatric conditions, and can reduce the lifespan of those affected. People with alcohol-use disorders may be difficult to identify and present with general complaints such as malaise, insomnia, anxiety, sadness, or a range of medical problems (79).

The Diagnostic and Statistical Manual (DSM-V released in May 2013, replacing the DSM-IV)(80) and the International Classification of Diseases (ICD10)(81) are two systems commonly used to diagnose and classify problems associated with alcohol.

International Classification of Diseases (ICD10)

The alcohol-use disorders consist of alcohol dependence or harmful alcohol use (ICD10).

Alcohol dependence

Alcohol dependence is defined as three or more of these criteria in a 12-month period:

- Strong desire or compulsion to use alcohol
- Inability to control use
- Withdrawal syndrome
- Tolerance to alcohol
- Neglect of pleasures or interests
- Continued alcohol use despite physical or psychological problems

Harmful alcohol use

The ICD10 defines harmful use as either a physical or mental problem associated with alcohol in a 12-month period, or both.

The Diagnostic and Statistical Manual (DSM)

In the **DSM-IV**, alcohol disorders included alcohol dependence and alcohol abuse.

DSM-IV Alcohol Dependence

Alcohol dependence in the DSM-IV is defined as:

- Tolerance to alcohol
- Withdrawal syndrome
- Greater alcohol use than intended
- Desire to use alcohol and inability to control use
- Devotion of large proportion of time to getting and using alcohol, and recovering from alcohol use
- Neglect of social, work, or recreational activities
- Continued alcohol use despite physical or psychological problems

DSM-IV Alcohol abuse

The DSM-IV defined alcohol abuse as one or more problems with functioning in a 12-month period in a person without dependence: failure in obligations; alcohol use in hazardous situations; recurrent legal problems; or continued use despite social or interpersonal problems.

In May 2013 the DSM-V replaced the DSM and the criteria of abuse and dependence have been combined into the single 'alcohol use disorder'. It is divided into mild (2-3 symptoms), moderate (4-5 symptoms), and severe (6 or more symptoms).

DSM V Alcohol use disorder

A problematic pattern of alcohol use leading to clinically significant impairment or distress, as manifested by at least two of the following occurring within a 12 month period:

- Alcohol is often taken in larger amounts or over a longer period than was intended.
- There is a persistent desire or unsuccessful efforts to cut down or control alcohol use
- A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects.
- Craving, or a strong desire or urge to use alcohol.
- Recurrent alcohol use resulting in a failure to fulfil major role obligations at work, school or home.
- Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused by or exacerbated by the effects of alcohol.
- Important social, occupational, or recreational activities are given up or reduced because of alcohol use.
- Recurrent alcohol use in situations in which it is physically hazardous.
- Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol.
- Tolerance, as defined by either of the following:
 - A need for markedly increased amounts of alcohol to achieve intoxication or desired effect.
 - A markedly diminished effect with continued use of the same amount of alcohol.
- Withdrawal, as manifested by either of the following:
 - The characteristic withdrawal symptom for alcohol
 - Alcohol (or a closely related substance, such as benzodiazepine) is taken to relieve or avoid withdrawal symptoms.

Risky drinking and drinking at levels for 'risk of harm'

Individual studies define 'risky drinking' at different levels and cut offs are reported within the study findings. In Australia, people drinking at certain levels have been classified as drinking 'at risk of alcohol-related harm'. These cut offs reflect modelling based on risk of harm over a lifetime (e.g. liver disease) and on a single occasion (e.g. injury) and used in national guideline. Therefore the reporting of proportions of the population drinking 'at risk of alcohol-related harm' in published papers and reports often reflect the national guidelines on alcohol consumption of the time.

The current National Health and Medical Research Council's (NHMRC) Australian Guidelines to Reduce the Health Risks from Drinking Alcohol (Alcohol Guidelines), published in 2009, recommend for healthy men and women, drinking no more than two standard drinks on any day reduces the lifetime risk of harm from alcohol-related disease or injury. For healthy men and women, drinking no more than four standard drinks on a single occasion reduces the risk of harm from alcohol-related injury arising from that occasion (82). For women who are pregnant or planning a pregnancy, not drinking is the safest option.

References

1. Strandberg-Larsen K, Nielsen N, Gronbaek M, Andersen P, Olsen J, Andersen A. Binge drinking in pregnancy and risk of fetal death. *Obstetrics and Gynecology*. 2008;111(3):602-9.
2. O'Leary C. The association between prenatal alcohol exposure and fetal growth and preterm birth: Evidence from a systematic review and meta-analyses. *Evidence Based Nursing*. 2012;118:1411-21.
3. O'Leary C, Nassar N, Kurinczuk J, Bower C. The effect of maternal alcohol consumption on fetal growth and preterm birth. *BJOG: An International Journal of Obstetrics and Gynaecology*. 2009;116(3):390-400.
4. O'Leary C, Nassar N, Kurinczuk J, De Klerk N, Geelhoed E, Elliot E, et al. Prenatal exposure and risk of birth defects. *Pediatrics*. 2010;126(4):e843-50.
5. Gray R, Mukherjee RAS, Rutter M. Alcohol consumption during pregnancy and its effects on neurodevelopment: What is known and what remains uncertain. *Addiction*. 2009;104(8):1270-3.
6. Burns L, Mattick R, Cooke M. Use of record linkage to examine alcohol use in pregnancy. *Alcoholism: Clinical and Experimental Research*. 2006;30(4):642-8.
7. National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. Canberra: Commonwealth of Australia, 2009.
8. O'Leary C, Bower C. Guidelines for pregnancy: What's an acceptable risk, and how is the evidence (finally) shaping up? *Drug and Alcohol Review*. 2011;31(2):170-83.
9. Australian Institute of Health and Welfare. 2010 National Drug Strategy Household Survey report Canberra: AIHW, 2011.
10. Australian Bureau of Statistics. National Survey of Mental Health and Wellbeing: Summary of Results. ABS Cat No. 4326.0. Canberra: ABS. 2007.
11. Laws P, Li Z, Sullivan E. Australia's mothers and babies 2008. Perinatal statistics series no. 24. Cat. no. PER 50. Canberra: AIHW: 2010.
12. Naimi T, Lipscomb L, Brewer R, Gilbert B. Binge drinking in the preconception period and the risk of unintended pregnancy: Implications for women and their children. *Pediatrics*. 2003;111(5 part 2):1136-41.
13. Frezza M, di Padova C, Pozzato G, Terpin M, Baraona E, Lieber C. High blood alcohol levels in women: The role of decreased gastric alcohol dehydrogenase activity and first-pass metabolism. [See comment]. [Erratum appears in *New England Journal of Medicine* 1990 Aug 23;323(8):553]. *New England Journal of Medicine*. 1990;322(2):95-9.
14. Young A, Powers J, with assistance from Brotherston R, Wheway V. Australian Longitudinal Study on Women's Health (ALSWH), Report to the Australian Government Department of Health and Ageing. Canberra: Australian Government Department of Health and Ageing, 2005.
15. Cameron C, Davey T, Kendall E, Wilson A, McClure R. Changes in alcohol consumption in pregnant Australian women between 2007 and 2011. *Medical Journal of Australia*. 2013;199(5):355-7.
16. Maloney E, Hutchinson D, Burns L, Mattick RP, Black E. Prevalence and predictors of alcohol use in pregnancy and breastfeeding among Australian women. *Birth*. 2011;38(1):3-9.
17. Colvin L, Payne J, Parsons D, Kurinczuk J, Bower C. Alcohol consumption during pregnancy in non-Indigenous West Australian women. *Alcoholism: Clinical and Experimental Research*. 2007;32(2):276-84.
18. O'Callaghan F, O'Callaghan M, Najman J, Williams G, Bor W. Maternal alcohol consumption during pregnancy and physical outcomes up to 5 years of age: A longitudinal study. *Early Human Development*. 2003;71(2):137-48.
19. Tew K, Zhang X. Northern Territory Midwives' Collection: Mothers and babies 2006. Darwin: Department of Health and Families, 2010.
20. Abel E. An update on incidence of FAS: FAS is not an equal opportunity birth defect. *Neurotoxicology and Teratology*. 1995;17(4):437-43.

21. Skagerstrom J, Chan G, Nilsen P. Predictors of drinking during pregnancy: A systematic review. *Journal of Women's Health*. 2011;20(6).
22. Cannon MJ, Dominique Y, O'Leary LA, Sniezek JE, Floyd RL. Characteristics and behaviors of mothers who have a child with Fetal Alcohol Syndrome. *Neurotoxicology and teratology*. 2011(0).
23. May P, Gossage J. Maternal risk factors for Fetal Alcohol Spectrum Disorders: Not as simple as it might seem. *Alcohol Research and Health*. 2011;34(1):15-26.
24. Australian Institute of Health and Welfare. Alcohol and other drug treatment services in Australia 2009-2010: Report on the National Minimum Data Set. Canberra: AIHW, 2011.
25. Greenfield S, Pettinati H, O'Malley S, Randall P, Randall C. Gender differences in alcohol treatment: An analysis of outcome from the COMBINE study. *Alcoholism: Clinical and Experimental Research*. 2010;34(10):1803-12.
26. Hankin J, McCaul ME, Heussner J. Pregnant, alcohol-abusing women. *Alcoholism: Clinical and Experimental Research*. 2000;24(8):1276-86.
27. Burns L, Black E, Powers J, Loxton D, Elliott E, Shakeshaft A, et al. Geographic and maternal characteristics associated with alcohol use in pregnancy. *Alcoholism: Clinical and Experimental Research*. 2011;35(7):1230-7.
28. O'Leary CM, Watson L, D'Antoine H, Stanley F, Bower C. Heavy maternal alcohol consumption and cerebral palsy in the offspring. *Developmental Medicine and Child Neurology*. 2012;54:224-30.
29. Roberts G, Nanson J. Best practices: Fetal Alcohol Syndrome/Fetal Alcohol Effects and the effects of other substance use during pregnancy. Ontario: Health Canada, 2000.
30. Proudfoot H, Teesson M. Who gets treatment for alcohol use disorders in Australia? Findings from the Australian National survey of mental health and wellbeing. *Social Psychiatry and Psychiatric Epidemiology* 2002;37(10):451-6.
31. Weisner C, Schmidt L. Gender disparities in treatment for alcohol problems. *JAMA: The Journal of the American Medical Association*. 1996;14:268.
32. NSW Department of Health. NSW Health Review of Substance Use in Pregnancy Services. North Sydney: NSW Health, 2009.
33. McCrady BSE, Elizabeth E.; Cook, Sharon; Jensen, Noelle K.; Ladd, Benjamin O. What Do Women Want? Alcohol Treatment Choices, Treatment Entry and Retention. *Psychology of Addictive Behaviors*. 2011;25(3):521-29.
34. Messer K, Clark K, Martin S. Characteristics associated with pregnant women's utilization of substance use treatment services. *American Journal of Drug and Alcohol Abuse*. 1996;22(403-421).
35. Small J, Curran GM, Booth B. Barriers and facilitators for alcohol treatment for women: Are there more or less for rural women? *Journal of Substance Abuse Treatment*. 2010;39(1):1-13.
36. Jakobsson A, Hensing G, Spak F. The role of gendered conceptions in treatment seeking for alcohol problems. *Scandinavian Journal of Caring Sciences*. 2008;22(2):196-202.
37. Lui S, Terplan M, Smith E. Psychosocial interventions for women enrolled in alcohol treatment during pregnancy (Review). *Cochrane Database of Systematic Reviews* 2008, Issue 3. Art. No.: CD006753. DOI: 10.1002/14651858.CD006753.pub2: 2008.
38. Nilsen P. Brief alcohol intervention to prevent drinking during pregnancy: An overview of research findings. *Current Opinion in Obstetrics and Gynecology*. 2009;21:496-500.
39. O'Connor MJ, Whaley SE. Brief Intervention for Alcohol Use by Pregnant Women. *American Journal of Public Health*. 2007;97(2):252-8.
40. Chang G, McNamara T, Orav E, Koby D, Lavigne A, Ludman B, et al. Brief Intervention for Prenatal Alcohol Use: A Randomized Trial. *Obstetrics & Gynecology*. 2005;105:991-98.
41. Handmaker NS, Miller WR, Manicke M. Findings of a pilot study of motivational interviewing with pregnant drinkers. *Journal of Studies on Alcohol*. 1999;60:285-7.
42. O'Connor M, Whaley S. Brief intervention for alcohol use by pregnant women. *American Journal of Public Health*. 2007;97:252-8.
43. Sokol RJ, Martier SS, Ager JW. The T-ACE questions: Practical prenatal detection of risk-drinking. *American Journal of Obstetrics and Gynecology*. 1989;160(4):863-8.

44. Russell M. New assessment tools for drinking in pregnancy: T-ACE, TWEAK, and others. *Alcohol Health and Research World*. 1994;18(1):55-61.
45. Chudley A, Conry J, Cook J, Loock C, Rosales T, LeBlanc N. Fetal alcohol spectrum disorder: Canadian guidelines for diagnosis. *Canadian Medical Association Journal*. 2005;172(5 Suppl):S1-S21.
46. Saunders JB, Aasland OG, Babor TF, Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*. 1993;88(6):791-804.
47. Dawson D, Grant B, Stinson F, Zhou Y. Effectiveness of the derived Alcohol Use Disorders Identification Test (AUDIT-C) in screening for alcohol use disorders and risk drinking in the US general population. *Alcoholism: Clinical and Experimental Research*. 2005;29:844-54.
48. Burns E, Gray R, Smith L. Brief screening questionnaires to identify problem drinking during pregnancy: A systematic review. *Addiction*. 2010;105:601-14.
49. Muggli E, Cook B, O'Leary C, Forster D, Halliday J. Alcohol in pregnancy: What questions should we be asking? Report to the Commonwealth Department of Health and Ageing. Parkville VIC: Murdoch Children's Research Institute, 2010.
50. Payne J, Elliott E, D'Antoine H, O'Leary C, Mahony A, Haan E, et al. Health professionals' knowledge, practice and opinions about Fetal Alcohol Syndrome and alcohol consumption in pregnancy. *Australian and New Zealand Journal of Public Health*. 2005;29(6):558-64.
51. Payne J, France K, Henley N, D'Antoine H, Bartu A, O'Leary C, et al. RE-AIM evaluation of the alcohol and pregnancy project: Educational resources to inform health professionals about prenatal alcohol exposure and Fetal Alcohol Spectrum Disorder. *Evaluation and the Health Professions* 2011;34(1):57-80.
52. Tzilos G, Sokol R, Ondersma S. A randomized phase I trial of a brief computer-delivered intervention for alcohol use during pregnancy. *Journal of Women's Health*. 2011;20(10):1517-24.
53. Oliva E, Maisel N, Gordon A, Harris A. Barriers to use of pharmacotherapy for addiction disorders and how to overcome them. *Curr Psychiatry Rep*. 2011;13:374-81.
54. Harris A, Kivlahan D, Bowe T, Humphreys K. Pharmacotherapy of Alcohol Use Disorders in the Veterans Health Administration. *Psychiatric Services*. 2010;61(4):392-8.
55. Bogenschutz M, Geppert C. Pharmacological treatments for women with addictions. *Obstetric and Gynecological Clinics of North America*. 2003;30:523-44.
56. Smith E, Lui S, Terplan M. Pharmacologic interventions for pregnant women enrolled in alcohol treatment (Review). *Cochrane Database of Systematic Reviews* 2009 Issue 3 Art NO CD007361 DOI: 101002/14651858CD0076361pub2. 2009:.
57. Heberlein A, Leggio L, Stichtenoth D, Hillemacher T. The treatment of alcohol and opioid dependence in pregnant women. *Current Opinion in Psychiatry*. 2012;25(6):559-64.
58. Marinucci L, Balloni S, Carinci F, Locci P, Pezzetti F, Bodo M. Diazepam effects on non-syndromic cleft lip with or without palate: epidemiological studies, clinical findings, genes and extracellular matrix. *Expert Opinion on Drug Safety*. 2011;10(1):23-33.
59. Amato L, Minozzi S, Vecchi S, Davoli M. Benzodiazepines for alcohol withdrawal. *Cochrane Database of Systematic Reviews* 2010, Issue 3 Art No: CD005063 DOI: 101002/14651858CD005063pub3. 2010.
60. Ministerial Council on Drug Strategy. National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn. Sydney: NSW Health and Commonwealth of Australia, 2006.
61. Center for Substance Abuse Treatment. Pregnant, Substance-Using Women. Treatment Improvement Protocol (TIP) Series 2. DHHS Publication No. (SMA) 95-3056. Rockville, MD: Substance Abuse and Mental Health Services Administration.: 1993.
62. Carmen B, Angeles M, Ana M, María AJ. Efficacy and safety of naltrexone and acamprosate in the treatment of alcohol dependence: a systematic review. *Addiction*. 2004;99(7):811-28.

63. Hulse GK, O'Neil G, Pereira C, Brewer C. Obstetric and neonatal outcomes associated with maternal naltrexone exposure. *Australian and New Zealand Journal of Obstetrics and Gynaecology*. 2004;41(4):424-28.
64. Redding B, Selleck C. Perinatal substance abuse: Assessment and management of the pregnant woman and her children. *Nurse Practitioner Forum*. 1993;4:216-23.
65. Svikis D, Reid-Quinones B. Screening and prevention of alcohol and drug use disorders in women. *Obstetric and Gynecology Clinics of North America*. 2003;30:447– 68.
66. Mitchell J. Treatment Improvement Protocol Series (TIPS): Pregnant substance using women. Rockville, MD: US Department of Health and Human Services, 1993.
67. Rosett H, Weiner L, Edelin K. Treatment experience with pregnant problem drinkers. *JAMA: Journal of the American Medical Association*. 1983;249(15):2029-33.
68. Greenfield S, Sugarman D. The treatment and consequences of alcohol abuse and dependence during pregnancy. In: Little BE, editor. *Management of Psychiatric Disorders*. London: Oxford University Press; 2001. p. 213-27.
69. Bowie B. Interventions to improve interactions between drug abusing mothers and their drug-exposed infants: A review of the research literature. *Journal of Addictions Nursing*. 2005;15:153-61.
70. Kissin WB, Svikis DS, Moylan P, Haug NA, Stitzer ML. Identifying pregnant women at risk for early attrition from substance abuse treatment. *Journal of Substance Abuse Treatment*. 2004;27(1):31-8.
71. Milligan K, Niccols A, Sword W, Thabane L, Henderson J, Smith A, et al. Maternal substance use and integrated treatment programs for women with substance abuse issues and their children: A meta-analysis. *Substance Abuse Treatment, Prevention and Policy*. 2011;5(1):21.
72. Lester BM, Andreozzi L, Appiah L. Substance use during pregnancy: Time for policy to catch up with research. *Harm Reduction Journal*. 2004;1(5):1–44.
73. Mezey GC, Bewley S. Domestic violence and pregnancy. *BJOG: An International Journal of Obstetrics & Gynaecology*. 1997;104(5):528-31.
74. NSW Government. First antenatal visit by gestational age, NSW 1994-2010. [cited 2013 02.04.13]; Available from: http://www.healthstats.nsw.gov.au/Indicator/mum_antegage .
75. Burns L, Conroy E, Moore E, Hutchinson D, Haber P. Psychosocial characteristics and obstetric health of women attending a specialist substance use antenatal clinic in a large metropolitan hospital. *International Journal of Paediatrics*. 2011; Article ID 729237:1-7.
76. Taylor L, Hutchinson D, Rapee R, Burns L, Stephens C, Haber P. Clinical features and correlates of outcomes for high-risk, marginalised mothers and newborn infants engaged with a specialist perinatal and family drug health service. *Obstetrics and Gynecology International*. 2012;2012 Article ID 867265:8 pages.
77. Payne J, France K, Henley N, D'Antoine H, Bartu A, O'Leary C, et al. Changes in health professionals' knowledge, attitudes and practice following provision of educational resources about prevention of prenatal alcohol exposure and Fetal Alcohol Spectrum Disorder. *Paediatric and Perinatal Epidemiology*. 2011;25(4):316-27.
78. Payne JM, France KE, Henley N, D'Antoine HA, Bartu AE, Mutch RC, et al. Paediatricians' knowledge, attitudes and practice following provision of educational resources about prevention of prenatal alcohol exposure and Fetal Alcohol Spectrum Disorder. *Journal of Paediatrics and Child Health*. 2011;47(10):704-10.
79. Schuckit MA. Alcohol-use disorders. *The Lancet*. 2009;373(9662):492-501.
80. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders—text revision (DSM-IV)*. 4th edn. ed. Washington, DC, USA: American Psychiatric Association; 2000.
81. WHO. *ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines*. Geneva, Switzerland: World Health Organization; 1992.
82. National Health and Medical Research Council. *Australian Alcohol Guidelines: Health risks and benefits*. Canberra: National Health and Medical Research Council, 2001.



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