Supporting pregnant women who use alcohol or other drugs: a review of the evidence

Medicine
National Drug and Alcohol Research Centre

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Contents

Executive summary

Alcohol and other drug use in pregnancy

- There are known negative effects of alcohol and other drug exposure on the developing fetus, pregnancy progression and maternal health.
- There is an increased risk of harm from bingeing, frequent and heavy consumption of alcohol, smoking and other drugs.
- The rate of alcohol consumption is decreasing among pregnant women in Australia and the majority of pregnant women reduce their alcohol consumption once they are aware of pregnancy.
- The majority of women that continue to drink alcohol in pregnancy drink at low levels.
- The proportion of women drinking at levels for high risk has remained stable over time.
- Women who have risky drinking patterns prior to conception are likely to continue drinking at high risk levels into their pregnancy.
- Being pregnant, or the possibility of being pregnant, may provide additional motivation to change alcohol or other drug use.
- Women with problematic substance use require additional support to cease or reduce their consumption during pregnancy.
- Support must be comprehensive and address the range of health, mental health and social factors that affect women's wellbeing.

Unplanned pregnancy

- Despite high rates of contraceptive use in the general population, up to 50% of pregnancies are unintended.
- Unintended pregnancy is a risk factor for exposure to alcohol or other drugs due to later pregnancy recognition, late access to antenatal care and higher likelihood of risky consumption patterns.
- Unintended pregnancies often arise from inconsistent contraceptive use, particularly of the oral contraceptive pill.
- Alternative forms of more effective contraception, such as long acting reversible contraceptives, are not widely used in Australia.

Identification of women at risk

- Strategies to identify and engage at risk women earlier into antenatal care are required.
- Ideally, all women of reproductive age should be asked about their alcohol and other drug use, contraceptive practices and pregnancy intentions by primary health care professionals.
- Although the evidence for universal screening is limited, routine screening of reproductive age women in primary health care settings can identify the risk of an alcohol or other drug exposed pregnancy prior to conception or during pregnancy.
- Embedding non-threatening discussion about alcohol or other drug use into routine health care may reduce stigma and facilitate disclosure.
- A broad range of primary health care providers and services can ask about alcohol, drugs and contraception, to ensure that women who are most at risk are identified and assisted This could include primary health care settings, emergency rooms, community health centres, child protection services, sexual health centres or family planning clinics and other community contexts including social work.
- Primary health care providers may require additional training and support to implement routine screening and intervention systems into practice.

- Primary health care professionals are best placed to routinely ask women about **tobacco** smoking. Pregnant women who smoke should be advised to quit as early in the pregnancy as possible and supportive smoking cessation interventions should be offered.
- A number of brief screening tools to assess **alcohol** consumption have been validated with pregnant women. The *AUDIT-C* is recommended in Australia.
- Currently there is not a sufficiently validated brief screening tool for **other drug use** by pregnant women in Australia. The *ASSIST v3* has shown potential to identify alcohol and other drug use in pregnant women in Australia, but needs further investigation.
- Other health, mental health or behavioural indicators and more in-depth assessment tools can assist in the identification of other drug use by pregnant women.

Interventions for women at risk

- There is strong evidence for the effectiveness of screening, brief intervention and referral to treatment as a means of reducing risky alcohol use in the general population, although uptake in primary care settings is limited in Australia.
- Women who are alcohol or drug dependent, or are heavy or frequent alcohol or other drug users, are at the greatest risk of having a substance exposed pregnancy and of poor health and developmental outcomes for their babies. These risks are present across a continuum from preconception, pregnancy and post-birth.
- In Australia, there have been limited studies of screening and brief intervention for women who are pregnant and use alcohol or other drugs.
- Screening and brief intervention have been found to have good outcomes with pregnant women in international studies. Further research is needed in the Australian context.
- There is evidence from international trials to suggest that interventions prior to conception which combine contraceptive advice with motivational interviewing can reduce the rate of exposed pregnancies.
- Pregnant women who have problematic alcohol or drug use have different needs to the general population of pregnant women and require additional support so that harm is reduced.
- A comprehensive care framework is required to support women at risk of an exposed pregnancy or who are consuming alcohol or other drugs in pregnancy, after these women have been identified.
- Women at risk of an alcohol or other drug exposed pregnancy should be provided with comprehensive assessment and where appropriate, brief intervention, smoking cessation support, contraceptive advice, referral for mental health services and other social supports. They should be assertively referred for early antenatal care and provided with alcohol or drug treatment.
- Support should be tailored to each woman's individual needs, the specific risk factors and the severity of harm.

Providing support

- Pregnant women who use alcohol or other drugs should best receive specialist treatment services where these exist, in specialist antenatal settings or drug or alcohol clinics. Care and treatment should be provided as early as possible after pregnancy awareness.
- Optimally, there should be a clearly identified case coordinator and well-coordinated, multidisciplinary care from early in the pregnancy to postpartum.
- Integrated models of care in pregnancy and after birth are emerging as best practice to reduce barriers to access for health and support services for women with substance use issues.
- Comprehensive or integrated treatment programs which bring together antenatal care and alcohol or drug treatment have been shown to improve outcomes. Where integrated treatment programs are not available, care should be multidisciplinary and carefully coordinated, to ensure that women's antenatal, drug and alcohol treatment, health, mental health and social support needs are met and treatment followed through.

- Effective interventions for pregnant women are holistic and women-centred. They address the specific needs of each pregnant woman who uses alcohol or other drugs.
- Holistic care should encompass a range of health and psychosocial domains and address practical barriers to treatment.
- Treatments can include withdrawal or pharmacotherapy as appropriate, psychosocial interventions and nutritional support.
- The *NSW Clinical Guidelines for the Management of Substance Use during Pregnancy, Birth and the Postnatal Period (NSW Clinical Guidelines)* give comprehensive advice about appropriate treatments. The *NSW Clinical Guidelines* are a revision of the previous *National Clinical Guidelines for the Management of Drug Use During Pregnancy, Birth and the Early Development Years of the Newborn.*
- The profile of pregnant women accessing specialist treatment is one of social disadvantage. Compared to population data, they are more likely to be younger, unemployed, Indigenous, have higher parity, report significant psychosocial issues and have involvement with child protection services. Comprehensive treatment needs to incorporate these issues.
- After delivery, assertive follow-up and coordination is particularly important, including ongoing alcohol and drug treatment, medical management, health and developmental assessment of the baby, parenting support, contraceptive advice, and referral for additional support services including child protection where indicated.

Workforce development

- Training and professional development has been shown to improve the implementation of clinical guidelines and processes for identification of pregnant women who use alcohol or other drugs.
- Professional skills which support engagement of women in management of the risks to their health, pregnancy, treatment and care include being non-judgemental, culturally safe and understanding the range of biological and psychosocial factors which influence alcohol and other drug use.
- To support women's access to comprehensive and integrated treatment, health, drug and alcohol, community and government agencies need strong partnerships and clear referral pathways.
- Uptake of training and education needs to be supported locally and include the establishment and strengthening of collaborative, interagency partnerships to improve referral and coordination of care.
- Communication among health care providers, patients and carers is a critical dynamic in integrated care. Improvements to clinical records and IT resources for coordinated care are required across Australia.
- Pathways between primary care and specialist services needs to be strengthened with local pathways documented to facilitate better access.

Dissemination and evaluation of the resource

- This project has developed a resource, *Supporting Pregnant Women who use Alcohol or other Drugs: A Guide for Primary Health Care Professionals*, which will be available online.
- Online distribution of the resource is recommended with links to relevant training and resources.
- An implementation package, including online training with support materials and templates for local capacity building and service mapping would support dissemination and uptake of the resource, but requires development.
- Training could be supported with Continuing Professional Development points and engagement with state-wide training bodies and professional associations.
- The feasibility and acceptability of the resource should be trialled and evaluated. Ideally this would occur in a variety of locations and settings, such as General Practice, midwifery, in a sexual health clinic or in criminal justice setting.

Background to this report

The Australian Government Department of Health provided funding to the National Drug and Alcohol Research Centre for the development of an educational resource to assist in the identification, treatment and appropriate referral of substance dependent pregnant women in primary care settings. The main focus of the resource is alcohol, but other drugs are included.

Interventions to reduce the risks of an alcohol or other drug exposed pregnancy can take place across the continuum from preconception, pregnancy and after birth. A framework to prevent exposed pregnancies and to minimise harm during pregnancy is outlined to address risks across this continuum. The primary focus is on strategies to identify and assist pregnant women who use or are dependent on alcohol or other drugs.

This report incorporates findings from a review of the literature, an audit of available specialist antenatal services for pregnant substance using women across Australia, and consultation with national experts who are involved in the care of pregnant or substance using women. The report includes an appraisal of screening tools used in identifying high risk or dependent women in primary care settings. It identifies elements of effective interventions for primary health care professionals when working with women who are pregnant and use alcohol and other drugs.

This report outlines the evidence base for the resource for primary health care professionals to identify and support women who are pregnant and use alcohol or other drugs. The resource, *Supporting Pregnant Women who use Alcohol or other Drugs: A Guide for Primary Health Care Professionals* and a two page Quick Guide will be available at www.ndarc.med.unsw.edu.au. National stakeholders provided input into the content and format of the resource and strategies for its implementation and dissemination.

Acknowledgements

The authors are grateful to the stakeholders in the consultation network for their input into this project. The network included a range of professionals with interest and expertise in substance use in pregnancy, with representation from every state and territory. The consultation network members provided information on services available in their state, clinical practice in the identification and treatment of pregnant women who use substances, and workforce development needs. They gave input into the development of the resource, including its content, formatting and dissemination strategies. Input was provided over the phone, in meetings and as written feedback.

Consultation network

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Prevention and harm minimisation

Abstinence from alcohol or other drugs during pregnancy is appropriate, safe and achievable for many Australian women. The National Health and Medical Research Council's *Australian Guidelines to Reduce Health Risks from Drinking Alcohol (NHMRC Alcohol Guidelines)* recommend abstinence from alcohol when pregnant, planning a pregnancy or breastfeeding [1]. There are currently campaigns and projects underway across Australia to inform health professionals and women about the *NHMRC Alcohol Guidelines* and support their implementation.

Less attention has been paid to the identification and support of women who continue to use alcohol or other drugs during their pregnancy, which is the focus of this report. Pregnant women who are dependent, heavy, or binge drinkers or drug users are at risk of serious harm to their health and their pregnancy [2-4]. They require additional support to reduce or cease their alcohol or other drug use and the public health message of abstinence is not sufficient. Unsupervised alcohol withdrawal is also not clinically advisable as it can be harmful to the woman and the fetus [5].

There is a need to address the stigma associated with substance use in pregnancy so that women can be supported to access treatment and have the best possible health for themselves and their babies. Women who have problematic alcohol or other drugs use are often disadvantaged, have comorbid mental health disorders and unmet health needs and are likely to have little or late antenatal care [6, 7].

Specialist alcohol and drug treatment and early antenatal care are required. Additional support must be put in place to comprehensively address each woman's needs during pregnancy and after the baby is born. Significant harm to both mother and baby is possible without comprehensive care and treatment to address complex drug and alcohol use, health, mental health and social factors during and after pregnancy.

Interventions to reduce the risks of an alcohol or other drug exposed pregnancy can take place across the continuum from preconception, pregnancy and after birth. In this report, a framework is outlined to prevent exposed pregnancies, to reduce harm during pregnancy and to address risks across this continuum. The suggested strategies are women-centred, seek to minimise harm and aim to facilitate non-judgemental engagement with pregnant women [8-11].

Primary health care professionals must always consider the pregnant woman they are managing as an individual and the information presented here provides guidance for identification, support, referral and appropriate treatment, based on individual needs.

> "Adopting a women-centred approach demands a paradigm shift – away from seeing mothers who use substances as unfit, uncaring and unworthy of support, and towards a positive perspective on women's capacity for change. Fetal Alcohol Spectrum Disorder prevention demands that we see – and are hopeful about – women's strengths, and that we support substance users by removing barriers to treatment and involving women in determining what they need to better care for themselves and their children".
>
> Quote from *Bringing a Women's Health Perspective to FASD Prevention* [11].

The World Health Organisation's *Guidelines for the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy (WHO Guidelines)* outline principles that guide care for pregnant women who are alcohol or other drug dependent [12]. These principles emphasise respect

for the autonomy of women and the need to ensure that women are informed about the risks and benefits of treatment options when making decisions.

A women's health perspective sees the wellbeing of mothers and children as inseparable. Evidence from public health programs in Canada shows that to reduce the prevalence of Fetal Alcohol Spectrum Disorders (FASD), prevention campaigns need to address the range of psychosocial factors which are associated with women's alcohol or other drug dependence, which may impede access to treatment and prevent abstinence from alcohol or other drugs. These factors include domestic violence, unstable housing, inadequate nutrition, mental health problems and lack of social support. There is a clear relationship between the determinants of women's drug and alcohol use and the barriers to treatment for women at risk of an alcohol exposed pregnancy [11].

The harm-reduction approach moves beyond a focus on drug and alcohol use to comprehensively address all factors that increase the risks and harms of substance-exposed pregnancies, such as poor antenatal care, inadequate nutrition and unstable housing [11, 13].

Canadian researchers have used evidence from successful prevention and treatment programs to investigate factors which affect women's substance use in pregnancy. These researchers have developed strategies to improve treatment responses and address specific gender-based barriers to alcohol and other drug treatment and antenatal care. Central to successful treatment responses are recognition of women's experiences, including potential trauma, and provision of a compassionate model of care [11].

Comprehensive care should be provided according to the complexity of each woman's needs, in a way which promotes family, community and social support and inclusion. Pregnant women should not be stigmatised, discriminated against or excluded from accessing antenatal care, alcohol or drug treatment or other health services because of their substance use [12].

> "A harm-reduction approach means that service providers are willing to discuss goals other than abstinence, despite the known risks of substance use. This requires considering all aspects of harm that contribute to, or result from, women's alcohol use".
>
> Quote from *Bringing a Women's Health Perspective to FASD Prevention* [11].

This approach is echoed by Australian specialists who care for pregnant women with problematic alcohol or other drug issues. They recommend that services should be integrated to support holistic care and address a range of health domains and psychosocial needs alongside alcohol and other drug treatment needs. Pregnant women with problematic alcohol or other drug use should not be turned away from services once they have been identified, and should be provided with easy access to care and support[1].

[1] More detailed input from stakeholder consultation can be found at Appendix 8.

Risk factors for an alcohol or other drug exposed pregnancy

There are two main risk factors for a pregnancy exposed to alcohol or other drugs. One is the use of alcohol or other drugs among reproductive age women, with an increased risk from bingeing, frequent and heavy consumption or dependence. The other risk factor is unintended pregnancy, associated with increased risk of exposure to alcohol or other drugs because of later pregnancy recognition, later access to antenatal care and higher likelihood of risky consumption patterns. Many unintended pregnancies occur due to inconsistent contraceptive use.

Unintended pregnancy

Women's contraceptive choices and pregnancy intentions are influenced by complex and changing factors [14, 15]. The research suggests that women frequently reassess reproductive decisions [14]. Some factors which may affect women's reproductive decisions include feelings about contraception, knowledge of contraceptive methods, feelings about pregnancy or pregnancy termination, costs of contraception, age and lifestyle, religious and cultural practices, socio-economic status, anxiety, embarrassment, sexual identity, feelings about themselves, acknowledgement of sexual intentions, knowledge of the body, family and relationship status [14, 15].

Evidence suggests up to 50% of pregnancies are unintended [16-18]. Women tend to become aware of unintended pregnancies later than intended pregnancies, increasing the likelihood of inadvertent exposure to alcohol or other drugs at harmful levels [18]. Research in the United States (US) found that preconception binge drinking was associated with unintended pregnancy among white women [18]. Preconception binge drinking has been associated with continued risky drinking throughout pregnancy in Australian and US studies [18, 19]. Alcohol and other drug exposure early in the first trimester are associated with increased risk of significant harm to the development of the fetus [1, 20].

Women with unintended pregnancies are more likely to access antenatal care after the first trimester compared to women with planned pregnancies [18]. International research suggest that women with unintended pregnancies are more likely to use illicit drugs, smoke, drink alcohol, be exposed to environmental smoke and other teratogens, and be exposed to violence [18, 21, 22]. Unintended pregnancies also have a range of other social consequences and health implications [23]. A 2011 systematic review found an association between unintended pregnancies and a significantly increased risk of low birth weight or preterm birth [24].

Unintended pregnancies are often due to ineffective contraceptive methods [14, 25]. A subgroup of 1,000 women aged 52 to 57 in the *Australian Women's Longitudinal Study* were sampled to investigate the relationship between contraception and pregnancy. The data showed that more than half of unintended pregnancies occurred despite the use of contraception at the time of pregnancy. The oral contraceptive pill was the most commonly reported form of contraception used at the time of conception [16].

Similarly, a 2011 cross-sectional study of women aged 16 to 50 attending family planning clinics in Victoria (VIC) found that 37% of women were at risk of an unintended pregnancy because of inconsistent or ineffective contraceptive use. The most common reasons given for this were not having access to contraception when it was needed, or forgetting to use contraception [26].

Another Australian longitudinal study, of teenage mothers, found high rates of alcohol and other drug use before the first pregnancy, with 69% consuming alcohol, 62% smoking tobacco and 44% using cannabis. Forty-five percent of these young women continued to smoke during their first pregnancy [27]. Young women in this study who used long acting contraceptives were less likely to have another pregnancy within two years, whereas women who used an oral contraceptive pill had a similar risk to those who used no contraception or who used a barrier method [27].

In addition, qualitative research with 68 teenagers in New South Wales (NSW) found that many young women used contraception ineffectively. Drinking alcohol was seen as a barrier to consistent use of condoms for many young women who had been pregnant [28]. A US study of 124 women examining ineffective contraception and risky drinking found that around 84% of women in the sample used some kind of contraception, but it was used in an ineffective way on 75% of occasions of intercourse. On average, women in the study first had intercourse at age 16 and first used contraception at age 17 [29].

Age is an important factor in contraceptive failure and unintended pregnancy. An Australian study found that younger women, unmarried women and women of Asian background were more likely to have unintended pregnancies [30]. Young women may generally be at higher risk of unintended pregnancy because they are less likely to reliably use daily contraceptives and because they have high fertility [14, 23].

One Australian study found that in a sample of women in antenatal services in an urban area, more than half of the pregnancies of women younger than 25 were unintended [30]. Interventions addressing unintended pregnancies should target this group, as substantial proportions of young people in Australia are sexually active, with data suggesting 27% of students in Year 10 and 56% of students in Year 12 had experienced sexual intercourse [31].

A 2012 Western Australian (WA) exploratory study of factors that contribute to alcohol consumption during pregnancy suggested that interventions with combined messages about drinking and contraception have the potential to reduce the number of alcohol exposed pregnancies. Women drinking at risky levels in the sample were more likely than women in the low risk group to have an unintended pregnancy and to report that they considered consumption during pregnancy to be acceptable [32].

Women who are dependent on alcohol or other drugs may often have significant unmet reproductive health needs. A survey of 204 women in an outpatient Opioid Treatment Program (OTP) in NSW reported high rates of pregnancy, with 90% of women reporting a current or past pregnancy and 29% reporting six or more pregnancies [33].

These women had higher rates of poor pregnancy outcomes, including stillbirths and miscarriages, than Australian women generally. About half (47%) had their first pregnancy before they were 18, and the vast majority (90%) of these pregnancies were unintended. Forty-four percent of women were aged between 18 and 24 years at their first pregnancy, and most of these were unintended (81%) [33]. Only slightly more than half of sexually active women who did not want to get pregnant used contraception. About a fifth of the women (18%) reported having had sex for money, 12% for drugs, and 44% while intoxicated [33].

Women of reproductive age who have problematic alcohol or other drug use are more likely to have poor sexual health outcomes than other women. This includes higher risk of sexually transmitted infections, irregular menstruation, sexual abuse and cervical neoplasia [33, 34]. Studies of epidemiological data from 2,672 US women highlighted that common experiences for women at risk of an alcohol or tobacco exposed pregnancy included sexual or physical abuse, homelessness, prior mental health treatment, sex with multiple partners and trading sex [35, 36]. In addition, women who used illicit drugs were more frequent drinkers, more likely to binge drink and more likely to drink during pregnancy [37].

Another large US cohort study has also found associations between use of illicit drugs by young people and risky sexual behaviours, including early sex, multiple sexual partners, inconsistent condom use, having sex while intoxicated, and having sex for money or drugs [38].

Alcohol and other drug use

Alcohol and other drug use is influenced by a complex range of social, cultural, family and personal factors [39]. The true rate of alcohol and other drug use during pregnancy in Australia is not known [20]. The data on prevalence of alcohol and other drug use among pregnant women is limited[2]. Currently there is no routine national data collection of alcohol and other drug use in pregnancy in Australia except for data collected on tobacco use. Information on tobacco is recorded in the *National Perinatal Dataset.*

There is high quality evidence that alcohol or drug use in pregnancy can cause significant harm to the developing fetus. The impact of different substances at different stages of pregnancy is complex, and risk varies depending on the amount, type, frequency and pattern of alcohol or other drug use, as well as individual maternal characteristics [3, 40].

There are also serious effects on the health of the pregnant woman and the fetus from use of tobacco and illicit drugs. This includes a range of poor birth outcomes, pregnancy complications and increased risk of miscarriage, neonatal death and neurodevelopmental problems in the infant. In addition, some of the increased risks for women are mental health problems, including substance use disorders and substance-induced mental disorders such as psychosis, anxiety and depression [41], and the effects of social correlates including poor nutrition and interpersonal violence [11].

There is no known safe level of alcohol consumption during pregnancy [42]. As evidence suggests a complex association between risk and the timing, pattern and dose of alcohol consumption as well as the influence of individual maternal factors, it is unlikely that a safe level will ever be established [3]. The evidence suggests that the highest risk of harm to the fetus is associated with high alcohol consumption and that the fetus is at the highest risk during the first trimester [1, 20, 43]. There is conflicting evidence about the effects of low level consumption.

Although there is some evidence for reductions in alcohol consumption among pregnant women in Australia generally [44], the proportion of high-risk drinking women in Australia is not decreasing [45]. This high risk group requires particular attention.

Findings from recent study of a sample of women from the *Australian Longitudinal Study on Women's Health* show that there is a need to address risky drinking patterns in women of reproductive age before they become pregnant. The study found that 46% of women who were risky drinkers before they conceived continued risky drinking patterns into pregnancy. Women who were binge drinkers prior to pregnancy were the most likely to continue risky drinking patterns. A small proportion of women drinking at risky levels prior to conception abstained from alcohol during their pregnancy [19].

An Australian study used the risk categories from the *NHMRC Alcohol Guidelines* in a study of 142 pregnant women attending a public antenatal clinic in Perth. The study found a third of the women were at no risk, about half were at low risk, and a fifth were at high risk of alcohol exposed pregnancies [32].

[2] More detailed information about the prevalence, predictors and outcomes of alcohol and other drug use during pregnancy can be found at Appendix 1.

Unmet treatment needs

International studies suggest that women with substance use disorders are less likely than men to access drug or alcohol treatment over their lifetime [46-48]. Data from the 2007 Australian *National Survey of Health and Wellbeing* indicate lower prevalence rates for women for current and lifetime alcohol abuse and dependence and cannabis use disorders [49, 50]. *Alcohol and Other Drug Treatment Services* data reflect these gender differences, with over two thirds (68.5%) of drug and alcohol treatment episodes being for men, in 2011-12. This proportion has remained relatively stable since 2003–04 [51]. The number of pregnant women seeking alcohol or drug treatment is not collected in this dataset.

It is difficult to estimate the extent of unmet drug and alcohol treatment need in Australia [52]. It is likely that only a minority of pregnant women in Australia will access alcohol or drug treatment. Australian data suggest that around 3.7% of women will have an alcohol use disorder [49] and of these women, only an estimated 8.5% will access any treatment [53]. A minority of these women will be pregnant, suggesting very low rates of access to treatment by pregnant women [53].

A large, population-based survey of 140,000 respondents in the US compared pregnant women's alcohol and other drug use treatment needs to their receipt of treatment and found significant unmet need for pregnant women who used alcohol or other drugs [54]. Although pregnant women reported less use of drugs or alcohol in the previous month compared to non-pregnant women, they were more likely to meet the DSM–IV criteria for a substance use disorder. Despite this greater treatment need, pregnant women were no more likely than non-pregnant women to receive substance use treatment [54].

Compared to men, women progress more rapidly from first substance use to regular use to first treatment episode for substance use disorders [46]. The severity of symptoms is generally equivalent to men despite fewer years of use and smaller quantities of substances used. Adverse health, mental health and social outcomes are also increased [46]. Treatment retention is higher among women than men [55].

Women also have an increased vulnerability to the health and social consequences of substance use, abuse and dependence [46]. A study of Australian women with a history of substance abuse or dependence accessing specialist antenatal care found that these women were more likely to be socially disadvantaged compared to the general population. They were more likely to be born in Australia, be Indigenous Australian, younger and unemployed, have significant psychosocial issues, have greater incidence of contact with child protection services and be multiparous, compared to national data. Mental health issues were reported for around 27% of the women, domestic violence for 14% and homelessness for 8%. More than 90% of the women reported poly-drug use [6].

Compared to national data, these women were significantly less likely to have had five or more antenatal care visits during their pregnancy and more likely to not have had any antenatal care [6]. Access to antenatal care by pregnant women who use alcohol or other drugs is often compromised. Hospital data suggest that women with alcohol use disorders during pregnancy present late to antenatal care and are often unbooked at delivery [56].

Australian data for women with substance abuse or dependence attending for antenatal substance use services found that on average, women attended their first antenatal care just before 20 weeks compared to the majority (80%) of NSW mothers who attend their first antenatal visit before 14 weeks [57].

There is also limited research into effective pharmacological and psychosocial treatments for pregnant women with alcohol use disorders. Specifically, there is a lack of methodologically rigorous randomised controlled trials [58, 59].

In Australia, research from NSW that involved a literature review and consultation with specialist clinicians proposed a model for treatment of pregnant women who are alcohol dependent [60]. It recommended:

- Standardised routine screening of all pregnant women accompanied by education, brief intervention and monitoring.
- All pregnant women who screen positively for alcohol use disorders should have access to treatment matched to the severity of the disorder, including inpatient admission if appropriate. Treatment should accommodate children.
- All pregnant women with alcohol use disorders should be offered extended hospitalisation after birth, additional support and follow-up across a range of psychosocial domains.
- Treatment should be supportive and involve a multidisciplinary team including alcohol and drug services, obstetric care and a GP.
- Community education about the chronic and relapsing nature of addiction is needed.

Key points

- Alcohol and other drug use is influenced by a complex range of social, cultural, family and personal factors.
- To prevent pregnancies exposed to alcohol or other drugs, interventions that address alcohol and other drug use and inconsistent contraceptive use are required.
- Pregnant women with problematic alcohol or other drug use require additional support.
- Specialist alcohol and drug treatment and early antenatal care are necessary.
- Comprehensive care should be provided according to the complexity of each woman's needs.
- It is difficult to estimate the extent of unmet treatment need, but available data suggest low rates of access to treatment by pregnant women.
- There is limited research into effective processes for identification of pregnant women with substance use and substance use disorders in health or community settings.
- There is limited research into effective pharmacological and psychosocial treatments for pregnant women with substance use and substance use disorders.

Assessing the risk of an exposed pregnancy

The following table presents a matrix to assess the risk of an exposed pregnancy in both non-pregnant and pregnant women. The definition of risk from alcohol use correlates with the recommendations of the *NHMRC Alcohol Guidelines* [1].

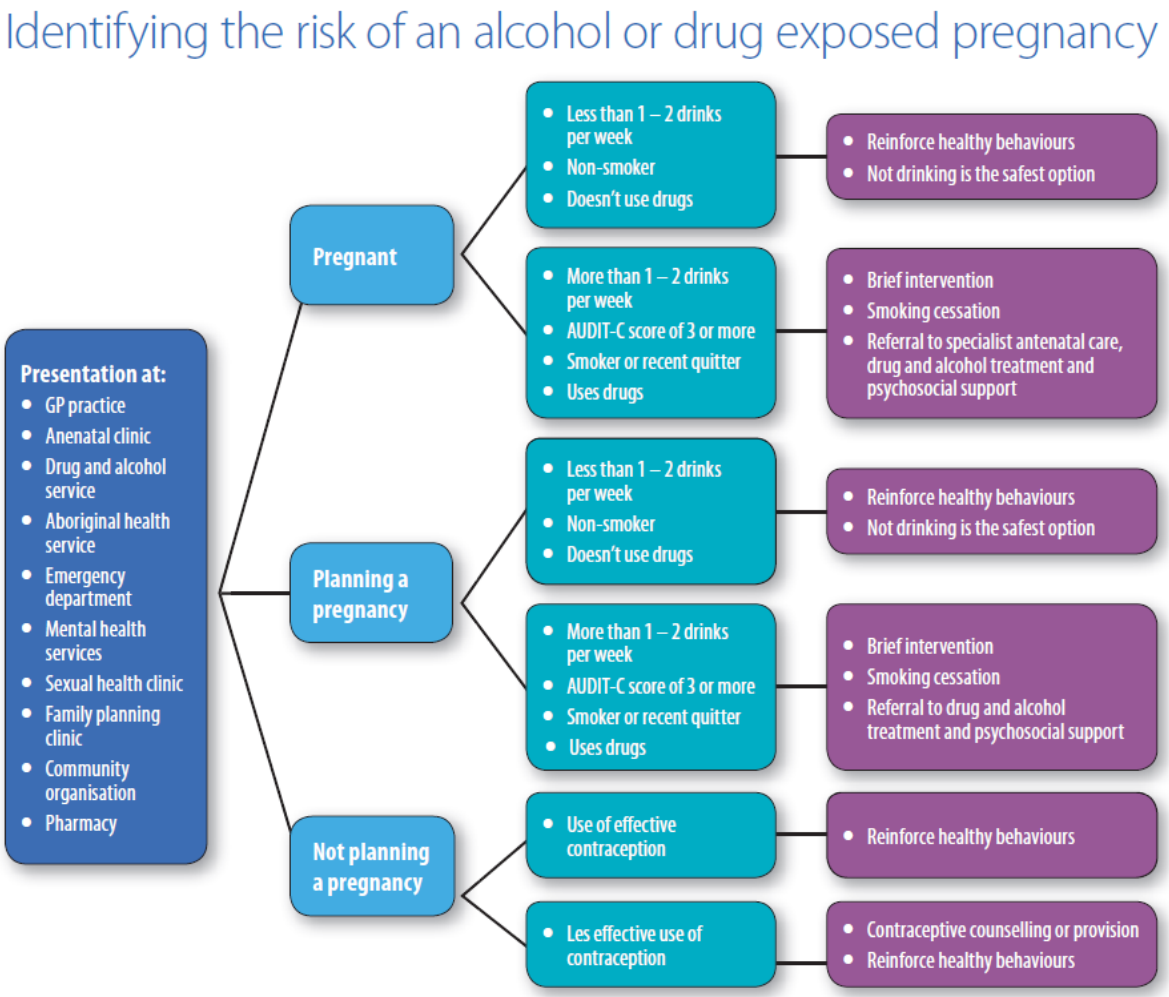
Table 1: Risk of exposed pregnancy

Alcohol and other drug use		Reliable contraception	Unreliable contraception	Planning a pregnancy	Pregnant
Alcohol	Less than one or two drinks per week	Low risk	Low risk	Risk	Risk
	More than two drinks per week	Low risk	Risk	Risk	Risk
Tobacco	Non-smoker	Low risk	Low risk	Low risk	Low risk
	Smoker, recent quitter	Low risk	Risk	Risk	Risk
Cannabis, opioids, amphetamines, cocaine, other drugs	No use	Low risk	Low risk	Low risk	Low risk
	Any use	Low risk	Risk	Risk	Risk

Assessment of whether women are at risk of an exposed pregnancy can take into account:

- Whether the woman is pregnant, and when they became aware of their pregnancy.
- Their pregnancy intentions, contraceptive use and reliability of the method (if the woman is not pregnant but is sexually active).
- What information the woman discloses about dose, frequency and pattern of consumption.
- Results of validated screening tests, interpreted within the given scoring guide.
- Presence of a mental disorder or psychological distress.
- Other clinical indicators or health factors.
- Pregnancy awareness and timing of presentation for antenatal care (if the woman is pregnant).

Decision tree



The *Australian Guidelines to Reduce Health Risks from Drinking Alcohol* advise that not drinking is the safest option when planning a pregnancy, pregnant or breastfeeding. Consuming 1 to 2 standard drinks per week is likely to be low risk.

The 5As Approach

Screening, brief intervention and referral to treatment resources often include the '5As' approach - Ask, Assess, Advise, Assist, and Arrange. The 5As can prompt primary health care professionals to **ASK** women that are of reproductive age, planning pregnancy, pregnant or breastfeeding about their alcohol and other drug use. The **ASSESS** component recommends the use a short screening tool to assess the level of risk.

ADVICE is given for women drinking or consuming drugs including reinforcing healthy behaviours. Health professionals are then advised to **ASSIST** women with the appropriate treatment and **ARRANGE** follow up and referral appointments as required. This approach can be used across the continuum from preconception, pregnancy and after birth.

Ask: Identifying risky alcohol or other drug consumption

Identification of women at risk of an exposed pregnancy is essential in preventing or minimising harm. It reduces the risk of an alcohol or other drug exposed pregnancy by providing an opportunity to offer intervention, early referral for antenatal care and alcohol or drug treatment [61].

The ideal approach would be to use a validated screening tool to assess the alcohol and other drug consumption of all women of reproductive age, as these tools have the most sensitive detection of risky behaviour. The feasibility of doing this may vary by context[3]. Identifying women at risk can involve using a range of approaches including discussion, routine questioning, history taking, awareness of clinical indicators and professional judgement.

Embedding questions about alcohol and other drugs into routine health visits for reproductive age women can help to reduce stigma and allow women to feel more comfortable disclosing alcohol and other drug use, regardless of whether a problem is perceived or treatment is sought [62]. Asking all women avoids making assumptions about the 'type' of woman that is at risk.

Asking questions about alcohol or other drug use during conversations about reproductive or sexual health provides an opportunity for all women to discuss effects on their health and pregnancies. In addition, screening before pregnancy may encourage women to change their alcohol and drug consumption to reduce the risk of an exposed pregnancy [63].

The World Health Organisation's *Guidelines for the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy*

Recommend: Health care providers should ask all pregnant women about their use of alcohol and other substances (past and present) as early as possible in the pregnancy and at every antenatal visit.

Strength of recommendation: Strong Quality of evidence: Low

[3] Reported by stakeholders during consultation. For more information please see Appendix 8

Pregnant women

Despite limited research, *The WHO Guidelines* [12] and the *NSW Clinical Guidelines* [42] suggest that all pregnant women should be asked about their alcohol and other drug use. Screening for current and previous alcohol and other drug use should be included in usual antenatal care and should continue throughout health care visits [42]. Identification of alcohol or other drug use early in pregnancy leading to early access to antenatal care and substance use treatment can lead to improved outcomes [61].

While there are some examples of good practice in different contexts nationally[4], screening for alcohol and other drug use in pregnancy is currently not universal and there is little consistency in screening practices in Australia [60][5].

The *NSW Clinical Guidelines* recommend simple questions about use of drugs, the pattern and frequency of use, risk of dependence and poly drug use [42]. They specifically recommend that all pregnant women be asked about their level of alcohol consumption, possibly triggering a more in-depth assessment, and use of a validated tool [42].

The *NSW Clinical Guidelines* recommend that women be asked about:

- Alcohol
- Tobacco
- Caffeine
- Prescribed medications, including opioid replacement therapy, antidepressants, mood stabilisers and benzodiazepines
- Over-the-counter medicines, such as paracetamol
- Other substances, such as cannabis, psycho-stimulants, opioids and inhalants [42].

The *NHMRC Alcohol Guidelines* advise that assessment should be made of women who have consumed alcohol before they knew that they were pregnant. This assessment should examine the quantity of alcohol consumed in relation to the stage of pregnancy [1]. The *NHMRC Guidelines* recommend that women who drank alcohol before they knew they were pregnant or during their pregnancy should be reassured that the majority of babies exposed to alcohol suffer no observable harm. The risk to the fetus from low level drinking is likely to be low. It is important that women are informed that not all pregnancies exposed to alcohol, including heavy levels of alcohol, will be harmed [64].

Concerns have been raised that abstinence policies may generate fear in women and lead some women that have consumed alcohol to terminate their pregnancy due to anxiety that they have harmed their baby. The evidence about whether women terminate a pregnancy due to their alcohol consumption is limited [64]. A recent study of 956 women in the US seeking terminations found that while few women (2.6%) reported alcohol as the reason for seeking a termination, in almost all cases where alcohol was the reason, the women were either binge drinking or reported alcohol-related problems and the pregnancy was unplanned [65].

[4] Reported by stakeholders during consultation. For more information please see Appendix 8.

[5] For more information on antenatal care guidelines and screening practices see Appendix 10.

The evidence suggests that screening for alcohol and other drug use in primary care has a range of benefits and can reduce harm. There is some evidence for the effectiveness of brief screening in identifying alcohol and other drug use by pregnant women [66].

Alcohol

A particular concern in screening for alcohol is to identify the dose and timing of consumption in relation to the stage of fetal development. Alcohol consumption can affect fetal development throughout pregnancy with the risk of developmental abnormality highest during the first trimester [1, 20, 43]. In later stages of pregnancy, poor growth and preterm delivery are a greater risk [20]. In this context, binge drinking prior to pregnancy awareness carries a risk of adverse consequences [18] and information gathered from the screening tool should include identification of the dose and frequency of alcohol consumption where possible.

The T-ACE, TWEAK and AUDIT-C are self-report screening tools which have been validated for use with pregnant women and are reported to have the highest sensitivity for identifying risky drinking [67]. The AUDIT-C is a three item questionnaire which contains the first three questions of the AUDIT [68]. It is reported to perform well with pregnant women[69]. The AUDIT-C is recommended to screen for alcohol use in the *Women Want to Know* resources developed for General Practitioners. The AUDIT-C is also used in other Australian resources, such as WA's *Strong Spirit Strong Future* project [70].

Tobacco

National guidelines recommend screening to identify and assess pregnant women's tobacco use [42, 71]. The *NSW Clinical Guidelines* recommend that pregnant women be screened at their first antenatal visit to determine their smoking status, using sensitive questioning. If smoking is identified, the level of dependence should be assessed, for example using the revised *Fagerstrom Test for Nicotine Dependence* [42].

Other drugs

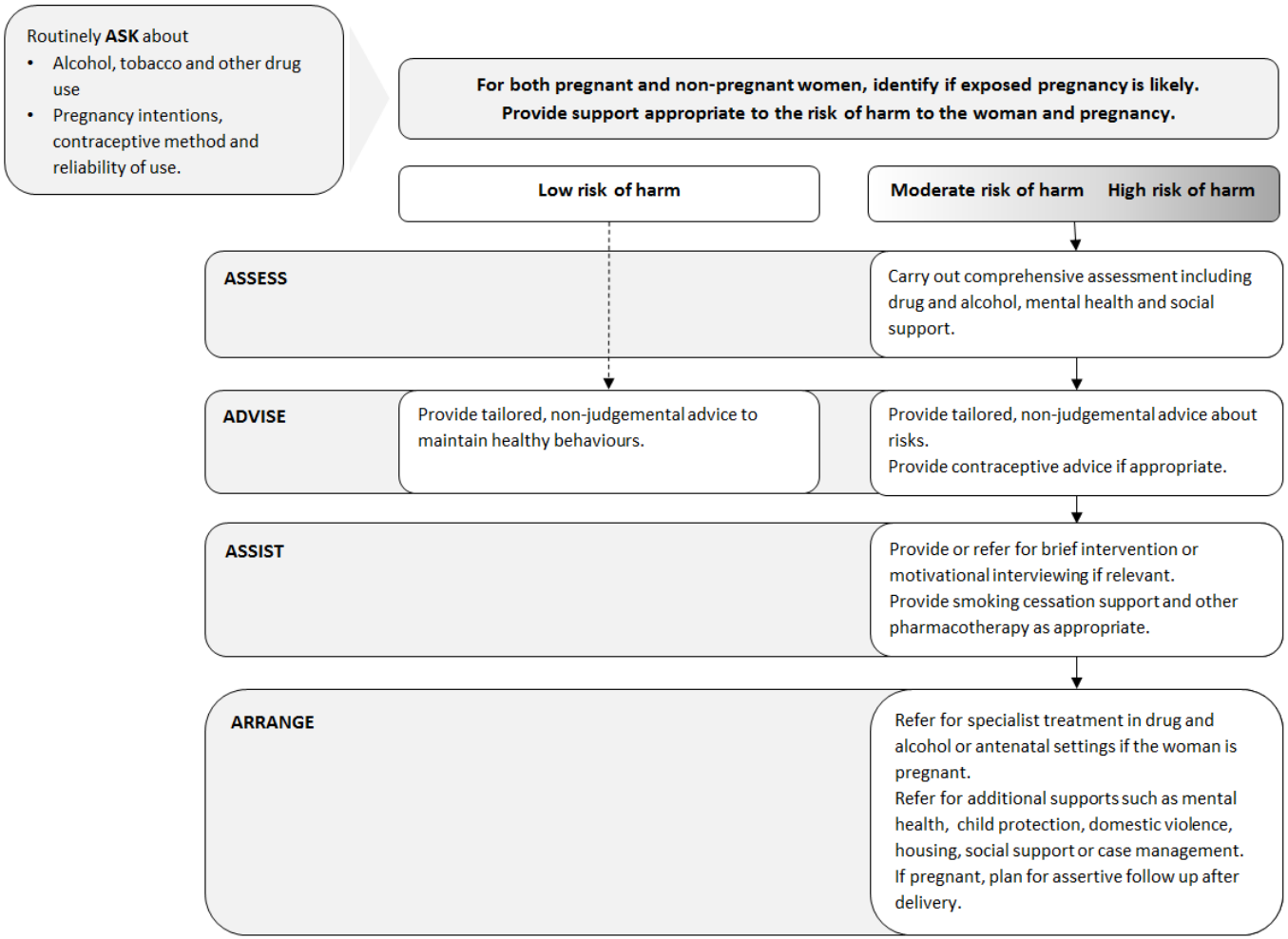
No brief screening tools for other drugs have been sufficiently validated in an Australian context. The ASSIST Version 3 was recently investigated for pregnant women in Australia and shows promise, but had inconclusive results in the validation study [72]. For reproductive-age women generally, assessing alcohol and tobacco consumption alongside a range of other health, mental health and social indicators could provide a basis for investigation of other drug use [66, 68]. Mental health problems and substance use often co-occur [66, 73-76], and the presence of mental disorder or psychological distress may indicate the need to further investigate use of a range of other drugs. A range of other health and behavioural indicators may suggest use of other drugs[6].

[6] More detailed information about health and behavioural indicators and additional analysis of screening and brief intervention tools can be found at Appendices 2, 3 and 4.

Ideal screening

- All pregnant women should be asked about their alcohol and other drug use as part of routine antenatal care. This approach may decrease subjectivity, discomfort, and bias.
- The screening should be performed by a professional with an ongoing relationship with the woman.
- Screening is a skill and staff should be trained in use of screening tools, interview techniques and how to respond to both positive and negative screens.
- Questions should be asked in a health context. This reduces stigma and expresses concern for the health of the mother and baby.
- Be empathetic, non-judgmental, and supportive. Consider the women's needs and life situation. Their alcohol or drug use may not be their highest priority.
- Offer culturally appropriate screening.
- The results should be discussed in a non-judgmental, supportive manner and appropriately documented.
- Women should be asked about alcohol and substance use at every encounter. Disclosure may occur as rapport is built, or use may change over time.

Figure 1: Ideal scenario for all reproductive age women



Women at low risk of an exposed pregnancy

Women can be considered at low risk of an exposed pregnancy if:

- Alcohol consumption is less than one or two drinks per week.
- The woman is a non-smoker. If the woman is a recent quitter, further investigation may be needed to establish the risk of relapse.
- Other drugs are not used.
- If the woman is not planning a pregnancy, there is reliable contraceptive use.

Women at low risk should be given advice consistent with the *NHMRC Alcohol Guidelines;* if planning a pregnancy, pregnant or breastfeeding, not drinking is the safest option [1].

Women at increased risk of an exposed pregnancy

Women can be considered at increased risk of an exposed pregnancy if:

- Contraception is used unreliably or the woman is planning a pregnancy or pregnant

AND

- The woman is a smoker, or reports bingeing, frequent or heavy alcohol use or reports drug use, including prescription medication.

Presence of a mental disorder may also indicate increased risk.

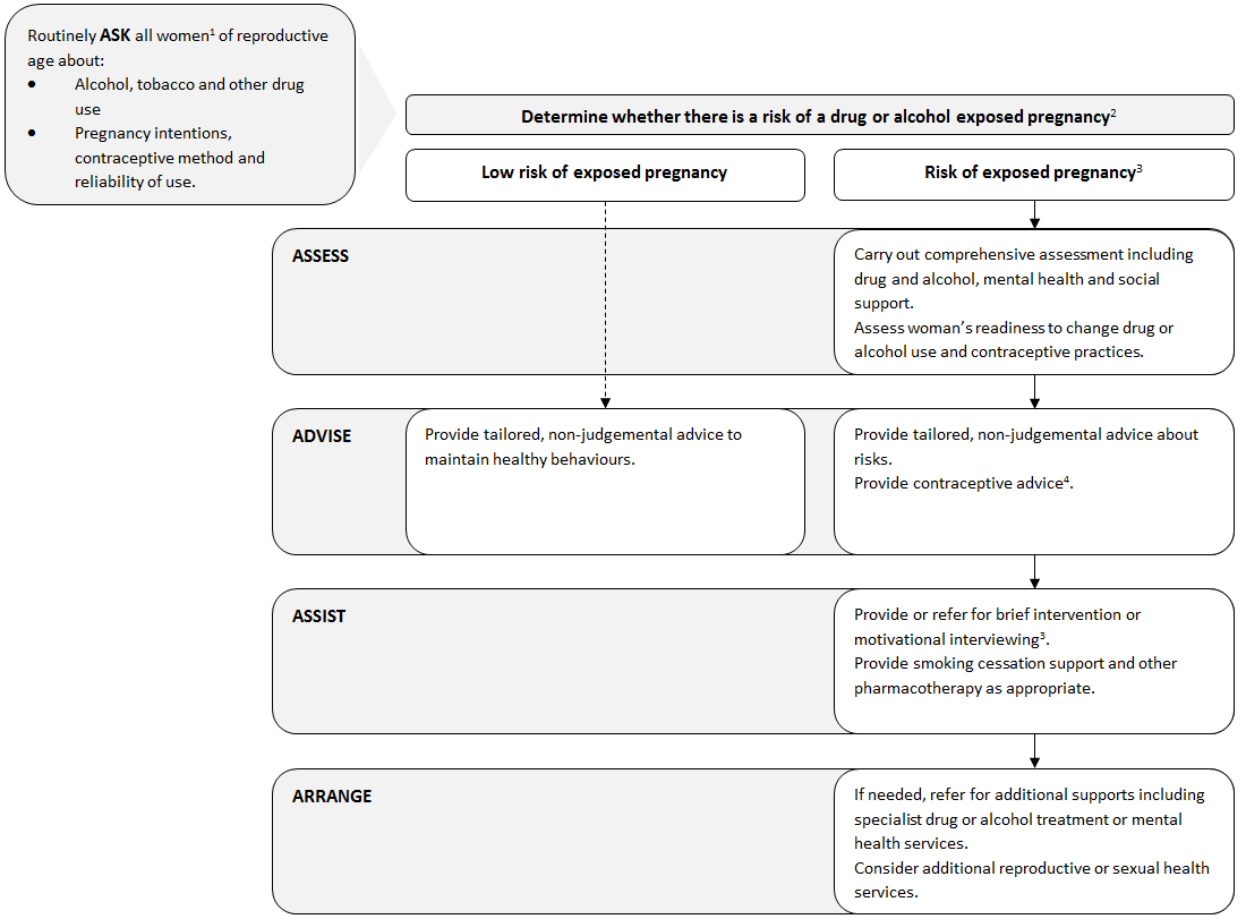
Women at increased risk of an exposed pregnancy should be provided with advice dependent on their individual circumstance (see Table 2).

Women at increased risk of an exposed pregnancy

Table 2: Framework for intervention: strategies appropriate to the risk of harm.

	Characteristics	Preconception	Pregnancy	Post-birth
Low risk women	If not planning pregnancy, there is reliable contraceptive use. Alcohol consumption is less than one or two drinks per week, or AUDIT-C score <3. Non-smoker. No use of other drugs.	If planning a pregnancy, advice to abstain from drinking and use of other drugs. Discussion of risks of alcohol and other drug use. Positive reinforcement of healthy behaviours. Usual care.	Advice to abstain from drinking and use of other drugs. Discussion of risks of alcohol and other drug use. Positive reinforcement of healthy behaviours. Usual care.	Positive reinforcement of healthy behaviours. If breastfeeding, advice consistent with the Australian Guidelines to Reduce Health Risks from Alcohol: not drinking is the safest option. Usual care.
Increased risk women	Contraception is used unreliably **OR** Pregnancy is being planned **OR** The woman is pregnant **AND** Bingeing, frequent or heavy alcohol use **OR** Smoker **OR** Use of other drugs.	Contraceptive counselling and provision. Discussion of risks of alcohol and other drug use. Brief intervention, supportive smoking cessation and referral to specialist treatment or other supports, as indicated.	Discussion of risks of alcohol and other drug use. Brief intervention, smoking cessation and referral to specialist treatment or other supports, as indicated. Specialist treatment by a multidisciplinary team, including withdrawal or pharmacotherapy as appropriate, psychosocial intervention and nutritional support. Early referral to antenatal care Planning for assertive follow-up and support after birth.	Assessment in hospital after delivery. Assertive follow-up of mother and baby, including: medical management, neonatal health or diagnostic assessment, parenting support, contraceptive advice, child protection, counselling, safe-sleeping, breastfeeding, referral to other support services.

Figure 2: Prevention of pregnancies exposed to alcohol and other drugs



1. There is evidence to suggest that universal screening can identify people at risk and eliminates clinicians' bias on type of person at risk. The feasibility of conducting universal and targeted screening needs to be evaluated in primary care settings in Australia.
2. The cut off for levels of risk needs to be determined in Australia taking into account both contraception and alcohol and other drug use.
3. Evidence from *Project CHOICES* suggests that providing assessment, brief intervention and motivational interviewing is effective in reducing alcohol/drug exposed pregnancies. There is evidence to suggest that more intensive MI is required for those at higher risk. The feasibility of conducting a brief intervention of integrated contraceptive and alcohol/drug use should be considered in Australia. This would include consideration of a variety of settings including community and treatment settings.
4. A literature review documenting the evidence of strategies for effective contraceptive counselling for this population is required.

Contraceptive counselling

Consistent and correct use of contraception offers the best prevention of unintended pregnancy [77]. Unintended pregnancies can arise from ineffective contraception methods. Ineffective contraceptive use include those with high failure rates or the incorrect use of methods which have good efficacy [14].

The oral contraceptive pill is the most frequently prescribed form of contraception, particularly for young women [17]. In Australia, while young women have the highest rate of contraceptive consultations with a GP, women who are Indigenous, speak a language other than English at home or have a Health Care Card are significantly less likely to have contraceptive consultations [17].

Long active reversible contraceptives are considered the most effective methods of contraception [14], but are used at relatively low rates in Australia [23]. Long acting reversible contraceptives, such as intra-uterine devices and implants have high efficacy and a low chance of being used incorrectly [14].

Higher contraceptive failure rates are found among younger age women and there are also associations between contraceptive failure and more frequent sexual intercourse, use of alcohol and other drugs, and domestic violence [14].

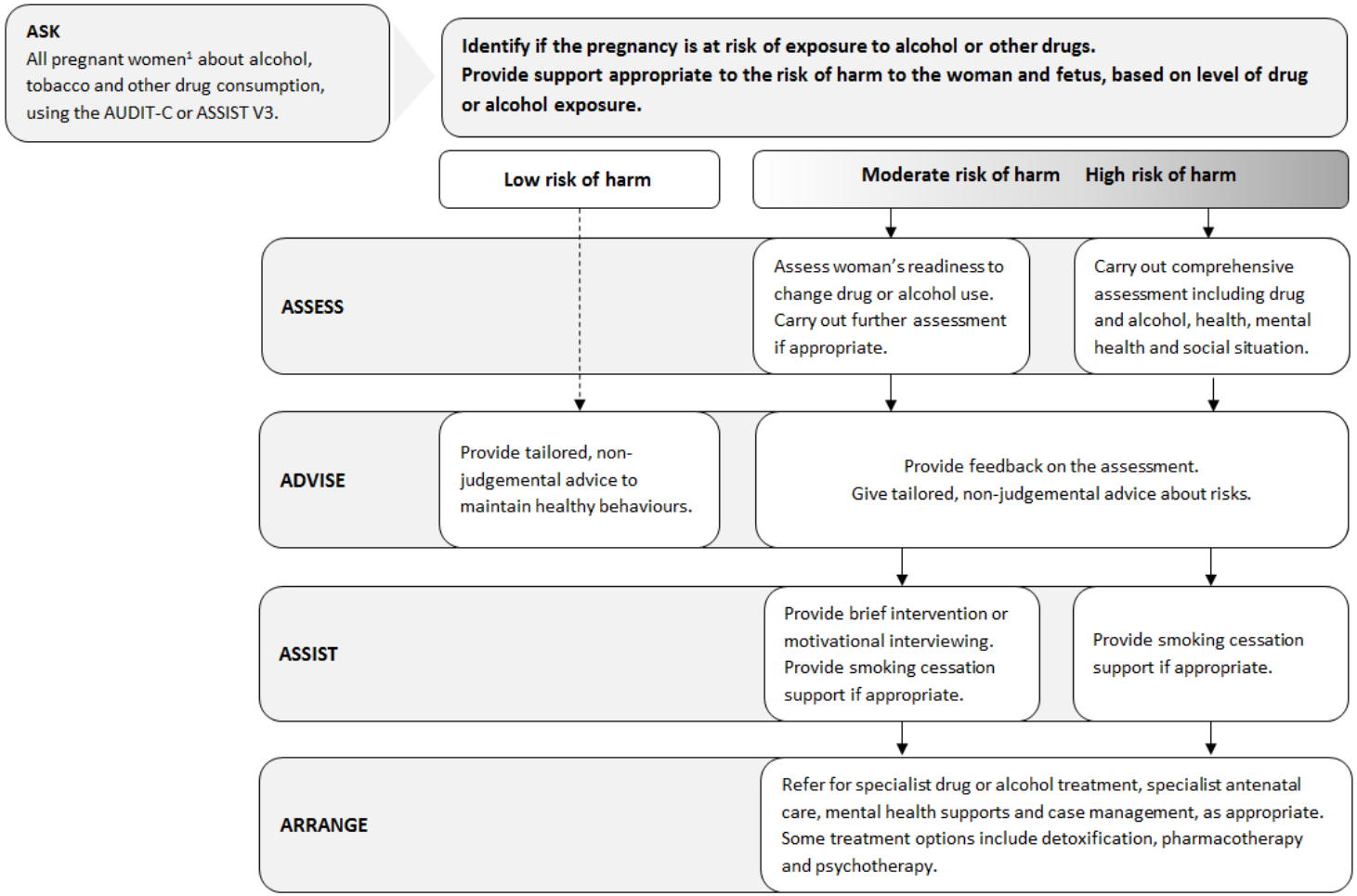
There are many factors which influence women's choice of contraceptive method and the rate of contraceptive failure, including misuse of the method, misunderstanding and misconception, fear of side-effects, concerns about fertility, ambivalence about pregnancy, not perceiving a risk of pregnancy and the influence of family and social networks [14, 77].

Given the complex and dynamic factors involved in decisions about contraception and pregnancy, motivational interviewing has been suggested as an effective approach for resolving the discrepancies between pregnancy intention and contraceptive use [77]. Motivational interviewing is a style of brief intervention which focusses on a person's readiness to change their behaviour and uses empathetic counselling to address ambivalence [78, 79].

The *Project CHOICES* intervention in the US has integrated motivational interviewing for drug and alcohol use with contraceptive advice. The *Project CHOICES* model provides brief motivational counselling sessions and a contraceptive appointment to women of reproductive age who are not pregnant [80-82].

The strategies used in the *Project CHOICES* interventions include assessment, personalised feedback, arrangement or encouragement of a contraceptive visit, review of this visit and use of motivational interviewing activities as appropriate for each woman [82, 83]. The *Project CHOICES* model has been tested in randomised controlled trials and shown to be effective in reducing the risk of an alcohol exposed pregnancy [80-82].

Figure 3: Reducing harm for pregnant women who use alcohol or other drugs



1. There is evidence to suggest that universal screening can identify people at risk and eliminates clinicians' bias on type of person at risk. The feasibility of conducting universal and targeted screening needs to be evaluated in primary care settings in Australia.
2. Evidence suggests that providing assessment, brief intervention and motivational interviewing is effective in reducing alcohol/drug exposed pregnancies for those at moderate risk. There is evidence to suggest that more intensive treatment is required for the high risk group.

Assess, Advise and Assist

Comprehensive assessment

Comprehensive assessment gathers information about the range of specific needs an individual woman may have and informs treatment strategies [79, 84]. These needs may be complex and the assessment should be holistic, to lay the foundation for appropriate medical, psychological and social support. The evidence suggests that treatment within a comprehensive, holistic framework achieves the best maternal and neonatal outcomes [9, 47, 78, 79, 84-90].

Comprehensive assessment should consider the different risk factors related to the woman's history and pattern of alcohol or other drug consumption, sexual history and contraceptive use, physical and mental health, family or social context [91]. Building rapport and engaging women is an important aspect of comprehensive assessment. Engaging women in the management of risks to their health and pregnancy also facilitates informed decision making [91].

During assessment, accurate information can be gathered from a range of sources including routine health questions, prior alcohol and other drug screening, physical examination, specific alcohol or other drug use assessments, psychosocial assessment tools, liaison with other services, interview, and discussion.

Different types of assessment tools may be useful for comprehensive psychosocial assessment. Screening tools aim to identify the risk of problematic substance use in the general population and in-depth assessment tools can provide additional information about the type of misuse, including the frequency and quantity of consumption, or assessment of dependence for those who screen positive [92]. Other psychosocial assessment tools can identify the presence or severity of mental disorders, including depression, anxiety, post-traumatic stress disorder and other psychiatric symptomology [93].

There are a range of tools which may be useful as part of comprehensive psychosocial assessment. A sample of tools is included at Appendix 6. This list is not intended to be comprehensive but indicates some key tools that can be used in primary care settings and some that should be administered by a psychologist, psychiatrist or other appropriately qualified clinician. Individual State or Territory frameworks and clinical guidelines[7] may specify which assessment tools to use.

A Cochrane Review of antenatal psychosocial assessment for reducing perinatal mental health morbidity found that while assessment may increase clinicians' awareness of psychosocial risks, there has not been adequate high-quality research to determine the impact on perinatal mental health outcomes [94].

Brief intervention

There is good evidence for the overall positive effects of brief alcohol interventions for the general population in primary care settings [95]. Overall, the evidence suggests that brief alcohol interventions are equally effective in men and women, with some indications that brief intervention effects may be less consistent for women [96]. There are limitations in the current evidence base for the effectiveness of brief alcohol interventions across different cultural settings and specific population groups, including pregnant women [95].

Despite the less conclusive evidence for women, there are reasonable indications that screening and brief intervention can contribute to prevention of alcohol or other drug exposed pregnancies [67, 78, 85, 97-103].

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[7] See Appendices 10 and 11 for recommendations in National and State Policy and Guidelines.

A 2007 cluster-randomised trial in the US examined the effectiveness of brief intervention in assisting low-income women to achieve abstinence from alcohol during pregnancy. Women who received the intervention were five times more likely to be abstinent by the third trimester and there was also a lower rate of fetal death in the intervention group. The study found that brief intervention was more effective than assessment on its own, although women in both groups significantly reduced their drinking [98].

This finding has been reported in a number of reviews of screening and brief intervention for alcohol use in pregnant women. That is, brief intervention generally improves outcomes and reduces risk, but women in control groups also tend to reduce consumption [98, 104, 105]. There is a possibility that for some women, assessment or screening alone may reduce self-report of alcohol consumption, because of an increased awareness of the consequences, or the desire for social acceptability [100, 106]. In addition, pregnant women generally decrease their drinking [103], making it more difficult for evaluation research to find a significant intervention effect.

A randomised trial of brief intervention in women of reproductive age found a long-term treatment effect, with reductions in weekly alcohol use and binge drinking occasions over a four-year follow-up period. Pregnant women were initially excluded from the trial, but women in the intervention group who subsequently became pregnant reduced their weekly drinking and number of binge drinking occasions more than women in the control group [107].

The success of brief intervention for antenatal alcohol use appears to be associated with the pattern of drinking and level of risk. Although the association between level of risk and outcome factors is complex, brief intervention appears to be most suitable for people who are not alcohol dependent [108, 109]. Additional treatments are required for people who are dependent [109].

There is less research into the effects of brief intervention for drugs other than alcohol, both for the general population [62] and for pregnant women. For pregnant women with alcohol or other drug dependence or disorders, the most appropriate interventions include specialised treatment services with a comprehensive biopsychosocial approach. An exception is tobacco where there is strong evidence for the effectiveness of smoking cessation programs for pregnant women. These can be delivered in routine antenatal care [110] and other primary care settings.

The content and method of delivery of brief interventions is also significant, but there has been insufficient research into the ideal design of interventions, the skills needed to deliver them and the mode of delivery [111, 112]. Further long term research is needed to examine the design and content of brief interventions, including for computer-delivered models [113], length and frequency of the interventions, follow-up, and evaluation of long-term effects [111].

In addition, more investigation is needed of effective and feasible modes of delivery. One US randomised controlled trial comparing a brief intervention designed to prevent alcohol exposed pregnancies delivered over the phone or in person found that both were effective interventions at six months [112].

There are various models of brief intervention, generally involving assessment, personalised feedback, advice, goal setting and referral for further support where necessary. The *World Health Organisation* has developed a manual for brief intervention in primary care, based on the ASSIST screening and brief intervention model [114].

A review of brief intervention as part of the Australian Government published report *The Treatment of Alcohol Problems: A Review of Evidence* recommends the FLAGS brief intervention model, which includes Feedback, Listening, Advice, Goals and Strategies [115]. The 5As and FRAMES are other brief intervention models which can be used in primary care [115].

Addressing motivation is an important part of brief intervention [116, 117]. Brief interventions providing integrated motivational interviewing content and contraceptive advice have been found to be effective in reducing the risk of alcohol exposed pregnancies in non-pregnant women in randomised controlled trials in the US and South Africa [80-82, 112, 118].

Motivational interviewing

Pregnancy may provide the motivation for behaviour change, with the appropriate treatment and support [59]. Motivational interviewing is a style of brief intervention which focusses on readiness to change behaviour [78]. It uses an empathetic and reflective counselling approach with the intention of motivating change and addressing any resistance or ambivalence a person may be feeling about changing their behaviour [78, 79]. Motivational interviewing is grounded in collaboration rather than service provider-driven agendas for change [11].

Motivational interviewing aims to clarify the person's motivation for change in their own language and develop goals [79] and has been found to be effective in reducing problematic alcohol consumption in women [78, 80-82]. Skills for motivational interviewing include using open-ended questions, summarising, using affirmation, reflective listening and eliciting discussion about behaviour change.

Project CHOICES is a significant example of using motivational interviewing for alcohol use integrated with contraceptive advice. Developed in the US, the *Project CHOICES* model provides four brief motivational counselling sessions and a contraceptive appointment, to non-pregnant women of reproductive age [80-82]. The model has been tested in randomised controlled trials and shown to be effective in reducing the risk of an alcohol exposed pregnancy [80-82]. In a randomised trial of 830 non-pregnant women at risk of an alcohol exposed pregnancy, the intervention group was found to have two times less risk than the control group over a nine month period [82].

A subsequent study in university women found that a one-session motivational interviewing intervention, combined with accessible contraceptive services at the university clinic, was effective in reducing the risk of alcohol exposed pregnancy at four month follow-up [81]. In a broader community context, a version involving one session of motivational interviewing and encouragement to seek contraceptive services was less effective than the longer intervention [81].

While the longer intervention achieves greater risk reduction, it may not be feasible in primary care contexts. Despite being less powerful than the full *Project CHOICES* intervention, the one-session community model was found to reduce ineffective contraception and risk of an alcohol exposed pregnancy over time [81]. In the trial of the shorter model, the intervention and control groups achieved similar rates of reduction of risky drinking [81].

The *Project CHOICES* methodology was also trialled in a high-risk group of women in rural South Africa and was found to be effective at reducing the risk of an alcohol-exposed pregnancy. The intervention consisted of five motivational interviewing sessions with integrated contraceptive counselling in each session. It was delivered by 'lay counsellors' trained and guided by a manual. The conservative findings from an intention to treat analysis found that at twelve month follow-up, women who received the intervention were more than twice as likely to not be at risk of an alcohol exposed pregnancy as women who did not. Interestingly, the reduction of risk of an alcohol exposed pregnancy was largely because of improved contraceptive use [118].

In addition, a study of the *Project CHOICES* data from US studies found that three quarters of women at risk of an alcohol exposed pregnancy were also at risk of a tobacco exposed pregnancy. Women at risk of a tobacco exposed pregnancy were more likely to engage in a range of problematic substance use behaviours and more likely to have had prior mental health and alcohol or drug treatment than women not at risk. The study suggested that this clustering of risks supports an integrated, preconception, preventative approach to risk reduction [36].

Two recent US studies have explored the delivery of a remotely delivered brief intervention to reduce the risk of an alcohol exposed pregnancy. A small feasibility study by *Project CHOICES* researchers investigated remote delivery methods for a one-session intervention combining motivational interviewing and encouragement to seek contraceptive advice. This study found that delivery over the phone and by mail was acceptable to participants and that counsellors were able to establish good therapeutic relationships. The risk of alcohol exposed pregnancy decreased in this study, including decreases in drinks per drinking day and ineffective contraceptive use at six month follow-up. The remotely delivered intervention was not as effective as the longer, four-session CHOICES intervention [83].

A randomised trial comparing the delivery in person or over the phone of a brief intervention to reduce the risk of alcohol exposed pregnancy found that both groups showed comparable small decreases in alcohol use and larger increases in effective contraceptive use. This trial showed promise in providing alternative delivery methods of brief intervention which may be more feasible in some contexts [112].

The evidence from these studies suggests that at a minimum, a one-session intervention involving personalised assessment, feedback, motivational interviewing and contraceptive advice could be beneficial in reducing the risk of an alcohol exposed pregnancy, while a longer intervention is likely to have a more robust effect [81].

Supportive smoking cessation

Pregnant women who smoke should be advised to quit as early in the pregnancy as possible. This is especially the case if risk factors are present such as high levels of use, living with another smoker or co-morbid mental health issues [42]. As many people find it difficult to quit, women who are identified as smokers should also be offered support for smoking cessation and relapse prevention. Smoking cessation support can be offered to women in a range of contexts including maternity services, sexual health services and Aboriginal Medical Services [42].

The guidelines from the Royal Australian College of General Practitioners, *Supporting Smoking Cessation,* recommend that health professionals ask all pregnant women about their smoking and take every opportunity to offer intensive ongoing support for complete smoking cessation [71]. A systematic review of 72 controlled trials has shown that providing smoking cessation support in pregnancy reduces the rate of smoking in late pregnancy and improves birth outcomes by reducing low birth weight and preterm birth [119].

Smoking cessation support for pregnant women can include psychosocial interventions such as cognitive behaviour therapy and motivational interviewing [119]. Pregnant women who smoke should be offered brief intervention at a minimum, and psychosocial interventions should be made available [42]. Use of Nicotine Replacement Therapy (NRT) can improve the likelihood of quitting, but may have adverse effects on the fetus. The *NSW Clinical Guidelines* recommend consideration of pharmacotherapy only if psychosocial intervention has been unsuccessful and when the benefits of cessation outweigh the risks of NRT and continued smoking [42].

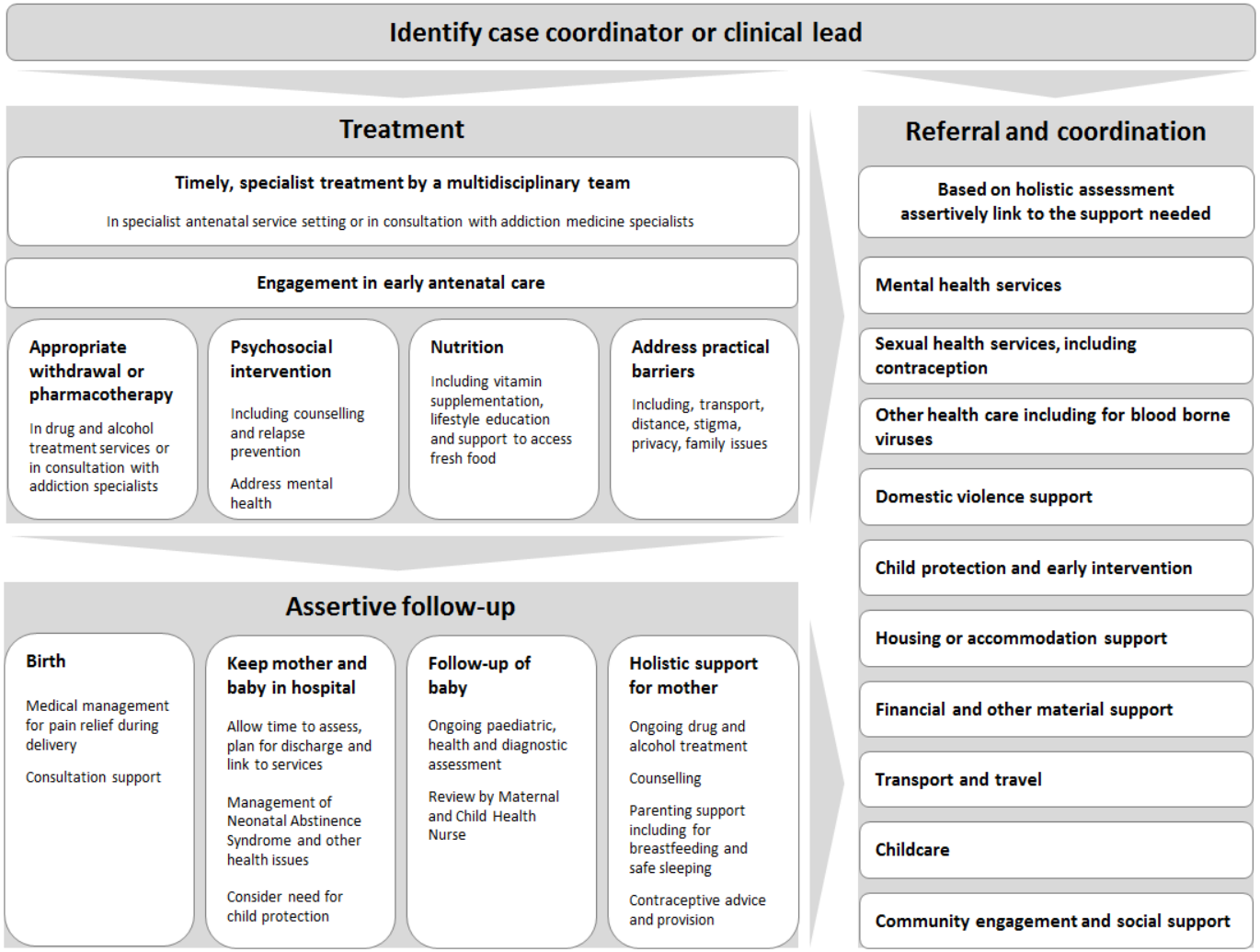
Some women may require more extensive smoking cessation support than brief smoking interventions. For example, there is an association between depression and smoking in pregnancy, and pregnant women experiencing depression report being less confident to successfully quit than women without depression [120, 121]. More extensive smoking cessation support could include [42, 119]:

- Referral for counselling
- Relapse prevention strategies
- Developing strategies with sensitivity to the environmental, family and community structures that influence smoking

A 2013 systematic review of evidence for smoking cessation interventions for pregnant Indigenous women located only two appropriate studies and only one of these was tested in Australia. The interventions were culturally tailored and involved counselling, structured follow-up, family engagement and NRT [122]. Neither of the studies found a treatment effect and both had methodological limitations, highlighting the urgent need for high-quality research into effective interventions for pregnant Indigenous women in Australia [122]. The study suggested that the following strategies should be tested with randomised trials to improve smoking cessation rates in pregnant, Indigenous Australian women [122]:

- Locally tailored interventions which are culturally secure
- Routine assessment and support (systematic screening of every woman)
- Providing relevant information about the harms of smoking and benefits of cessation
- Providing smoking cessation interventions through all antenatal care providers
- Involvement of community members and household members
- Addressing smoking relapse during pregnancy and postpartum
- Using contingency based financial rewards
- Assessing other substance use and providing support
- Providing staff training.

Figure 4: Supporting pregnant women who use alcohol or other drugs



Arrange treatment, referral and assertive follow-up

Figure 4 outlines an ideal treatment model and components of good practice support of pregnant women with problematic alcohol or drug use or dependence, once they have been identified as requiring support. Although primary health care professionals will not provide all aspects of treatment, primary care may be the first point of contact and it is essential to identify women who need to be referred early for treatment and specialist antenatal care.

It is essential that each pregnant woman with problematic alcohol or other drug use be provided with specialist antenatal care and substance use treatment as early as possible to achieve the best maternal and neonatal outcomes. Comprehensive antenatal care should address the areas that impact on substance use, health and wellbeing and be supported by collaborative work across disciplines. The specific elements of care and the services provided will vary depending on the needs and choices of the pregnant woman, her situation and the location.

Some barriers which women may experience in accessing care and treatment include [123]:

- Women not identified in health care settings
- Real or perceived judgemental attitudes of staff
- Stigma and fear of accessing care or legal consequences including losing custody of children
- High levels of anxiety, poor coping skills or difficulty forming trusting relationships with health care providers
- Underlying mental health disorders
- Lack of transport and access to childcare
- Partner violence or controlling behaviour
- Chaotic lifestyles.

Integrated models of care in pregnancy and after birth are emerging as best practice to reduce barriers for women with a history of substance use to access health and support services [124, 125]

Elements of good practice

All women who are identified as having problematic alcohol or other drug use, including pregnant women, need access to treatment suited to their personal circumstances and the complexity and severity of the problem. Australian specialists have highlighted the need for opportunistic service provision wherever women come into contact with services, with continuity of care across disciplines, throughout pregnancy and after the birth of the baby.

Key elements of good practice in the care of pregnant women who use alcohol or other drugs include[8]:

Identification

Early identification of pregnant women who use alcohol or other drugs is required in any setting the woman presents. Health professionals should recognise and respond to the risk of exposure of the pregnancy and consult with addiction medicine specialists or other appropriately trained clinicians.

Early pregnancy care

Pregnancy care should be provided as early as possible, prior to the standard hospital booking-in appointment that is usually conducted around 12 weeks.

[8] More detailed information from stakeholder consultation can be found at Appendix 8.

Coordination

It is essential to have a coordinated model of care with a clearly identified case coordinator, clinical lead or key worker.

Holistic care

Care should be holistic and address the range of areas which impact on substance use, health and wellbeing. This should be supported by collaborative work across disciplines with strong partnerships, good communication and clear referral pathways. Women should be assertively linked to appropriate support services. Support should address issues for the partner and the whole family, as these issues impact on the outcomes for mothers and babies.

Responsive services

Women should not be excluded from services following identification of alcohol or other drug use, although all services may not be able to provide the appropriate level of support required. The starting point for care should be the first place that a woman presents and they should be supported to access appropriate help. Services should respond to women's needs at the point of presentation wherever possible rather than expecting women to attend and coordinate multiple services. Stakeholders suggested specific clinics could be brought to existing community services.

Principles of treatment and support

Coordinated access to services
All pregnant women who use alcohol or other drugs should have access to appropriate substance use treatment and antenatal care. Pregnant women who use substances should have a clearly identified case coordinator and a consistent care team, receive referral to specialist services and access specific treatments for substance use. Treatment should include inpatient admission if appropriate.

Holistic and woman-centred care
The autonomy of pregnant women should always be respected. Women should be fully informed about the risks and benefits of treatment options when making decisions. Services should have a level of comprehensiveness that matches the complexity of each woman's need.

Culturally safe care
Models of care should be tailored to the needs of each woman and be respectful of community and cultural contexts and practices. Health professionals should have access to cultural competency training and be skilled in providing culturally safe care. Care should address the ongoing impact of colonisation and dispossession on the health status of Indigenous Australian women.

Free from discrimination and stigma
Care should be provided to pregnant women free from discrimination and stigma. Women should be supported and should not be excluded from accessing care or treatment because of their substance use or pregnancy.

Protecting confidentiality
Confidentiality is a fundamental right of all people using health care services. It is important to work within legislation and other guidelines to ensure privacy and confidentiality are maintained.

Continuity of care and multidisciplinary teams
Continuity of care is accepted best practice for all pregnant women. Multidisciplinary teams working collaboratively can achieve optimal pregnancy, birth and parenting outcomes for each woman and her family.

Child protection
Child protection is a consideration in all drug and alcohol interventions for pregnant women. The safety and well-being of children is a paramount consideration.

Adapted from the *WHO Guidelines,* the *NSW Clinical Guidelines,* and *It's Time to Have the Conversation: Understanding the Treatment Needs of Women who are Pregnant and Alcohol Dependent* [12, 42, 60].

Complexity

The general profile of pregnant women with substance use disorders is one of complexity, social disadvantage, poor health and inadequate antenatal care [6, 46]. Substance use during pregnancy does not occur in isolation and it is often accompanied by a number of adverse life circumstances including comorbid mental health disorders, interpersonal violence, prior trauma, poverty, poor nutrition and inadequate health care [33, 78, 79, 84, 126-128].

Analysis of data from pregnant women in a specialist perinatal drug use clinic in NSW found that compared to the general population, women were more likely to be born in Australia, be Indigenous Australians and be younger, unemployed and multiparous. The women had significantly less antenatal visits than women in the general population, and were more likely to not have any antenatal care [6].

Women's health and use of alcohol and other drugs are influenced by a range of factors. During pregnancy, there are complex interactions between substance use, health and psychosocial factors, for women who use alcohol or other drugs. Some factors that may have specific relevance include [33, 78, 79, 84, 126-128]:

- Mental disorders and mental ill-health including stress, anxiety and depression
- Domestic violence, abuse, personal violence and trauma
- Poverty and financial difficulties
- Unstable housing or homelessness
- Poor physical health and poor nutrition
- Stigma, guilt or social pressure about 'fitness' for motherhood
- Fear of losing custody of children
- Mistrust of health care and other support services
- Concern about the pregnancy
- Partner and family substance use and psychosocial issues, including domestic violence, mental health, and intergenerational substance use or trauma
- Smoking and poly-drug use.

Dependent drug or alcohol use and mental health problems commonly co-occur [66, 73-76]. Australian women generally are more likely to experience mood disorders, anxiety disorders and comorbid mental disorders than men [74]. Women with mood disorders are more likely to have substance use disorders than other women, and the risk of this comorbidity is also significantly higher for women than for men [74].

A review of the medical records of drug dependent women with babies in NSW and the ACT in 2004 identified psychiatric comorbidity in 45% of the women. The most common diagnoses were depression (79%) and anxiety (20%). This study also found that women with comorbid drug dependence and a psychiatric diagnosis were more likely to have had no antenatal care, to have had more previous pregnancies and to have experienced domestic violence compared to drug dependent women with no psychiatric diagnosis. Outcomes for infants born to women with drug dependence and psychiatry comorbidity were worse [75].

An analysis of data from people accessing pharmacotherapy for heroin dependence in NSW found that women were more likely to be younger, have a poor psychiatric history, have experience ongoing adult violence, have experienced unwanted sexual activity, have experienced child abuse or neglect and to have first been offered by and used heroin with a boyfriend or partner [76].

Women with comorbid mental disorders and substance use disorders may be more likely to attribute their problems to their mental health and to seek treatment in general practice or mental health

contexts than from drug and alcohol services [47, 129]. Women with anxiety may also have more difficulty engaging with treatment for the duration of their pregnancy. Analysis of data from a randomised trial of methadone and buprenorphine for treatment of pregnant opioid dependent women, the MOTHER study, found that women with symptoms of anxiety were significantly more likely to discontinue treatment before birth of their baby than women with no symptoms, while women with symptoms of depression were less likely to discontinue treatment [130].

A study of data from the *Parent-Child Assistance Program (PCAP)* in the US investigated how maternal risk and protective characteristics and service elements were associated with custody of children [131]. The program provides intensive case management and advocacy to high-risk women who use alcohol or other drugs in pregnancy. Women in the program who maintained custody of their children tended to report fewer psychiatric problems and be more likely to have stable housing, more education, fewer children and have a greater income than other women [131].

Women who never had custody of their children were more likely to be pregnant at program exit, have worked as a sex worker, have been in jail, have recent depression, a history of hallucination, have one or more deceased children, and use heroin intravenously during pregnancy. Women who had their child in their custody at exit of the program had a higher rate of identified service needs being met. A higher proportion of these women also reported being abstinent from alcohol and illicit substances at exit from the program [131].

Women whose children were intermittently in their care had higher rates of inpatient substance abuse treatment. Women whose children were not in their custody at exit of the program were more likely to be receiving psychiatric pensions. For women who completed inpatient treatment, the likelihood of child reunification increased if their partner was supportive of continued abstinence [131].

Australian studies have shown that among mothers accessing community opioid treatment programs, women who were involved with the child protection system were more likely to be on psychiatric medication, have a greater number of children and have less family support [132].

Pregnancy outcomes may also be worse for women with both problematic substance use and mental disorders. A recent NSW study used linked data to examine mental and behavioural disorders due to substance use during peri-conception or pregnancy. The study found that first time mothers admitted to hospital for a mental or behavioural disorder attributed to opioid or cannabinoids were close to three times more likely to have preterm births than mothers without hospital admissions for psychiatric or substance use disorders [133].

Cultural and Linguistic Diversity (CALD)

There are different rates, patterns, implications and risk factors for alcohol and other drug use among different cultural groups across Australia. The rate of drug and alcohol use among women from CALD backgrounds in Australia is generally lower than the population average [134].

There is limited information available on the drug use and treatment experiences of pregnant women from CALD backgrounds [135, 136]. Migrant and refugee women may experience a range of additional risk factors for mental ill health and substance use. They may be experiencing trauma, loss, family disconnection, isolation, cultural adjustment, discrimination or language difficulties [134, 135, 137].

Strategies which may remove barriers to CALD women accessing health care include cultural competency training and the development of relationships between health care providers and multicultural or ethno-specific community organisations. Some other skills which can support engagement of CALD women in health care include using interpreter services, involving bilingual workers and providing information in community languages [138].

For all women, being aware of cultural and language background, including literacy in English, is important when identifying and providing support for alcohol and other drug use [42]. A range of individual, family and cultural factors are important to consider.

Specific populations

Indigenous Australian women

Indigenous Australian women who use alcohol or other drugs may face a range of additional challenges during pregnancy and when raising healthy children [139]. They experience a disproportionate rate of adverse perinatal outcomes, including maternal mortality, low birth weight, preterm birth and perinatal death [140, 141]. Early engagement with antenatal care is a key aspect of improving pregnancy outcomes. To improve delivery of antenatal care, primary health care professionals need to consider the social determinants of health, and understand the health of Indigenous women in a context of social, emotional, spiritual and cultural wellbeing and historical experience [140].

Health professionals who work with Indigenous women should provide respectful care, including by acknowledging the many ways in which colonisation and dispossession have impacted on the ongoing health of Indigenous people [42]. Alcohol and other drug dependence may be influenced by a range of interacting factors including social inequality, grief, high rates of incarceration and comorbid health issues [139].

Indigenous Australian women may experience deep intergenerational trauma, grief and loss arising from the separation of children from their families over successive generations [142, 143]. Fear of losing custody of children can also prevent women from disclosing alcohol and other drug use to health care services [144, 145]. In context of the continued over-representation of Indigenous children in the child protection system in Australia including out of home care [142, 146, 147], Indigenous women may feel less trusting of health care providers if they are not culturally-specific services [148]. They may also have had prior negative experiences with mainstream services and be fearful or not trust mainstream health care workers [149].

A 2014 study of female clients, family members and staff of Aboriginal Community Controlled Health Services found that women experienced a range of mental health disorders and substance use disorders. These were attributed to negative events in early life and had severe impacts on their life and family members [139]. Colonisation and dispossession from land have caused significant intergenerational trauma and discontinuity of culture for many Indigenous women and this may underlie poor health, mental health and substance use [139].

Indigenous Australian women are more likely to smoke during pregnancy, with 48.7% reporting smoking at any time during pregnancy in a 2011 national survey, compared to 11.7% of non-Indigenous women [150]. One study estimated the proportion of Indigenous mothers with an alcohol-related diagnosis to be around ten times higher than for non-Indigenous mothers (23% and 2.3% respectively) [151].

Available information suggests that Indigenous Australian communities have both more non-drinkers and more risky drinkers than non-Indigenous communities suggesting that those that do drink are more likely to drink at risky levels [42, 141]. Alcohol or other drug use may have specific implications for some Indigenous Australian women in their specific socio-cultural context. In some communities, heavy and group drinking may be the norm [42].

Like all women, Indigenous Australian women's attitudes to pregnancy and birth are varied and continue to change [152]. Being respectfully aware of women's varied beliefs can improve clinical care [153]. Developing cultural sensitivity and awareness is critical for culturally safe engagement with

Indigenous Australian women. Different approaches are necessary depending on the context, including whether care is being provided in an urban, regional, rural or remote areas [42].

To effectively meet the needs of Indigenous Australians, drug and alcohol interventions should be adapted to the specific setting they take place in [154]. A 2014 review of projects seeking to improve alcohol treatment among Indigenous people found that alcohol-related harm can be reduced with Indigenous control of services, a collaborative approach, respectful engagement and modest investment [154].

Primary health care professionals can facilitate engagement the engagement of Indigenous Australian with antenatal care by providing a culturally secure service. Cultural competence is one aspect of cultural security and involves reflection on personal beliefs, attitudes and cultural practices, and acknowledgement of difference with others. Cultural competency training should be part of health care services' quality improvement practices, since many Indigenous women receive care in mainstream settings, such as general practice [140].

Other ways to improve engagement include ensuring that care is individualised, involving women and their families in decision-making, taking time to build rapport, providing privacy and confidentially and understanding the woman's personal and community context. When available, Aboriginal health workers can provide support and assistance to facilitate engagement with care [140]. Women that identify as Aboriginal and/or Torres Strait Islander may or may not want to see an Indigenous practitioner. Where possible, choice of practitioner should be a part of all primary health care service delivery.

In some areas there may be specific programs to promote healthy pregnancies for Indigenous women, such as the *Strong Women Strong Babies Strong Culture Program* in the NT [155], the *Strong Spirit Strong Future Program* [70] in WA and the Aboriginal Maternal and Infant Health Service (AMIHS) in NSW.

Some specific considerations when providing antenatal care include potentially higher rates in some communities of [140]:

- Teenage pregnancy
- Anxiety and depression
- Domestic violence
- Existing medical conditions
- Women either overweight or underweight in pregnancy
- Syphilis diagnoses
- Chlamydia
- Smoking
- Intrauterine growth restriction, low birth weight and pre-term birth.

As well as lower rates of [140]:

- Folate supplementation and access to fresh food
- Alcohol drinking rates in general, but higher risky drinking rates

The *NSW Clinical Guidelines* offer some suggested strategies for working with Indigenous Australian women, including [42]:

- Discussing the woman's beliefs, including cultural, traditional and other beliefs
- Providing a culturally safe location or environment
- Being aware that body language can have different meanings
- Noticing non-verbal expressions of ill health
- Exploring and negotiating issues in the woman's community, family or friendships

- Discussing traditional treatments and approaches
- Working with a cultural consultant
- Being familiar with local drinking patterns and terminology.

Incarcerated women

A survey of incarcerated women in NSW, found 4% of women reported being pregnant at the time of the interview, with an additional 1% unsure of their current pregnancy status [156]. This is consistent with international data, including data from the UK suggesting 6% of incarcerated women report being pregnant [157]. The vast majority of the women interviewed in NSW (82%) reported having been pregnant at least once, with 27% reporting a history of five or more pregnancies. The women in this sample had a high rate of alcohol or other drug use with approximately 40% drinking alcohol, 78% using illicit drugs, and 80% smoking [156].

Pregnant women who use alcohol and other drugs are at high risk of withdrawal when they enter custody. These women have high-risk pregnancies and may have received very little antenatal care prior to pregnancy. The *NSW Clinical Guidelines* state that incarcerated women should have access to safe, high-quality and compassionate antenatal care and maternity services [42].

Women should be offered drug and alcohol treatment, psychosocial support and have the opportunity to liaise with their partner, family or other support people and to participate in mothering programs where these are available. Discharge planning is essential, so that women exiting the custodial system are linked with pregnancy care, drug and alcohol treatment services, a methadone prescriber if appropriate, community mental health services and other support as required[1] [42].

A 2011 Australian literature review of good practice in women's prisons outlined a number of approaches to support pregnant women and mothers in prison. These include [158]:

- Providing early parenting education and skill development
- Early identification and prioritisation of the needs of pregnant women
- Early care planning
- Quality antenatal care
- Comfortable and supportive environments for babies and children living in prisons
- Support for mothers separated from their children
- Practical family support services
- Discharge planning
- Community in-reach and case management prior to release
- Post-release services.

Women should have the opportunity to give birth outside of prison and the prison should not be recognisable as a place of birth on a child's birth certificate [158].

Comprehensive care

Comprehensive care for pregnant women who use substances is a guiding principle of the World Health Organisation's *Guidelines for the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy* [12]. Providing comprehensive care means addressing the practical realities of women's lives, their physical and mental health and social support needs [87, 88]. The literature suggests that comprehensive treatment approaches have the potential to improve outcomes for pregnant women with problematic alcohol or other drug use, and their babies [9, 47, 78, 79, 84-90].

Comprehensive or integrated treatment aims to reduce the barriers to treatment and improve maternal alcohol or other drug use outcomes, birth outcomes and neonatal health [87, 88].

Elements of a successful comprehensive treatment model include [42, 79, 84]:

- Case coordination
- Early antenatal care
- Mental health care, trauma informed counselling and stress management
- Appropriate pharmacological treatment or withdrawal management
- Treatment services which address specific issues for women or provide women only care
- Culturally safe models of care
- Response to situations of domestic violence and abuse
- Material support such as assistance with food, welfare services and housing
- Building socially and culturally relevant supports and networks
- Addressing practical barriers including childcare and transport
- Providing a safe, confidential and non-judgemental environment
- Case management, linking to services and supports
- Psychoeducation and health promotion
- Planning for after the birth, including parenting, care for the baby, breastfeeding, safe sleeping, early intervention and engagement with child protection services

Components of successful treatment programs

A number of other 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, pharmalogical, transportation, mental health, educational, vocational, legal and respite care [159].

Treatment should address these domains and include psychosocial treatment, pharmacologic treatment, inpatient admission and withdrawal management, as appropriate. Best-practice treatment for pregnant women who have problematic alcohol or drug use or dependence should be delivered by a multidisciplinary team including a GP, alcohol and other drug services and obstetric care [60]. It should address practical barriers such as location, child care and transport. Holistic assessment should be multidisciplinary and lead to the development of a coordinated care plan across agencies [42].

A 2011 meta-analytic review examined birth outcomes for women in integrated treatment programs (programs which provided integrated substance use treatment, antenatal care and parenting or children's services). It found that in comparison to receiving no treatment, babies born to women in integrated treatment programs were more likely to have fewer birth complications, higher birth weights

and larger head circumferences at birth. At the time of delivery, women were also more likely to have negative toxicology screens [88].

Women in integrated treatment programs had less premature births and higher rates of antenatal care compared to women who received non-integrated treatment services. Higher rates of antenatal care are generally associated with better pregnancy outcomes. Although the effect sizes found were generally small to medium, the findings suggest that treatment programs which comprehensively address alcohol and other drug use, provide antenatal care and address a range of other psychosocial and health factors can improve birth outcomes [88].

The Canadian *Toronto Centre for Substance Abuse in Pregnancy* program has found that integrated treatment improves average gestational age, associated with earlier antenatal care and retention in treatment. Earlier presentation to care was also associated with higher rates of breastfeeding and reduced average length of stay in hospital for the neonate. In addition, the program has achieved decreases in women's drug use during their pregnancy, improved housing stability and proactive engagement with child protection services [87].

A perinatal addiction clinic in Hawaii which uses a comprehensive harm reduction model has demonstrated comparable rates of pregnancy complications to a representative community sample, despite significant risk factors amongst the substance-using women in the program. Participating women had high rates of co-morbid medical and mental health problems, high poverty rates, high rates of interpersonal violence and high smoking rates [9].

The harm reduction model used in this clinic included perinatal care, transportation, childcare, social services, family planning, motivational incentives and addiction medicine. The program focussed on improving nutrition, decreasing smoking, alcohol and other drug use, encouraging breastfeeding, promoting dental health, encouraging physical activity, encouraging early and continued antenatal care and promoting social and community support. Evaluation of the program showed that increased antenatal visits were associated with increased abstinence and decreased postpartum relapse [9].

Other research examining the impact of integrated treatment programs on maternal alcohol or other drug consumption found both integrated and non-integrated programs reduced alcohol or other drug use. This finding indicates that more high-quality randomised trials are needed to investigate maternal alcohol or other drug use outcomes so that the impact of integrated treatment programs can be appropriately assessed [160]. A 2008 Cochrane Review also found that there is a need for more randomised controlled trials of interventions for pregnant women in alcohol treatment to determine the best model of care [59].

There is need to examine the cost effectiveness of integrated treatment programs. There is some evidence from the US with an integrated antenatal care and substance treatment program reporting reduced health costs for pregnant women who used substances to the same level as those that did not [161]. In addition, a 2012 systematic review assessed a number of economic evaluations of drug use treatment programs for pregnant women and found that many of these were cost-effective or cost-saving [162].

In Australia, there are currently not enough funded treatment places that appropriately address women's specific needs and there is a lack of evaluated treatment programs for pregnant women [60, 163]. In addition, more information about how referral pathways from primary care to specialist services could be strengthened is required. There is also inconsistent coverage of specialist alcohol and drug treatment services for pregnant women, with a need for programs which cater for women

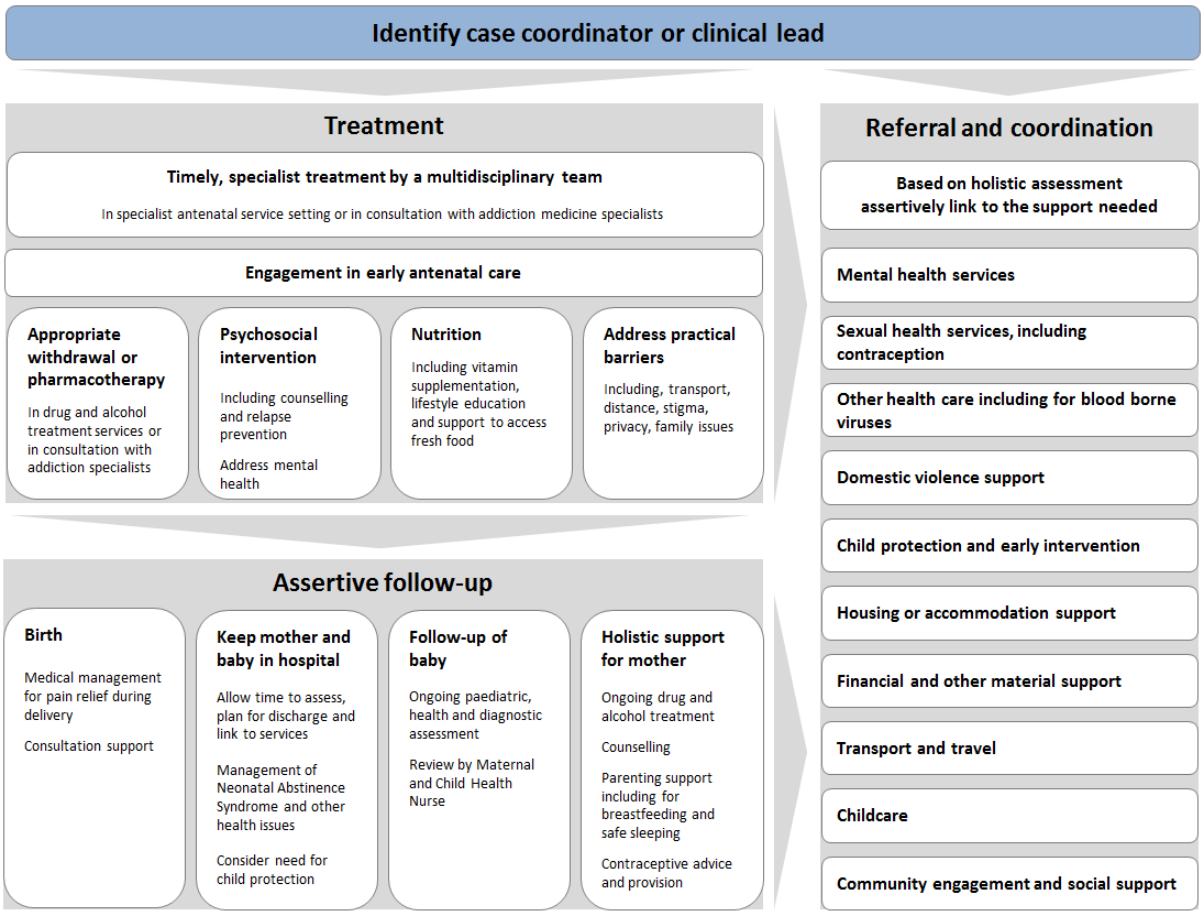
and children, and a dearth of services in non-metropolitan areas. In some metropolitan areas, there are specialist services which provide integrated antenatal care and drug and alcohol treatment[9].

Integrated treatment programs are a means of reducing barriers to the range of services women may require to comprehensively address their individual situation [164]. In the absence of integrated treatment programs, responding to the woman's needs requires thorough assessment, multidisciplinary service provision, referral to appropriate supports, coordination and follow-up by care providers. Women affected by drug and alcohol use in pregnancy typically require assistance to navigate multiple service systems and address practical concerns [131, 165].

Achieving this degree of coordinated care requires ongoing community partnerships and planning, with clear referral pathways between health care, community organisations and government services. Continuity of care is established by effective engagement skills, identification of a case coordinator, individualised case planning, good communication and clear referral pathways between pregnancy services, treatment services, consultation and specialist support services [42, 165].

[9] For details of these services, please see Appendix 9 – Specialist services: results of the service audit.

Identify a case coordinator or clinical lead



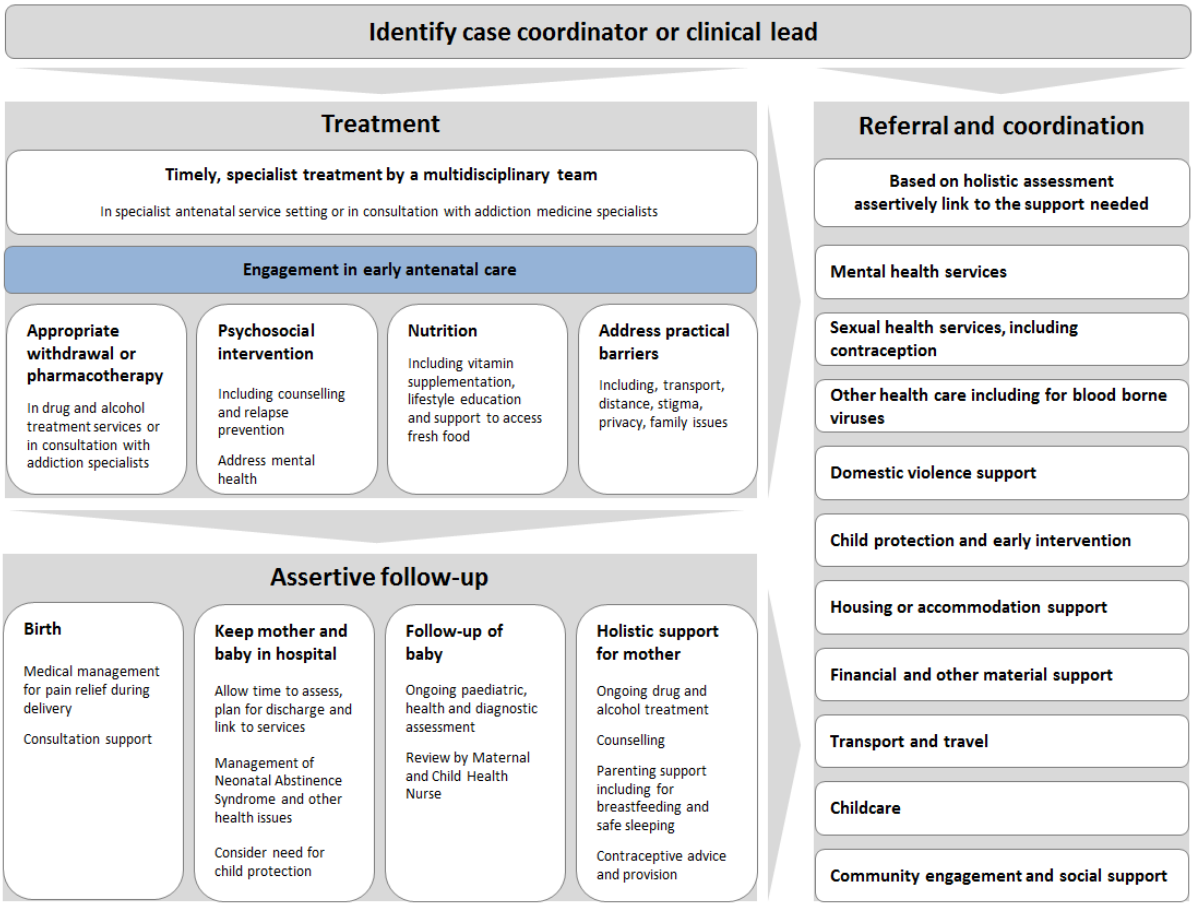
Case coordination during pregnancy for substance using women has been shown to improve outcomes [79, 166]. A 2013 study of 41 South African women at high risk of an alcohol exposed pregnancy found that provision of intensive case management reduced drinking at key points of the pregnancy, reducing the exposure of the fetus to alcohol at critical times [166]. Case coordination is also an effective way to enable assertive follow-up of the mother and baby after birth.

Care plans for individual women should be coordinated across agencies with clear identification of the case coordinator [42]. Case management activities can include coordination, assessment and planning, linking people with a comprehensive range of support services, providing resources and advocacy [79]. Case management should address the range of women's health and social needs[10]. The aim is to overcome barriers to service access and coordinate individual care [165].

The care plan should include all relevant information about treatment and supports and consider co-location of services to remove barriers to care. It should provide information for the woman, training and information for support providers and protocols for communication between agencies [8]. There should be clear referral pathways, current information about services, and partnerships which support referral [8]. Practical and emotional support should be offered to women, and efforts made to reduce barriers to accessing services.

[10] More detailed information from stakeholder consultation can be found at Appendix 8.

Specialist antenatal care



Women who are at high risk of an alcohol or other drug exposed pregnancy should be referred early for specialist alcohol or other drug treatment and antenatal care, potentially at confirmation of pregnancy and before the usual hospital booking-in visit. It is important to address risky substance use as early as possible. Research suggests that women who are alcohol or other drug dependent present to antenatal care later, receive less antenatal care than other women, and are more likely to have no antenatal care [6, 7, 167].

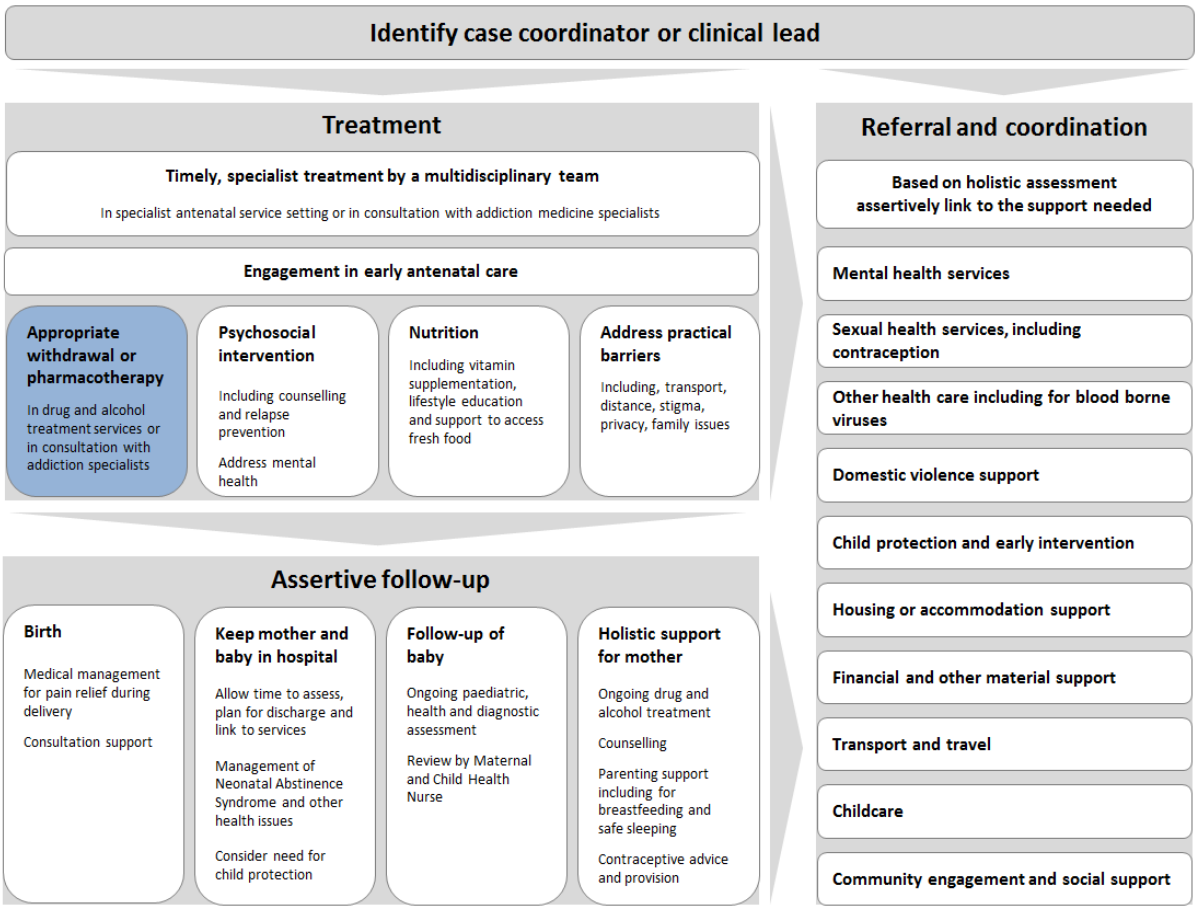
Strategies to engage women earlier are required. Early provision of antenatal care and increased number of visits is associated with improved pregnancy and birth outcomes, with quality antenatal care of at least four visits suggesting significantly improved birth outcomes, decreased preterm delivery and increased birth weights [168].

Increased antenatal visits have been found to be associated with increased abstinence and decreased relapse after delivery [9, 169]. In addition, adequate antenatal care with good care planning is important in the management of Neonatal Abstinence Syndrome and can positively impact on neonatal outcomes [42]. It has also been suggested that increased antenatal visits may translate to increased participation in other services.

In antenatal services, if a woman using alcohol or other drugs is referred early in her pregnancy, drug and alcohol specialists including addiction medicine specialists, Nurse Practitioners or Clinical Nurse Consultants should be consulted as soon as possible. The pregnancy should be considered high-risk and women provided with appropriate treatment and care coordination.

The Substance Use in Pregnancy and Parenting Service in the Illawarra, NSW is one of the few specialist antenatal services in Australia which has been evaluated. The evaluation found that the service has resulted in earlier engagement of substance using pregnant women in antenatal care and substance use treatment. Women attending the service also had more antenatal care visits. There were improved infant outcomes including lower average level of withdrawal, less symptoms of withdrawal, less medication for withdrawal and shorter length of stay in the neonatal unit and hospital. The service also decreased maternal drug use rates and improved access to support for other needs including transport, housing, child protection and mental health care [170, 171].

Pharmacological treatment



There has been a lack of pharmacological research for treatments in pregnant women [58]. The Therapeutic Goods Administration provides classification of pharmacotherapies used in pregnancy in Australia based on available evidence of safety and effectiveness[11]. The *NSW Clinical Guidelines* document the pharmacological options that are available for pregnant women that are in acute withdrawal as well as women that require maintenance pharmacotherapy.

A recent commentary suggests that pharmacotherapies should be seen as only one part of a comprehensive treatment approach [172], with a focus on the multiple factors that lead to substance use.

Tobacco

Smokers in the general population can choose from a range of effective pharmacological options to assist with cessation, such as bupropion, varenicline and cytisine. These agents have not been adequately evaluated in pregnant women. Bupropion is an effective, prescription only, non-nicotine medication that can be used in smoking cessation. More research is required for the use of bupropion in pregnancy [42, 173].

Nicotine Replacement Therapy (NRT) is effective in smokers in the general population [174] but a recent review of randomised controlled trials found insufficient evidence for NRT in pregnant women

[11] See Appendix 7 – Pharmacotherapies.

and suggested further research to establish the efficacy and safety is required, ideally from placebo-controlled randomised controlled trials using higher doses of NRT [175]. A recent placebo controlled trial found no benefit of transdermal nicotine patches in pregnant smokers [176] and it has been suggested that combination treatments have shown the best results in the general population. Combination treatments need to be tested among pregnant women [177].

There is some evidence that NRT is associated with an increased risk of congenital abnormalities, with one study suspending enrolment due to an increase in adverse events; with a higher incidence of preeclampsia, preterm birth, placental abnormalities and fetuses small for gestational age in the group receiving NRT [178].

The *NSW Clinical Guidelines* suggest that NRT should be considered when a pregnant woman is otherwise unable to quit, and when the likelihood and benefits of cessation outweigh the risks of Nicotine Replacement Therapy and potential continued smoking. It is recommended that pregnant women who smoke use intermittent (gum, lozenge, inhaler, tablet) rather than continuous (patches) NRT preparations and use the lowest dose possible. NRT should be used in consultation with a health professional [42].

Alcohol

There is evidence to suggest that pharmacotherapy may be underutilised in the treatment of alcohol use disorders in the general population [179, 180] and very few studies have examined the use of pharmacological treatments among pregnant women specifically [181]. Effective pharmacological treatments that assist in the symptoms associated with withdrawal from alcohol (such as benzodiazepines, valproate) and to maintain abstinence from alcohol (such as disulfiram, naltrexone and acamprosate) have not been adequately assessed for safety and efficacy in pregnant women.

The *NSW Clinical Guidelines* suggest that the need for withdrawal management may be an indication for inpatient admission and treatment. Pregnant women who are withdrawing from alcohol need to be monitored by appropriate health professionals and supported with medication (such as benzodiazepines), nutritional and vitamin supplementation. They should be provided with access to appropriate maternal and fetal monitoring [42, 181].

Opioids

Prescription and over-the-counter opioids (such as morphine, oxycodone and codeine) are also used off-prescription for non-medical reasons. Women dependent on heroin or other opioids may benefit from methadone or buprenorphine maintenance.

Withdrawal from opioids is not routinely encouraged in pregnancy. Opioid Treatment Programs (methadone or buprenorphine maintenance) are recommended to stabilise and maintain opioid dependent pregnant women. Methadone and buprenorphine maintenance have been shown to reduce maternal illicit opiate use and fetal exposure, enhances compliance with obstetric care and are associated with improved neonatal outcomes such as increased birth weight [124, 172, 182, 183]

Although methadone has been studied in pregnancy for a longer period than buprenorphine, a recent multi-site blinded randomised study (the MOTHER study) confirmed the safety of both medications in pregnancy [184]. A Cochrane Review comparing methadone, buprenorphine and slow release oral morphine in pregnancy did not find sufficient significant differences between medications to enable conclusions that one treatment is superior to the other. Methadone seems superior in terms of retaining patients in treatment and buprenorphine seems to lead to less severe Neonatal Abstinence Syndrome (NAS) [185].

It is recommended that pregnant women are given priority places in opiate treatment programs. In Australia, program availability varies by geographic location. For women who are already in opiate substitution treatment and become pregnant it is recommended they remain on medication.

Withdrawal from opiate substitution treatment increases the risk of relapse, the risk of placing the fetus in withdrawal, and the risk of destabilising a woman who has previously been stable on opiate substitution treatment.

Naltrexone, although not widely used in Australia, is an opioid antagonist that can be used in the treatment of opioid dependence. There is limited evidence around the use of naltrexone in pregnancy [12]. There has been renewed interest in the use of long acting depot formulations but there are substantial ethical issues requiring consideration for future research to be conducted on this medication with this population [186]. In Australia, the *NSW Clinical Guidelines* do not advise the use of naltrexone when pregnant, but if a woman is already using naltrexone and becomes pregnant it is acceptable to continue treatment with appropriate monitoring [42, 187].

Cannabis

There are no recommended pharmacological treatments for cannabis use in pregnancy.

Amphetamine Type Stimulants

There are no recommended pharmacological treatments for amphetamine type stimulants.

Cocaine

There are no recommended pharmacological treatments for cocaine use in pregnancy.

Benzodiazepines

Ideally benzodiazepines should be avoided in pregnancy but they may be used in the short term for the treatment of alcohol withdrawal or anxiety while awaiting onset of a safer drug. Long acting benzodiazepines should be avoided in pregnancy if possible.

Antidepressants and mood stabilisers

Antidepressants and mood stabilisers may be used in the treatment of some mental health conditions. Information on the management of these medications during pregnancy in provided in the *NSW Clinical Guidelines*. The benefits these medications provide may outweigh some of the known risks associated with their use during pregnancy [188].

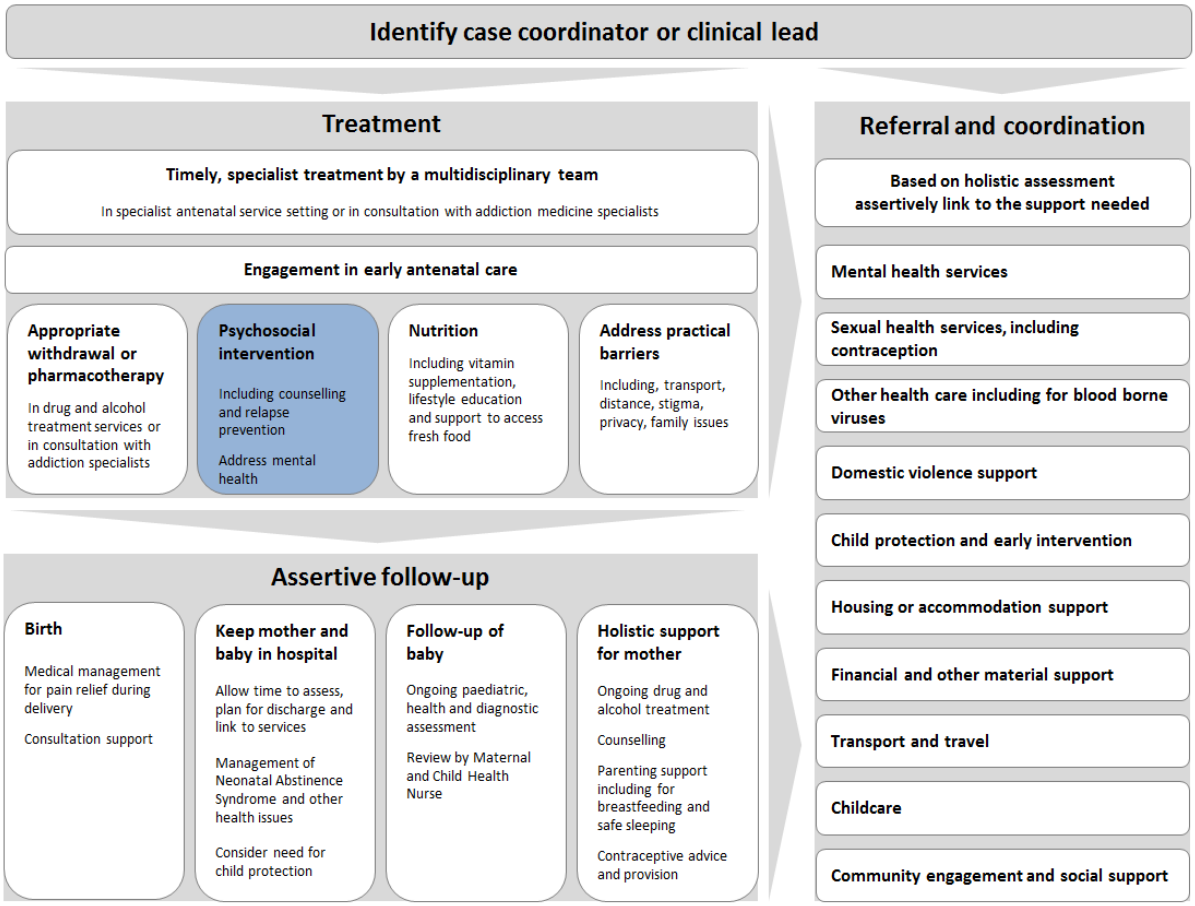
Pharmacological treatment

There is a lack of high quality research into pharmacological interventions with pregnant women who use alcohol and other drugs.

Due to this lack of rigorous research, the safety and efficacy of many treatments for alcohol use that are available to the general population are not known for pregnant women.

The NSW Clinical Guidelines for the Management of Substance Use during Pregnancy, Birth and the Postnatal Period provide information on pharmacotherapies for different substances.

Psychosocial intervention



Numerous studies have highlighted the gaps in high quality research into psychosocial interventions for alcohol and drug using pregnant women. A 2008 systematic review was not able to identify any randomised controlled trials of psychosocial interventions for women in alcohol treatment during pregnancy [59]. A 2011 systematic review examined both randomised and non-randomised trials to review the effect of interventions delivered during antenatal care to reduce alcohol consumption. It found that the methodological quality was generally not good enough to draw conclusive results. Due to gaps in the current knowledge base, further methodologically rigorous studies are needed to develop effective intervention models in the Australian context and evaluate their effects.

Psychological care and psychoeducation can be provided as part of a comprehensive treatment approach. The environment for care should be non-judgemental and respectful, to facilitate trust and avoid traumatising women [189]. Pregnant, substance-using women who have a diagnosis of depression have reported in qualitative research that a safe and confidential environment is essential in treatment [190].

Studies of smoking cessation interventions in women with co-occurring substance use and psychiatric disorders have shown that interventions which are interdisciplinary and combine different psychosocial treatment options are most effective [191]. Pregnant women who smoke are likely to have many psychosocial disadvantages and comorbidities including psychiatric disorders and other substance use disorders [191].

For all women, there should be routine psychosocial assessment in the perinatal period integrated with routine care, to assess factors associated with risk of mental health disorders and symptoms of

depression or anxiety. This assessment should include substance use and its relationship to mental health [192].

Trauma-informed care

Women with substance use disorders are a vulnerable population and many women may have a history of trauma, including childhood and adult sexual, physical and emotional abuse and domestic violence [46, 79, 84, 193-195]. Women may also be experiencing comorbid psychiatric disorders including anxiety and depression [74-76, 94] or be experiencing Post Traumatic Stress Disorder [79, 84].

A trauma-informed care paradigm recognises and responds to the implications of a history of trauma. This includes considering the impact of violence in women's lives, providing compassionate care and providing a safe treatment environment [11, 79]. Trauma-specific psychosocial care may also be needed, to address the sequelae of abuse and violence [79].

Specific psychosocial interventions

The general steps of a psychosocial treatment strategy include comprehensive assessment, feedback, development of a treatment plan, implementation of interventions, review, continuing care and onward referral [165].

A range of psychosocial interventions may be used in drug or alcohol treatment settings, including [165]:

- Cognitive Behavioural Therapy
- Motivational Interviewing
- Contingency Management
- Intensive therapy or counselling
- Psychodynamic therapy
- Emotion regulation
- Mindfulness Based Stress Reduction
- Dialectical Behaviour Therapy
- Acceptance and Commitment Therapy
- Self-help groups
- Family therapy

Cognitive Behavioural Therapy (CBT)

CBT may be beneficial for pregnant women who use alcohol and other drugs. It can assist with developing better coping strategies, new self-perspective and relapse prevention. CBT is a widely used treatment for depression, anxiety and panic disorders as well as substance use [79, 93, 165]. Some CBT strategies include identifying and challenging dysfunctional thoughts about substances, coping with cravings and problem-solving skills [165].

Motivational interviewing (MI)

MI has been found to be effective in reducing substance use in non-pregnant populations. Among pregnant women there have been less consistent results. Some studies have found that MI reduces alcohol use [78, 104], and others have found no effect in reducing smoking in low income [196] or methadone maintained women [197]. Further research is needed to explore the utility of MI with pregnant women who use other drugs [79]. Motivational techniques have also been used in outpatient treatment programs with pregnant women and women involved with child protection services, but studies have reported either less clear benefits or no treatment effect [198-200].

Relapse prevention

Relapse prevention is a cognitive behavioural approach with the goal of identifying and preventing relapse in high risk situations. It is based on social cognitive theory and suggests that avoidance of specific high risk situations or the demonstration of coping behaviours requires that the individual is sufficiently motivated to avoid the behaviour [201]. Effective treatment requires enhancing motivation to achieve and maintain change and developing the self-efficacy and skills to be able to do so. Relapse prevention has been shown to be effective in the treatment of substance use [202].

Developing relapse prevention skills may be particularly important for use in the postpartum period, as concern about exposure of the fetus is no longer a motivating factor. Women may also be experiencing increased stress levels caring for their new baby. Postnatal depression is also a risk factor for relapse to substance use [123].

Relapse prevention interventions have been shown to reduce rates of relapse in smokers, including among postpartum women [203]. The *NSW Clinical Guidelines* suggest that relapse prevention is important soon after quitting and can be delivered at scheduled clinic visits, via telephone, or at any time a clinician encounters an ex-smoker [42]. A systematic approach to identifying and contacting recent quitters is essential. Cannabis users should also be supported and provided with relapse prevention.

Some strategies to reduce the risk of relapse include [93]:

- Discussing and normalising lapses and relapse
- Aiming to regularly strengthen commitment
- Identifying and practising strategies to manage high-risk situations
- Considering how to improve social support.

Contingency management

Contingency management is based on the principle of positive reinforcement as operant conditioning to modify behaviour [200]. It involves tangible rewards, including money or vouchers, to reinforce positive behaviours such as abstinence. Contingency management has generally been shown to be effective in improving retention in treatment [84] and a meta-analysis found contingency management to be an effective approach in promoting abstinence during treatment of substance use disorders. By increasing abstinence it enables the ability to take advantage of other clinical treatment components [204].

A Cochrane Review of psychosocial interventions for pregnant women in outpatient treatment for illicit drug user examined six trials that used contingency management and concluded that contingency management strategies were effective in improving retention of pregnant women in illicit drug treatment programs as well as reducing illicit drug use in the short term [200].

Contingency management has been successfully used as part of a comprehensive approach in a perinatal addiction treatment clinic in Hawaii. The comprehensive model included perinatal care, transportation, childcare, social services, family planning, motivational incentives and addiction medicine [9].

A 2011 US randomised trial compared comprehensive care and reinforcement-based treatment with usual comprehensive care [205]. The reinforcement-based treatment intervention provided abstinent-contingent housing support, skill training and recreational support. The study found that infants born to women who received the reinforcement-based treatment intervention spent 1.3 fewer days hospitalised after birth. Women receiving reinforcement-based treatment also spent significantly longer in treatment. Both groups had significant improvement in drug abstinence rates, indicating that intensive, comprehensive support is a successful usual care treatment model [205].

Psychosocial groups, self-help groups and social support

Supportive social networks have been identified by pregnant, substance-using women as an important influence on treatment effectiveness and relapse prevention [190]. In a 2013 qualitative study, women emphasised the importance of connecting to others who had experienced similar challenges and of establishing non-drug using peer networks as part of their recovery and stabilisation [190]. These groups may not be useful for all women and the decision to participate should be based on individual suitability [93].

Psychosocial interventions

There is a lack of high quality research into psychosocial interventions with pregnant women who use alcohol and other drugs.

Treatment should be trauma informed. Pregnant women with substance use disorders are a vulnerable population and many women may have a history of trauma.

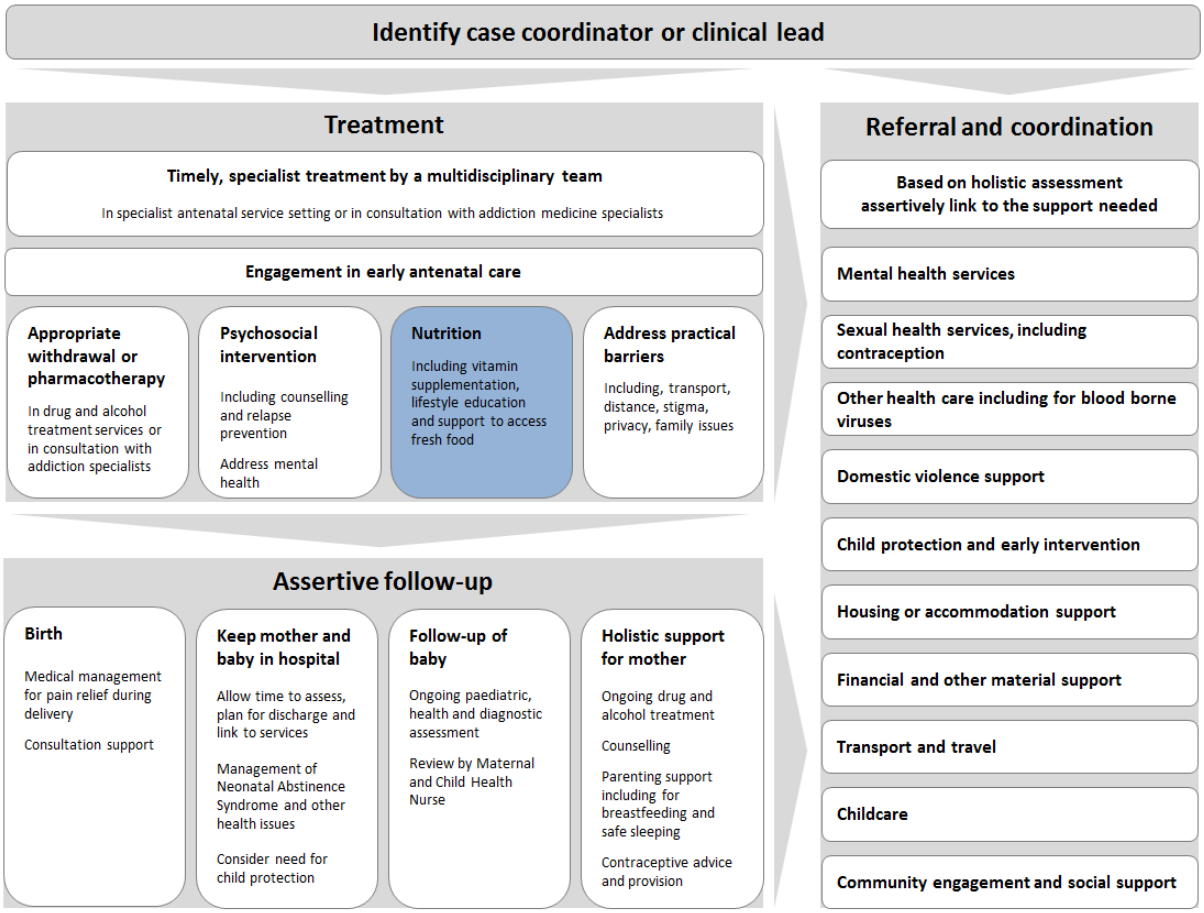
Cognitive Behavioural Therapy may assist with identifying and challenging dysfunctional thoughts and developing better coping strategies around substance use.

There is some evidence for Motivational Interviewing reducing alcohol use in pregnant women

Developing relapse prevention skills may be particularly important for use in the postpartum period.

There is some evidence for the use of contingency management in contributing to retention in treatment and reduction of drug use.

Nutrition



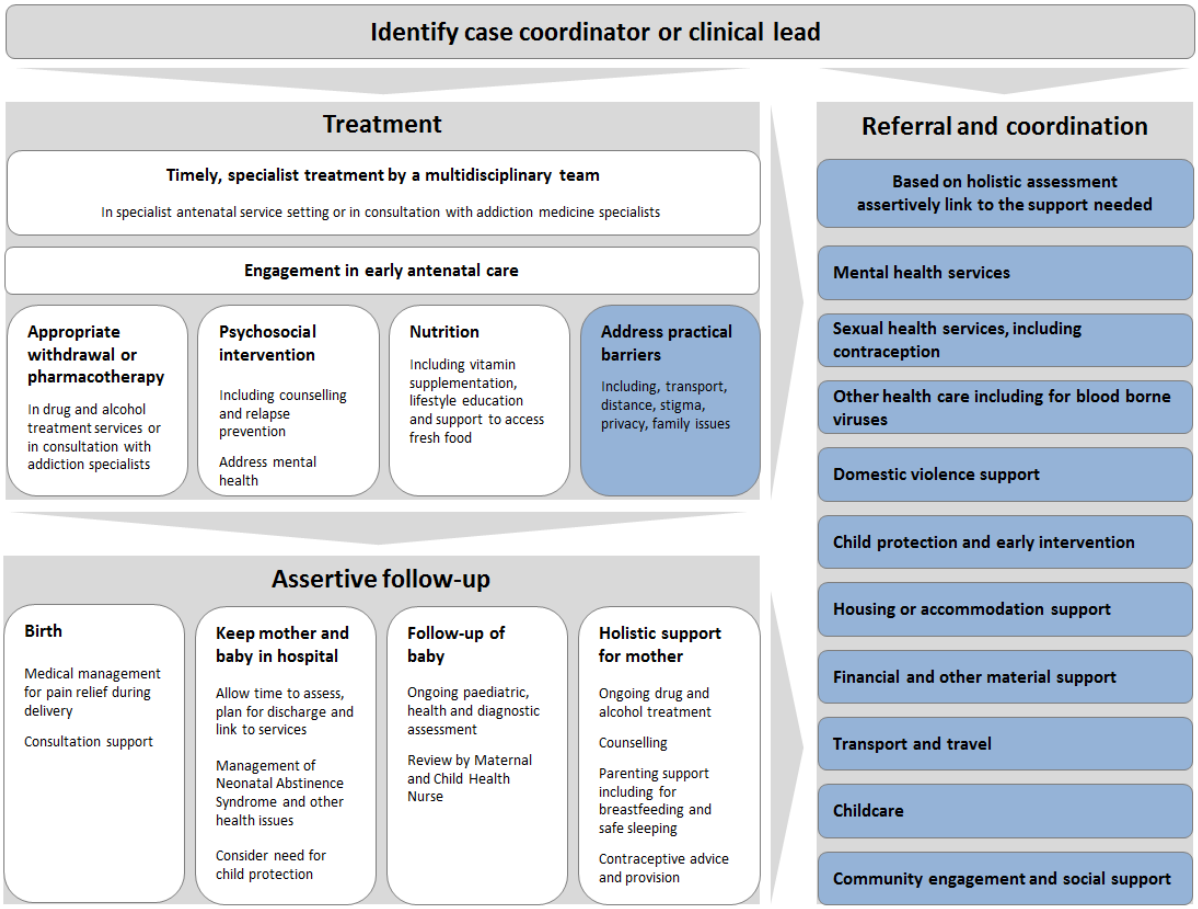
Heavy alcohol consumption is one of the leading causes of malnutrition and poor nutrition contributes to negative fetal outcomes including low birth weight and FASD [206]. Women who have an alcohol use disorder may have inadequate nutrition and alcohol itself compromises nutrient absorption and utilisation.

The teratogenic effects of alcohol are increased under certain deficiencies in micronutrients including iron, zinc and choline. Animal studies suggest that adequate nutrient intake may mitigate the harmful fetal development effects of alcohol. Vitamin B3, folic acid, zinc, iron, and choline have all been shown to prevent or mitigate some of the effects of prenatal alcohol exposure [207-209].

Prospective longitudinal studies that examine maternal nutritional status and FASD risk are required.

Nutritional advice and supplementation should be provided to pregnant women who use alcohol and other drugs. Folic acid supplementation is recommended for all pregnant women and thiamine may be beneficial for alcohol dependent pregnant women.

Referring for additional support



Domestic violence

Domestic violence affects many pregnant women in Australia, with varying estimates of prevalence. An international review estimated the prevalence of interpersonal violence during pregnancy in Australia at 2% [210]. An Australian cohort study of pregnancy found that 5.1% of women reported fear of an intimate partner during their pregnancy. Seventeen percent of women experienced interpersonal violence in the first year after their baby was born, including 5.4% reporting physical and emotional violence, and 2.2% reporting physical violence alone [211]. Previous exposure to abuse or violence is a consistent predictor of alcohol use during pregnancy [212].

A study of data from 4,451 women surveyed in the 2007 Australian *National Mental Health and Well-Being Survey* found that more than 27% had experienced some form of gender based violence (domestic physical violence, rape, sexual assault or stalking). Of women who had been exposed to three or four types of gender based violence, 77% had an anxiety disorder, 53% had a mood disorder, 47% had a substance use disorder, 89% had any mental disorder and 35% had made suicide attempts. Gender based violence was positively associated with having a more severe, current mental disorder, having a disability or having reduced quality of life [213].

A cross sectional study of women in NZ who had ever been pregnant found that 6% of urban and 9% of rural women had experienced violence during pregnancy. Compared to women who had not experienced violence during their pregnancy, these women were less likely to report their last pregnancy had been wanted and were more likely to smoke tobacco. An association with drinking alcohol was also found, although this was not statistically significant [214].

Women who are subjected to domestic violence during pregnancy have an increased risk of serious poor maternal and fetal outcomes [215, 216]. A WA retrospective cohort study of pregnant women who had been hospitalised for an incident of interpersonal violence found that these women had 1.7 times increased risk of adverse maternal outcomes. This included threatened abortions, preterm labour, antepartum haemorrhage, premature rupture of the membranes and postpartum haemorrhage [216]. Other serious risks for women include injury, miscarriage, infection, penetrating abdominal trauma and death [217].

The risk of adverse fetal outcomes was also double, compared to a control sample of women who had not been hospitalised for interpersonal violence. This included low birth weight, fetal distress, and fetal or infant death. Indigenous women were overrepresented in the sample, accounting for 67% of hospitalisations. They were also at a 1.5 times higher risk than non-Indigenous women of poor outcomes [216].

Identifying women at risk of violence is an opportunity to provide appropriate supports and reduce the risk of harm to the woman and her pregnancy [215]. Women generally disclose abuse to few people and during pregnancy, health care providers have a unique opportunity to provide support [217]. There are a range of services available nationally to assist women who are experiencing domestic violence. In different areas, these may include refuges and emergency accommodation, rape crisis services, sexual assault services, legal support, casework and women's health centres.

Health care organisations can support staff responses to domestic violence by participating in local interagency partnerships and ensuring that there are integrated pathways to refer and provide intervention. Organisations can create an environment where people are able to disclose domestic violence and abuse and ensure staff are trained to ask about and respond to domestic violence and abuse [217].

Mental health services

Mental health problems and substance use often co-occur [66, 73-76]. Assessment of mental health issues forms part of comprehensive care for pregnant women with substance use issues. It may be difficult to diagnose specific mental disorders if the woman's substance use is unstable or if there are psychological impacts of pregnancy, such as fatigue, anxiousness or distress. While it is important to diagnose and treat mental disorders, it is also important to recognise the specific stressors each woman is managing and respond appropriately [84]. Comprehensive biopsychosocial assessment can provide a more complete picture of each woman's needs in context and inform treatment strategies.

Other supports

Women's health care needs should be comprehensively addressed, including sexual health and treatment for blood borne viruses. Women with substance use issues may be at increased risk of sexually transmitted infections and blood borne viruses [123]. Depending on their needs, women should also be assisted with material support, including housing, access to Centrelink services or other financial support and access to fresh food and nutritional supplementation. Engaging family members and building peer networks can be an important aspect of building a sustainable support network for women.

It may also be appropriate to facilitate greater social support and engagement of local community services. Women may need to be assertively linked with community services and clinics, such as

opioid substitution treatment, community mental health and other community drug and alcohol services for support, including after the birth of the baby[12].

Discharge planning

Women with substance use disorders should not usually be discharged from hospital early and women with opioid or sedative dependence should stay in hospital for sufficient time after birth of the baby to assess NAS [42]. Additional time in hospital can provide the opportunity to organise community supports post discharge.

In some areas, such as rural communities, women who have travelled a long distance to give birth may not wish to stay in hospital for long and may be anxious to return home. There needs to be strong links between antenatal care services and community services in the woman's home area, so that support and care can be provided when the woman returns home.

A thorough discharge plan should be developed during pregnancy and reviewed prior to discharge [42, 218]. The discharge plan should address parenting ability, stability, psychosocial and mental health issues, environmental issues including safe storage of medication, material goods and preparation for the baby and child protection. The plan should also include appointment dates and contact details and copies should be given to all parties and included in patient records [42].

Contraception

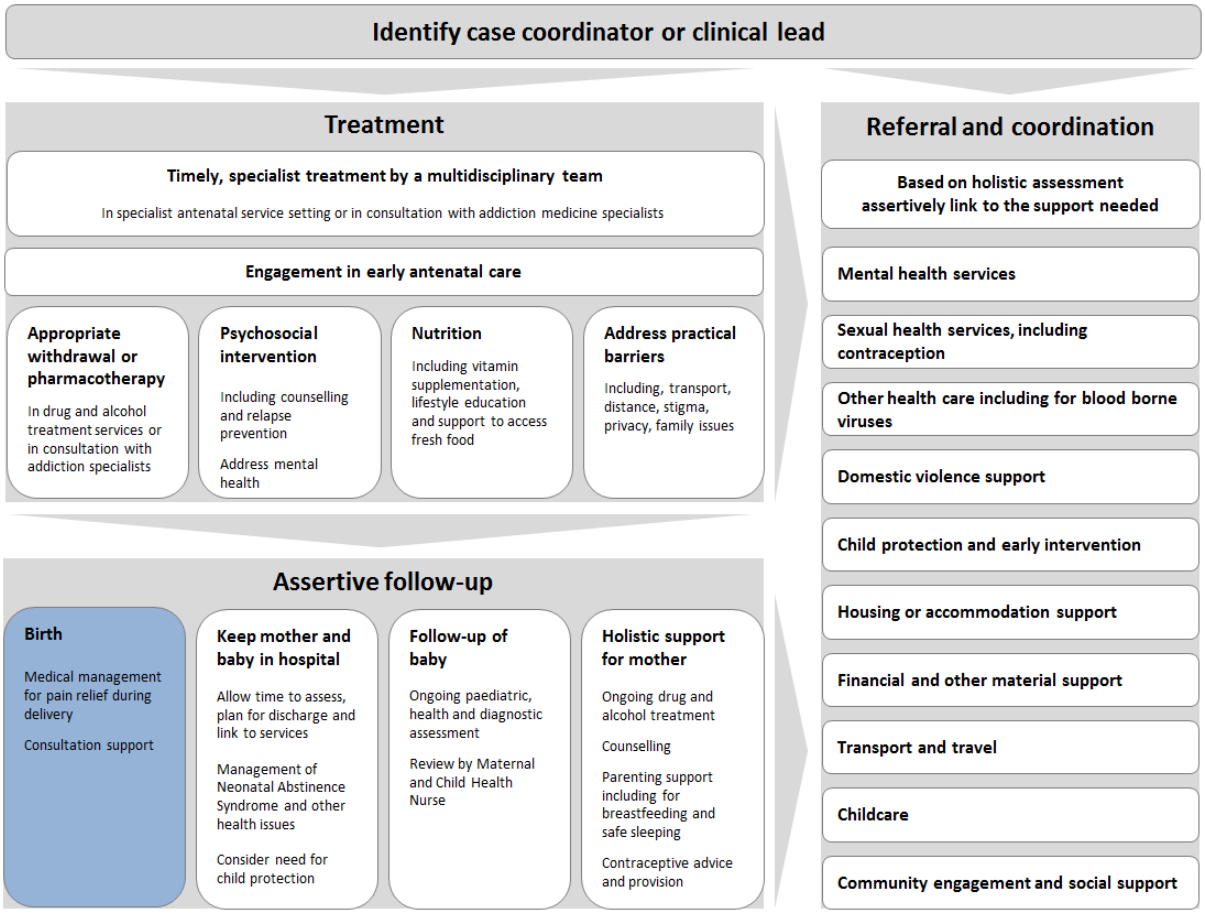
All women should be provided with information about contraceptive options prior to discharge [42]. Long active reversible contraceptives such intra-uterine devices and implants, are highly effective methods of contraception, with high efficacy and a low chance of being used incorrectly [14, 123].

Family planning organisations around Australia can provide the latest best practice guidance. Some best practice principles for providing contraceptive support and counselling include [15]:

- Providing accessible and evidence-based information both verbally and in written forms
- Allowing sufficient time for discussion of risks, benefits, uncertainties and questions
- Supporting the woman's decision-making process
- Listening and being responsive to what the woman is saying, including concerns about adverse effects of different methods
- Using up-to-date, accessible language
- Recognising anxieties, embarrassment and body language
- Helping to devise solutions to practical problems.

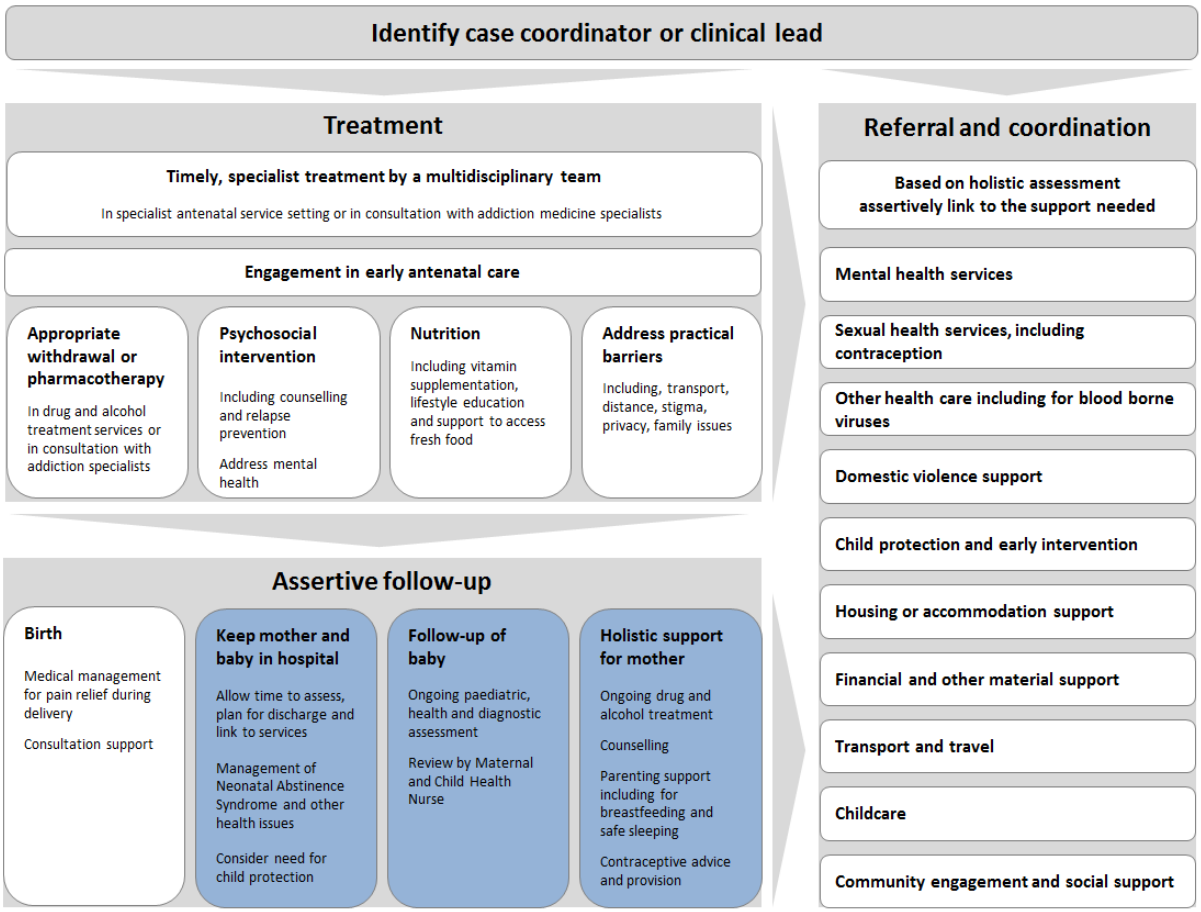
[12] Recommended by stakeholders during consultation – see Appendix 8.

Pain relief during labour



The *NSW Clinical Guidelines* give an overview of obstetric care for women with drug and alcohol use issues, including those in OTPs [42]. Women in OTPs or with a history of drug use may have increased analgesic requirements during labour [219]. The *NSW Clinical Guidelines* advise that all forms of pain relief should be offered in labour. For women in methadone or buprenorphine maintenance, the usual dose may not relieve labour pain and analgesic drugs should be titrated to response, bearing in mind opioid tolerance and in accordance with clinical guidelines and consultation with addiction specialists [42].

Assertive follow-up



A report into the treatment needs of alcohol dependent pregnant women which consulted with NSW clinicians identified that assertive follow-up is an critical component of the treatment model [60]. Components of assertive follow-up should include health and developmental assessment of the baby, parenting education and support, mental health support, contraceptive advice, support for safe sleeping and safe breastfeeding, and consideration of the need for child protection services.

Baby health assessment and Neonatal Abstinence Syndrome

In analysis of data from a specialist perinatal drug treatment service in NSW, babies exposed to substances in-utero were significantly more likely to have low birth weight, be pre-term and be admitted to a high care unit than babies in the general population[13]. NAS was common, affecting around 70% of the babies. Around half of the babies required pharmacotherapy [6].

[13] More detailed information about health and developmental outcomes of substance use in pregnancy is included at Appendix 1 – Prevalence, Predictors and Outcomes.

The *NSW Clinical Guidelines* [42] provide clinical guidance for the management of NAS. States and Territories may also provide clinical guidance, for example the *NSW Health Neonatal Abstinence Syndrome Guidelines* [220] [14].

Neonatal Abstinence Syndrome is described as:

> *A syndrome of drug withdrawal observed in infants of mothers physically dependent on drugs, manifested by non-specific symptoms and signs in the infant. Neonatal Abstinence Syndrome is more common in infants born to opioid-dependent women than in infants born to women dependent on other drugs or alcohol. Neonatal Abstinence Syndrome in infants of opioid dependent mothers is manifested by neurological excitability, gastrointestinal dysfunction and autonomic signs. There may be poor feeding, sleep-wake abnormalities, vomiting, dehydration, poor weight gain and occasionally seizures* [42].

Infants at risk of NAS should be monitored and assessed using a validated tool. The assessment tools recommended in the *NSW Clinical Guidelines* are the Finnegan Neonatal Abstinence Severity Score or the modified Finnegan Neonatal Abstinence Severity Score. Babies should receive routine postnatal monitoring with assessment for NAS two hours from birth and every subsequent four hours [42].

All babies exposed to substances in-utero should receive an early paediatric health and developmental assessment and ongoing support. Comprehensive paediatric care should be supported by collaborative work amongst disciplines and agencies involved in care [123].

Parenting

Parenting a newborn child can be particularly challenging for women with problematic alcohol or other drug use, as their psychosocial characteristics increase the risk of difficulties with parenting and poor family functioning [131].

The *Parent-Child Assistance Program* in the US provides intensive home visiting and case management to mothers with who misuse alcohol or other drugs during pregnancy and who do not have good connections to community support services [131, 221]. The typical profile of women in the program is that they [221]:

- Have been born to parents who used substances (92% of women in the program)
- Have been physically or sexually abused as a child (71%)
- Have not completed secondary schooling (49%)
- Are unmarried (91%)
- Have experienced partner violence (76%)
- Are homeless or live in temporary housing (24%)
- Have a history of incarceration (75%)
- Receive social security payments (69%)
- Do not use contraception regularly (91%)
- Have an average of 2.7 children (half have been removed from custody).

These factors present significant challenges to parenting in both the short and long term. In the short term, women may need to cope with the health and developmental impacts of drug and alcohol exposure on their newborn baby (including NAS) and learn new emotional and parenting skills. Longer-term, there are increased risks of separation between infants and mothers, impaired

[14] More detailed information about State and Territory based frameworks is included at Appendix 11 – Policy and Guidelines.

attachment, impaired emotional regulation, a chaotic home environment, poor nutrition for the infant, failure to thrive and exposure of the infant to violence, trauma or substance use [222]. Ongoing substance use can also impact on the safety of the child, emotional interaction, nutrition, social connection and stability of the home environment [222].

Childhood trauma and comorbid mental health issues add additional strain on parenting, forming relationships and healthy family functioning [222, 223]. Attachment theory suggests that unresolved childhood experiences of abuse, neglect or exposure to trauma often underlie compromised parenting skills in adulthood, may trigger increased emotional distress in caregiving and impact on emotional regulation and attachment-forming in adult life [224].

A US attachment-based parenting intervention addressed psychological and emotional distress and unmet attachment needs in mothers in substance use treatment. The intervention aimed to help mothers improve their caregiving behaviour and relationship with the child. Results of the randomised trial showed that mothers who received the intervention had better caregiving behaviour, capacity to understand how intentions and emotions influenced their behaviour, and representation quality (including sensitivity to the child, acceptance of responsibility for the child's welfare and flexibility in expectations of the child) [224].

Other evidence based programs for substance-using mothers focus on improving parenting abilities, supporting attachment and building family support systems [225]. A 2012 systematic review of integrated treatment programs found they were associated with improved parenting outcomes [226]. An Australian service review of an integrated program of early childhood support provided on site at an OTP identified the following key service components required to successfully support women in their parenting [164]:

- Building a trusting relationship between the woman, the child and the health care service
- Maintaining continuity of care and a multi-disciplinary, multi-agency approach
- Staff education, support and professional development, including clinical supervision.

Parenting support should include education about and preparation for Neonatal Abstinence Syndrome or other health issues, and the expected length of stay in hospital [123].

In Australia, the *Parenting Under Pressure* intervention is an intensive, home-based program addressing parenting skills and family functioning for parents on methadone maintenance treatment with young children. A randomised controlled trial found that the intervention had good retention rates and made significant improvements across family functioning domains, including measures of child abuse potential [227].

Another Australian study conducted qualitative interviews with women who were using drugs in a specialist antenatal clinic, to examine what service components are needed to reduce depression among perinatal drug users. The study findings suggest that components of an effective support model would include: information about services, better access to services, counselling, drug treatment, positive reinforcement, compassion, information on breastfeeding, assistance to form new social networks, home visiting, case management, housing support, parenting and childcare support [228].

Postnatal depression

Women who have used substances during pregnancy may be at increased risk for postnatal depression. A 2012 US study of data from medical records of pregnant women in a comprehensive substance abuse treatment program found that around 30% screened positively for moderate or severe depression at treatment entry. Six weeks after delivery, around 44% had postnatal depression [229].

In Australia, the *National Perinatal Depression Initiative* aims to provide care, treatment and support to women who are experiencing or who are at risk of depression during pregnancy or in the first year after birth. This initiative enables the provision of routine screening for depression for women during the perinatal period using the Edinburgh Postnatal Depression Scale and the provision follow-up treatment, support and care [42].

The *beyondblue Clinical Guidelines – Depression and Related Disorders in the Perinatal Period* recommend that the Edinburgh Postnatal Depression Scale (EPDS) be used as part of assessment of symptoms of depression for all women in the antenatal period [192]. The EPDS is a validated and acceptable tool for detection of perinatal depression [230].

Breastfeeding

Unless there are significant risks, women who use alcohol and other drugs should be encouraged to breastfeed and supported to do so in a way which is safe for the baby [12].

The *NSW Clinical Guidelines* recommend encouraging women to breastfeed, provided that the woman is informed about likely effects of alcohol and other drugs on their infant and is assisted to plan for minimum exposure to the effects of alcohol and other drugs. The specific risks in each woman's circumstances should be weighed against the benefits of breastfeeding, and women should be informed of these risks and benefits. Specific guidance for different drug types is provided in the NSW Clinical Guidelines [42].

Safe sleeping

Sharing a bed with a baby increases the risk of accidental smothering, injury and the adult not waking if the baby is distressed. There is an increased risk to the baby for women who use alcohol or other sedating substances (including methadone and prescription medications). Women should be advised about the increased risks to of bed-sharing after using sedative substances. Culturally appropriate education should be provided, with awareness that bed-sharing with infants is common in Indigenous Australian communities and many other countries. Safe sleeping advice includes [42] :

- The baby not sleeping in an adult bed
- The baby having a safe bed and being properly positioned, including for feeding
- Tobacco smoke being harmful for the baby.

Child welfare and protection

Child protection and well-being is a shared responsibility across the whole community. Health care professionals should always work within State and Territory legislation for child protection to assess and respond appropriately to risk of harm prenatally or to a child after birth.

As well as reducing harm to the developing fetus, addressing risks prenatally aims to engage women in services and treatment. In some jurisdictions, prenatal child protection reports can lead to supportive intervention and reduce the likelihood of an out of home care placement for the baby after birth.

A thorough assessment of the woman's psychosocial needs, personal and family circumstances and risk factors both during pregnancy and the postnatal period can help identify whether there is a need for child protection services [149] [15].

Some risk factors which may indicate the need for referral to child protection services include [42]:

[15] A list of a sample of tools for comprehensive assessment is included at Appendix 6.

- Ongoing drug and alcohol use with severe mental illness
- Unstable living arrangements or homelessness
- Suspected domestic violence or other abuse
- Suicidal ideation
- Cognitive disability
- Polydrug use
- Late presentation for antenatal care
- The pregnant woman is a child or a young person under the responsibility of a Minister
- Concerns about parenting practices particularly when affected by drugs or alcohol
- There is a history of abuse or neglect of other children in the family.

Children are also often a motivating factor for women to enter substance use treatment [231] and women should be given honest reassurance and be involved as much as possible to maintain trust and a therapeutic alliance [42]. Accessing treatment is an opportunity to improve outcomes, but pregnant women with substance use issues and their children are likely to need comprehensive family focussed services, such as health and mental health care, parenting education, early children's services, life skill training or assistance with income [231].

While substance dependence alone does not indicate poor parenting capacity [231], parental substance use is associated with high rates of child maltreatment and it is important to recognise and respond if there is a risk of harm to the baby after birth [132]. The interplay of substance use and other associated psychosocial, lifestyle and economic factors can increase the risk of maltreatment [227].

An Australian study of mothers accessing community OTPs found that women who were involved with the child protection system were more likely than other women in an OTP to be on psychiatric medication, have a greater number of children and have less than daily contact with their own parents (less family support) [132].

Fear of child protection intervention or child removal can be a significant issue for women with problematic drug or alcohol use issues [144]. In addition, health care professionals may sometimes have concerns about making child protection reports, including [232, 233]:

- Breaking confidentiality
- Damaging the relationship with the patient
- Consequences for themselves if the patient is aware of the report having been made
- Uncertainty about whether child protection reporting will be helpful
- Low confidence or a feeling of inadequate training to respond.

In circumstances such as these, if there are indications that a child is at risk, health professionals should always act within applicable State or Territory child protection legislation, including for mandatory reporting. Advice can be sought if there are uncertainties, for example from child protection units or medical defence organisations [232]. Health care professionals should work closely with the mother, other parent or family members and other agencies when responding to child protection concerns [42].

Home visiting

The evidence for the positive effect of home visiting programs is inconsistent. A systematic review of home visits during pregnancy and after birth for women with an alcohol or other drug problem found that there was not enough evidence to support home visits for women with a drug or alcohol problem and identified the need for further high-quality trials. There was evidence that home visits improved the engagement of women in drug treatment, but not enough evidence of an association with health outcomes of mothers or babies [234].

An Australian randomised controlled trial of postnatal home visiting for 152 drug-using mothers and their infants was not able to show an effect of postnatal home visiting programs in reducing harms. The primary outcome measures were breastfeeding and immunisations, and the secondary outcomes were drug use and retention in the program. The study highlights the need for high-quality research into effective treatment and support interventions for women who use substances, and their babies [235].

The *Parent-Child Assistance Program* in the US, which provides intensive home visiting and case management to mothers with who misuse alcohol or other drugs during pregnancy, has achieved good outcomes [131, 221]. Trust and rapport developed during the antenatal period can continue into postnatal support and connections developed over time are more enduring [164].

In Australia, the *Parenting Under Pressure* program was investigated in a randomised controlled trial. This program was an intensive, home-based program with parents on methadone maintenance who had children aged between two and eight years. It lasted ten to twelve weeks with additional case management as required. A control group received brief intervention. The study found clinically significant changes in the risk profile of 35% of intervention group and 17% of the control group. It was noted that 42% of the control group deteriorated in functioning and moved into a high risk category, whereas none of the intervention group deteriorated in this way. A comparable proportion of people in both groups remained in the high risk category at conclusion of the trial (36% and 37%) [227].

Assertive follow-up

Assertive follow-up post birth is a critical component in care of women with substance use disorders.

Components include:

- Health and developmental assessment of the baby
- Parenting education and support
- Mental health support, including assessment of postnatal depression
- Contraceptive advice
- Support for safe sleeping and safe breastfeeding
- Consider the need for child protection services.

Workforce development

There are a range of challenges in identifying and providing support to pregnant women with alcohol or other drug dependence in primary care settings. These challenges arise at individual, organisational, policy and funding levels.

Treatment for pregnant women with problematic alcohol or other drug use is a priority for public health intervention to prevent FASD [53] and other poor health outcomes. The burden of disease arising from alcohol and other drug use in pregnancy is significant and can result in lifelong disability for children exposed prenatally [144]. Intervention and referral to appropriate treatment can reduce risk, making a significant difference to short and long-term health outcomes for women and children [123].

Review of the literature and input from national stakeholders identified a range of strategies to assist in overcoming barriers in identification and support of pregnant women with problematic alcohol or other drug use in primary care settings. **Education and training** have been recommended by national stakeholders to **improve engagement** and support effective practice. An important aspect of this education is building an understanding of a model of care which addresses a wide range of issues, in addition to physical and mental health, which may impact on substance use and wellbeing, including housing, finances, access to services and transport[16].

Time and resource constraints or lack of confidence and training are challenges for primary care professionals [123]. Time constraints are a particular issue for longer or more frequent consultations, comprehensive assessment and follow-up, and can limit capacity for primary care professionals to coordinate care. **Funding models** that support primary health professionals to adequately address chronic issues are required.

Resource constraints may include poor availability of specialist antenatal services or drug and alcohol treatment options, or limited access to specialists for consultation. In areas with limited resources, strategies to develop relationships with **experienced clinicians to provide clinical mentorship** and **clarification of referral pathways** to available services and other local community agencies are required.

Education and training

Reluctance or discomfort in asking about alcohol or other drug use, having had little access to clinical training in the management of alcohol or other drug problems, and low confidence to determine appropriate interventions are also issues for primary care professionals [61, 236]. Staff may have specific training needs in a range of areas to improve knowledge, skills, confidence and awareness, and may require tools for screening and brief intervention [68, 110, 237].

Despite the recommendations of national clinical guidelines, many health professionals do not routinely ask about alcohol or other drug use in pregnant women. A study in a public antenatal service in QLD found that 25% of women were either not screened at all or not screen adequately for substance use [68]. Despite an apparent openness to screening for alcohol and other drug use by pregnant women attending the clinic, a quarter of the women were not fully screened and there were inconsistencies in data being collected and recorded. The authors suggest that the reluctance of midwives to screen may be due to feeling ill-equipped to manage positives responses or a lack of understanding of the importance of early identification and intervention [68].

[16] For more detailed input from stakeholders, please see Appendix 8.

A WA study found that only 45% of health professionals in the sample routinely asked pregnant women about their alcohol use [238]. The provision of education and training can improve knowledge and practice. An intervention which provided health professionals in WA with educational resources found a after six months an increase in knowledge and changed practices in screening for prenatal alcohol exposure [239].

Targeted training and professional development can improve practice and the implementation of clinical guidelines [239, 240]. In 2010, South Australian (SA) researchers reported on an evaluation of a program of staff training in brief intervention for smoking cessation in pregnancy. The program used an adapted version of the 5As, designed as a one-page assessment and intervention form and incorporated into regular antenatal records.

The evaluation found that 12 months after the provision of training and resources to staff, the *Assessment and Intervention Form* had been completed in around 90% of records. The quitting rate for women who received the intervention was reported as being higher than the general quitting rate in SA [240]. A 2008 QLD study also found that implementing a new clinical guideline for smoking cessation in a public antenatal care clinic improved the level of support and information that was provided to pregnant women [110].

In addition to the importance of early identification, health professionals need to continue to ask about substance use and offer appropriate intervention throughout pregnancy. Substance use may change throughout pregnancy or different interventions may be required. Women may disclose substance use as rapport is built. Recent data from the *Victorian Maternity Services* report shows that 14.8% of women smoked during their pregnancy before 20 weeks gestation. This decreased to 6.9% after 20 weeks. The data show that initially, 100% of women in antenatal care in public hospitals were offered appropriate interventions when identified as smoking. Despite the significant number of women continuing to smoke in their pregnancy, when asked again about their smoking status before 20 weeks gestation, only around 53.5% of women were offered appropriate smoking cessation interventions [241].

Key aspects of training content could include:

- Outline of a best practice treatment model which includes routine screening, comprehensive assessment, antenatal care and alcohol or other drug treatment from a coordinated, multidisciplinary team
- Access to tools and resources for screening, brief intervention and treatment
- Understanding the pregnancy may be an opportunity to address both problematic alcohol and other drug use and related health and social concerns.
- Information about effective treatment strategies available and the comprehensive care model
- Successful engagement skills to improve access to care, including a non-judgemental approach and cultural competency
- Access to mentorship opportunities
- Templates for mapping local referral pathways.

Practical strategies to improve engagement

There are also practical barriers that make accessing services difficult, including location, transport, financial constraints, care of other children and overcoming stigma [123]. These issues affect the capacity of primary health professionals to provide support. Flexible and opportunistic health care, antenatal care or alcohol and drug treatment may often be needed, but may be difficult within practice, organisational or other resource limitations.

Some strategies to increase flexibility and responsiveness of care could include [123]:

- Booking of longer appointment times or flexibility with appointment times
- Being prepared to see women in a range of community settings
- Referral to community services to address practical issues
- Co-location of services or visiting clinics to existing services
- Identification of a case coordinator to improve access to services. The case coordinator may be a nominated clinician involved in the woman's care. Alternatively, it may be possible to refer to a drug and alcohol service which can coordinate services, or to a dedicated case management agency, depending on eligibility criteria.

Stigma is a well-recognised, potential barrier to disclosure of alcohol and other drug use during pregnancy [20, 61, 144, 242]. Non-empathetic responses can be unhelpful and alienate women from accepting support [39]. This can be addressed with a supportive, non-judgemental approach, to encourage women to disclose their substance use [243, 244].

Good rapport supports engagement. The *NSW Clinical Guidelines* recommend that health professionals aim to establish a professional, trusting and empathetic relationship with pregnant, substance-using women. This relationship should empower women to continue to engage in antenatal care [42]. Assessing alcohol and other drug use among broader health discussions could also help to normalise the issues [236].

Skills which support engagement are [42]:

- Understanding and reflecting on one's personal values
- Creating an environment which is safe, private and confidential
- Acknowledging that disclosure of alcohol and other drug use during pregnancy can be difficult
- Being committed to providing optimal care
- Understanding that alcohol or other drug dependence is a health care issue, and refraining from moral judgements
- Being aware that alcohol and other drug use occurs in context of other health, family, cultural and psychosocial factors
- Understanding that there may be barriers to women accepting care and addressing these
- Acknowledging women's experiences and feelings
- Building a trusting relationship over time
- Understanding that multiple service providers may be involved in the lives of women who are alcohol or other drug dependent.

Despite the stigma surrounding alcohol and other drug use in pregnancy, women in Australia look to primary health care professionals for information and advice. A 2007 survey of a sample of Australian women found that 99% thought that information about the effects of alcohol on the fetus should be

available, and 97% thought that health professionals should ask pregnant women about alcohol consumption [1].

Nationally, a range of current or recent projects have developed tools for health professionals with a focus on promotion of the NHMRC Alcohol Guidelines for prevention of FASD. Some examples are:

- The Foundation for Alcohol Research and Education's *Women Want to Know* project, with training resources for health professionals
- The National Drug Research Institute has developed the *FASD Postermaker App* for health and community workers.
- The WA Government has developed an Aboriginal-specific resource for prevention of FASD and promotion of healthy pregnancies, the *Strong Spirit Strong Futures* project
- The Murdoch Children's Research Institute's *Alcohol in Pregnancy: what questions should we be asking?*
- The Telethon Institute for Child Health Research's *Alcohol, Pregnancy and FASD* project

Many of these projects have examined screening tools for identification of women in the general population, and recommend use of the AUDIT-C or 5As framework.

Organisational approaches to improve care

Provision of optimal care for pregnant women with problematic alcohol or other drug use requires multi-disciplinary work [123]. Interagency partnerships can improve referral mechanisms, support flexible service models and multi-disciplinary care and encourage shared clinical responsibility amongst services [79]. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists *Standards of Maternity Care in Australia and New Zealand* recommend that all women who have an alcohol or other drug problem receive care from a multi-agency team [245].

Challenges which arise at an organisational level can include:

- Lack of expertise within the practice or organisation and limited access to training or clinical education
- Lack of time, resources or other financial constraints
- Fixed service models which may not be accessible
- An inaccessible environment. For example, one which is not private, where care for children is not possible or where there are poor transport options
- Inflexibility of patient management systems to incorporate prompts for screening
- Inconsistency in promoting or implementing guidelines
- Undefined clinical and service pathways
- Lack of interagency relationships to support comprehensive care.
- Lack of evaluation of practice or programs including the impact of staff training

An area of innovation which may address resource and time constraints is the development of computer based screening and brief intervention tools [102]. A randomised US study testing a computer-delivered brief intervention for alcohol use in pregnancy found that both intervention and control groups decreased their alcohol consumption. While there was no significant treatment effect, the acceptability and ease of use scores were high for the delivery of the brief intervention using a tablet in the waiting room [102].

Similarly, a larger randomised trial in the US of non-pregnant women drinking at moderate risks levels compared a web-based assessment with personalised feedback to one with general feedback and

reported that both intervention and control groups reduced the number of risky drinking occasions. Again, there was no significant differences on any of the outcome measures, but the computer-delivered assessment had good ease of use ratings from participants [246].

Clarification of pathways between services and disciplines may be useful. An Australian study evaluated the implementation of a substance use clinical pathway which aimed to improve outcomes for infants in families affected by alcohol or other drug use [247]. The pathway consisted of care items arranged in phases with expected outcomes. It was multidisciplinary, with shared responsibilities and clearly articulated roles and responsibilities. Interventions included in the pathway focused on harm minimisation for substance use, parent-infant relationship, community support, mental health, wellbeing and stress management and development of parent safety plans [247].

The proposed clinical pathway appeared to facilitate a better therapeutic alliance between staff and families. The study had small participant numbers (n=31), but found that implementing a clinical pathway improved engagement of women with the service and meant that women were more likely to have an assessment, discussion of substance use and a safety plan to protect children from domestic violence. The intervention group remained engaged with the service longer than the control group [247].

Co-location of services has been identified as another potential strategy to increase service responsiveness. National stakeholders highlighted the need for services to engage with pregnant substance-dependent women opportunistically wherever women present. Women may not be in a position to attend multiple services and may require significant support to access the care they require. Innovative models of service are required to link support to community services and clinics. Alternatives to hospital based care, such as co-location of services, drop-in antenatal care, use of tele-medicine and assertive follow-up were suggested. These models of wrap-around care should be underpinned by coordination, communication between services involved and liaison with specialist services[17].

Quality improvement strategies can include developing principles to guide evaluation [79] or evaluating the impact of programs or training. Other strategies include data collection, auditing of practice and implementing clinical mentorship approaches.

Strategies to address organisational issues include [79, 236, 239, 242, 247]:

- Promoting education and training opportunities and educational resources
- Providing comfortable, private and safe facilities
- Sharing information about resources for screening, brief intervention, referral and management strategies.
- Sharing information among clinicians about referral pathways to specialist antenatal services and local drug and alcohol treatment services.
- Developing relationships with specialist antenatal clinics, drug and alcohol treatment services and other local community agencies to foster referrals, case involvement and multidisciplinary care.
- Co-location of services
- Mapping clinical or referral pathways to services and making this information available within the organisation or practice
- Protocols to ensure that first antenatal presentation maximises engagement of women in care and includes assessment and referral for treatment
- Practice evaluation, audit of the use of clinical guidelines and implementation of quality improvement processes.

[17] See input from stakeholders at Appendix 8.

Appendix 1 – Prevalence, predictors and outcomes of alcohol and other drug use in pregnancy

Alcohol

Prevalence

Alcohol use in pregnancy data is not routinely collected in Australia. *The National Perinatal Data Collection* (NPDC) is a population-based cross sectional data collection set for pregnancy and childbirth. The data are based on births reported to the perinatal data collection in each state and territory in Australia. Self-reported alcohol use in pregnancy is only included on perinatal forms in Tasmania, Northern Territory and Australian Capital Territory and data only published for the NT [248].

Survey data provide information on patterns of alcohol consumption. *The National Drug Strategy Household Survey* (NDSHS) data indicate that the majority of Australian women drink. Approximately 5% drink daily, 32% drink weekly and 40% drink less than weekly. Approximately 10% of adult women drink at levels which put them at risk for alcohol related harm over their lifetime. A significant proportion (a third to a half) of reproductive age women drink at levels which put them at risk of harm on a single occasion [249].

Estimates of alcohol consumption in pregnancy vary with the most recent NDSHS data suggesting that around half (47%) of pregnant women consume alcohol [249], the vast majority at low levels (1-2 standard drinks per week). A study of data from the *Australian Longitudinal Study on Women's Health* cohort reported that 82% continued to drink during pregnancy, the majority at low risk levels [250]. While pregnant women appear to be abstaining from alcohol at an increasing rate [44, 249, 251], a recent study found no change between 2007 and 2011 in the rate of women drinking at high risk levels during pregnancy [45].

Alcohol use disorders in pregnant women are likely to be under-reported. In addition, there are different rates amongst Indigenous and non-Indigenous pregnant women. A cohort study using linked data from 1985 to 2006 in Western Australia found that the proportion of Indigenous mothers with an alcohol related diagnosis recorded during pregnancy was ten times higher than the proportion of non-Indigenous mothers (23% compared to 2.3%) [151].

This study found that there has been a significant increase in the proportion of children born to women with an alcohol related diagnosis during their pregnancy. This was particularly the case for Indigenous Australian women, with a 100-fold increase over the time period. There was a six-fold increase for non-Indigenous women [151]. A precaution with these prevalence data is that health professionals may be more likely to ask Indigenous Australian women about their alcohol use [151]. A US study made a similar finding of higher rates of identification of substance use among African American women than white women, despite similar rates of use in the study population [252].

Other studies have suggested that 21% of pregnant women could be at high risk for an alcohol exposed pregnancy. A 2012 Australian study used the risk categories from the *Australian Guidelines to Reduce Health Risks from Drinking* in a study of 142 pregnant women in Perth. The study found that around 33% of women in the sample were at no risk, around 46% were at low risk, and around 21% were at high risk of alcohol exposed pregnancies [32].

Another Australian study found that a high proportion of women continued risky drinking, especially bingeing, into their pregnancy (46%). There was only a small likelihood that risky drinkers prior to pregnancy would completely abstain in pregnancy [250]. This is particularly significant because many

pregnancies are unintended. A US study of around 73,000 women found that 45% of pregnancies were unintended [18]. Similar proportions have been estimated in Australia [1, 250].

Predictors

A recent systematic review of fourteen studies from a range of countries examined predictors of alcohol use in pregnancy. The review found that the most consistently reported predictors were the quantity and frequency of alcohol use prior to pregnancy and having been abused or exposed to violence. High income and being alcohol dependent were less consistently reported as predictors. Unemployment, marital status and education level were infrequently reported as predictors [253].

Analysis of the NDSHS data suggests women who are older, have a tertiary education and have higher household incomes are significantly more likely to drink alcohol during pregnancy [254]. An Australian survey of 248 pregnant women found that women with higher family incomes were more likely to consume alcohol prior to pregnancy, to intend to drink alcohol during pregnancy and to drink alcohol during pregnancy. The likelihood of these three outcomes increased as family income increased. Among women who continued to drink when pregnant, being a heavier drinker prior to pregnancy predicted the intention to drink [255].

A survey of women in antenatal clinics in SA found that women with previous pregnancy losses were significantly more likely to report that they drank alcohol during pregnancy [256].

A WA cohort study of women who had alcohol use disorders during or within a year of pregnancy, found that these women were more likely to [151]:

- Be older at birth of child
- Be single
- Have higher parity
- Smoke tobacco
- Have an illicit drug use diagnosis
- Have a mental health diagnosis

In a 2013 cohort study of Australian women, those who were risky drinkers prior to pregnancy were likely to continue when pregnant. Those who continued to binge drink during pregnancy were more likely to have experienced violent relationships, be nulliparous, have smoked, have used illicit drugs, be less highly educated, live outside a major city, be single and not have health insurance [250].

Outcomes

A range of factors influence the effect of alcohol on the development of the fetus [40], including individual differences in ethnicity, genetics, parity, age and nutrition and social factors. This means that what could be a potentially less harmful level of consumption would be different for each woman. There is strong evidence for harm due to heavy and binge drinking and less conclusive evidence for harm from low to moderate drinking during pregnancy [1, 3, 257].

It is known that during pregnancy, heavy or frequent alcohol consumption increases the risk of miscarriage, stillbirth, premature birth and intrauterine growth restriction [1, 42]. In addition, alcohol is a known teratogen and there is strong evidence that it can cause a range of neurodevelopmental problems in the fetus [257].

Exposed children can experience a spectrum of negative outcomes known as Fetal Alcohol Spectrum Disorders (FASD). FASD includes Fetal Alcohol Syndrome (FAS), partial Fetal Alcohol Syndrome, alcohol-related birth defects, alcohol-related neurodevelopmental disorder and other conditions [42]. These are lifelong disabilities.

The quantity and frequency of alcohol consumption has different effects during the different stages of pregnancy [257]. A recent US study has found that alcohol consumption during the first trimester increased the risk of FASD twelve times compared to not drinking. Drinking during both the first and second trimester increased the likelihood of FASD 61 times and drinking during all three trimesters by 65 times [257].

In Australia, FASD prevalence data are not collected, making estimates of the scope of the issue difficult [258]. A Western Australian estimate of FAS in 2000 was 0.02 per 1000 in non-Indigenous people and 2.76 per 1000 in Indigenous people [259]. A 2007 Australian case ascertainment study identified that most mothers of children with FAS were born in Australia, 65% were Indigenous Australian and that 51% of children with FAS for whom study data were available had a sibling with FAS [260]. All estimates of FASD are likely to be under-ascertained, in the absence of rigorously obtained prevalence data [1, 151, 258].

The impact of prenatal alcohol exposure on the child can include [3, 42, 195]:

- Facial abnormalities
- Structural damage to the Central Nervous System such as reduced head size or brain abnormalities
- Impaired growth
- Neurological damage resulting in seizures or motor problems such as poor coordination
- Reduced cognitive function and impaired executive function. This can result in problems in an array of areas including reasoning, problem-solving, impulse control, and behavioural regulation
- Developmental delay, learning disability or intellectual disability
- Increased risk of anxiety, depression and somatic complaints.

For women, problems associated with alcohol consumption in pregnancy can include [1, 42, 195].

- Increased risk of miscarriage, stillbirth, low birth weight and premature birth
- The consequences of alcohol dependence in general, such as illness or premature death from cirrhosis of the liver or circulatory disorder. The rate of premature death is higher amongst women than men.
- Other problems arising from alcohol dependence including ulcers, liver disease, hypertension, obesity, malnutrition, anaemia and gastrointestinal haemorrhage.
- New or existing mental health problems including anxiety and depression.

Although there is no standardised definition about what constitutes risky drinking for pregnant women, not drinking is recommended in many countries including Australia, Canada, the US and the United Kingdom (UK). The *NHMRC Alcohol Guidelines* advise that there is no safe level of alcohol consumption during pregnancy and recommend that for women planning a pregnancy, pregnant or breastfeeding, not drinking is the safest option [1].

The *NHMRC Alcohol Guidelines* describe the risks from alcohol consumption in pregnancy as [1]:

Lowest risk	No consumption of alcohol
Low risk	Small amounts of alcohol consumed before awareness of pregnancy (one or two drinks per week)
High risk	High, frequent maternal alcohol intake (more than two drinks per week)

In Australia, the following definitions are used [1]:

- A standard drink is defined as a drink containing 10g of alcohol
- Drinking no more than four standard drinks on a single occasion is recommended to reduce the risk of alcohol related injury

- Drinking no more than two standard drinks on any day is recommended to reduce the lifetime risk of harm from alcohol-related disease or injury.

Tobacco

Prevalence and predictors

Tobacco is used widely by women, including pregnant women. Data from the *Australian Institute of Health and Welfare* show that among all women who gave birth in 2011, the proportion who reported smoking tobacco at any time during pregnancy was 48.7% of Indigenous women and 11.7% of non-Indigenous women (age standardised rates) [150]. Currently, the *National Perinatal Dataset* records smoking status as a dichotomous variable only, making in-depth analysis of prevalence difficult.

A VIC study of hospital data found that the rate of smoking during pregnancy was higher among younger women, single women, women who were socioeconomically disadvantaged, women with lower rates of education, Indigenous women, and women in rural areas. While these women are only a small proportion of the total number of women who smoke during pregnancy [261], inequities among women who smoke during pregnancy appear to be increasing over time [262].

A 2010 analysis of data from the *NSW Midwives Data Collection* found that while the rate of smoking during pregnancy decreased between 1994 and 2007, the decrease was biggest among women from higher socioeconomic backgrounds. Older women decreased smoking in pregnancy more than teenage women, and women in urban areas more than those in rural and remote areas. Across the time period of the study, Indigenous women and teenagers had consistently higher rates of smoking during their pregnancies than others [262].

There is also an apparent association between smoking in pregnancy and psychological factors, identified in international studies [119]. Depression has been found to be a predictor of smoking during pregnancy in a Norwegian study [121], and a US study found that 63% of a sample of 139 pregnant women seeking smoking cessation support were currently depressed or had been in the past [120].

Outcomes

There is high quality evidence that tobacco use during pregnancy is associated with serious harm [42].

Some risks of smoking tobacco during pregnancy include [42, 71, 85]:

- Increased rate of ectopic pregnancy
- Increase risk of miscarriage, premature birth, stillbirth and perinatal death
- Fetal oxygen deprivation and reduced fetal blood supply, resulting in low birth weight, associated with increased risk of illness and of death early in life
- Increased risk of cleft palate, cleft lip and childhood cancers.

In addition, tobacco use during pregnancy and exposure of the neonate to tobacco smoke are both associated with an increased risk of Sudden Infant Death Syndrome. It has also been documented that children of women who use tobacco during pregnancy may have neurodevelopmental problems resulting in cognitive impairment, impaired attention and poor impulse control. Children of maternal smokers are at increased risk of respiratory infection, asthma and middle ear disease [42]:

For women who smoke tobacco, possible health implications include [42, 71]:

- Reduced fertility
- Reduced milk production for breastfeeding women

- Consequences of tobacco smoking in general such as increased risk of cancer, coronary heart disease, stroke, chronic obstructive pulmonary disease, asthma, rheumatoid arthritis and osteoporosis.

Cannabis

Prevalence and predictors

Cannabis was the most commonly used illicit drug in 2013 [249]. The 2010 NDSHS data show that women are less likely to have used cannabis than men. The highest rate of cannabis use for females in 2010 was by women aged 18 to 19 years [263]. The rate of recent cannabis use among females was highest in the NT. Nationally, Indigenous people were 1.6 times as likely as non-Indigenous people to have recently used cannabis [263]. Generally, there is limited population level data about women who use illicit drugs in pregnancy [144].

Outcomes

Cannabis use in pregnancy is associated with [42]:

- Fetal growth restriction
- Low birth weight
- Preterm labour
- Small for gestational age
- Admission to neonatal intensive care.

There is also evidence of longer term effects for exposed children, such as subtle deficits in cognition and neurodevelopment. These include inattention, impulsivity and problems with learning, memory and executive function [42].

Women who use cannabis are at an increased risk of [42, 263]:

- Respiratory problems
- Alteration of mood, high levels of psychological distress or mental illness
- Financial and social difficulties.

A 2006 Australian study examined the correlates of substance use in pregnancy via record linkage. The study found that when compared to pregnant women generally, women with cannabis, opioid or stimulant related admissions during pregnancy were more likely to be younger, born in Australia, Indigenous, and not have private health insurance. They were more likely to smoke, less likely to be married, had a higher number of previous pregnancies and poly drug use was common. These women were more likely to be unbooked at delivery and have late engagement with antenatal care. The babies were more likely to be premature, small for gestational age, have lower Apgar scores and have increased admissions to Neonatal Intensive Care and special care nurseries [144].

Opioids

Prevalence and predictors

It is difficult to properly ascertain the prevalence of opioid use in Australian women, partly because of low rates of use [264]. A combined data analysis given in the *Trends in Drug Use and Related Harms in Australia* report in 2013 shows that 0.2% of the Australian population reported past-year heroin use in 2010 [264]. In this report, NDSHS data indicate that less than 1% of the population used pharmaceutical opioids in non-prescribed ways 2010 [264]. NDSHS data from 2013 indicate a statistically significant reduction in heroin use to 0.1% of the population [249].

Outcomes

The evidence suggests that opioid use during pregnancy is associated with [40, 42]:

- Low birth weight and decreased birth length
- Intrauterine growth restriction
- Stillbirth and neonatal death.

In addition, heroin withdrawal is associated with fetal stress, in-utero meconium aspiration and increased oxygen requirement. Withdrawal during the first trimester can lead to uterine contractions and spontaneous abortion. In the third trimester, withdrawal from heroin may be associated with increased risk of intrauterine growth restriction, preterm labour or fetal death, possibly caused by hypoxia [42].

Injection of opioids is associated with:

- Blood borne viruses
- Infections like cellulitis, endocarditis and septicaemia
- Overdose (including fatal overdose)

There is some evidence of an association between the use of opioid analgesics early in pregnancy and birth defects, including some congenital heart defects [42].

The *NSW Clinical Guidelines* give comprehensive clinical advice for the use of OST (methadone and buprenorphine maintenance) in pregnancy [42].

Amphetamine-type stimulants

Prevalence and predictors

Some of the amphetamine-type stimulants used in Australia include methamphetamines like speed, base and crystal (ice or crystal meth) and ecstasy (methylene-dioxymethamphetamine or MDMA) [42]. In Australia in 2013, 2.5% of people reported ecstasy use, making it the most commonly used illicit drug after cannabis. Amphetamines were recently used by 2.1% of people in 2013 [249].

There is limited understanding of the effects of methamphetamine use in pregnancy from human studies. Methamphetamine use during pregnancy is associated with a range of psychological problems and social disadvantage including unemployment, domestic violence and involvement with child protection services [42, 73]. A 2013 study examined methamphetamine use among pregnant women in New Zealand and the US. In New Zealand, women who used methamphetamine in pregnancy were found to be more likely than a matched comparison group to have lower socioeconomic status, be a single parent and have delayed access to antenatal care [73].

In addition, women in this study who used methamphetamines during pregnancy were twice as likely as the comparison group to have a mental disorder and five times more likely to have a comorbid substance use disorder and mental disorder. Among women who used methamphetamine during pregnancy, 35% reported use in all three trimesters. These women also reported use of other drugs at higher rates than the comparison group, including other amphetamine-type stimulants, opiates, cannabis and tobacco. Use of alcohol as well as methamphetamines increased the risk of a comorbid substance use disorder and mental disorder [73].

Outcomes

Although human studies are limited, indications are that the use of amphetamine-type stimulants during pregnancy is associated with serious adverse neonatal and maternal outcomes. Specifically [42, 265]:

- During the early weeks of pregnancy, methamphetamine affects the development of organs, which could result in cleft pallet or heart abnormalities.
- Methamphetamine use restricts oxygen and nutrient delivery to the fetus, impacting on brain development and growth, and increasing the risk of premature birth, low birth weight or neurodevelopmental problems.
- There is a risk of fetal toxicity in the third trimester, because the fetus is unable to clear methamphetamines from its system at the same rate as the mother. This also leads to a risk of the infant experiencing withdrawal after birth and the possibility of disturbed sleep states and poor feeding.
- Methamphetamine use is associated with other social and health factors which place the fetus at risk, including poor nutrition, use of alcohol, tobacco and other drugs, increased maternal blood pressure, violence and poor antenatal care.
- There may be increased risk of reduced growth, increased fetal distress, premature rupture of the membranes, precipitate labour preterm birth, placental abruption, small for gestational age, low apgar scores, fetal and neonatal mortality.
- Low birth weight is consistently observed in babies exposed to amphetamine type substances.
- After birth, exposed infants are at risk of withdrawal, disturbed sleep, poor feeding and low breast feeding rates. There are also reports of limb formation defects from MDMA substances.
- There may be alterations in the brain of children exposed prenatally, possibly increasing the risk of cognitive, emotional, behavioural and motor functioning.
- Pregnant women who use amphetamine-type stimulants are at increased risk of anaemia and nutritional deficiency, pregnancy induced hypertension, psychiatric disorders, anxiety and depression, deficits in memory, executive function and emotional intelligence, strokes, seizures and cerebrovascular disorders, cerebrovascular accident, bacterial infection and blood borne viral infection (for injecting drug users).

A 2012 UK study found a relationship between the amount of ecstasy exposure during pregnancy and developmental outcomes in babies at 12 months, particularly motor outcomes. Exposure to ecstasy in utero was associated with negative cognitive and motor outcomes and the risk was greatest with higher doses. Babies exposed to higher doses of ecstasy in utero in the first two trimesters were delayed in motor development, whereas those exposed to smaller doses had comparable outcomes to non-exposed babies. Motor delays observed in this study included slower and delayed movements, lethargic behaviours and delays in standing and walking development [266].

Cocaine

Prevalence and predictors

In 2010 cocaine was recently used by 2.1% of people in Australia [267]. Men aged between 20 and 29 were the most likely to have recently used cocaine. However, between 2007 and 2010, recent cocaine use by females aged 14 or older increased from 1% to 1.5% of all people. Recent cocaine use by women aged between 20 and 29 years increased from 3.1% to 5% of people between 2007 and 2010 [263]. The majority of cocaine use takes place in NSW and VIC [263, 264].

Outcomes

There is limited understanding of the effects of cocaine use in pregnancy from human studies [42]. However, it is strongly associated with intrauterine growth restriction, and may possibly be associated with placental abruption and premature rupture of membranes [42]. Its detrimental effects are thought to be associated with its impact on the functioning of the cardiovascular system [42]. Other reports indicate that cocaine use in pregnancy may be associated with prematurity and intra-ventricular haemorrhage [40].

In general, people in Australia who have recently used cocaine are more likely to have a mental illness, have high levels of psychological distress or be underweight [263].

Inhalants

Prevalence and predictors

The 2010 NDSHS found that while 3.8% of people aged 14 years or older had used inhalants in their life, only 0.6% of people had used them in the past 12 months. Males had higher rate of inhalant use in their lifetime than females and were more likely to use them more often, but there was a statistically significant increase in recent use of inhalants by females in 2010. Most inhalant use was by people aged between 20 and 29, followed by people aged 12 to 19 years [263].

Outcomes

Inhalant use in pregnancy is thought to put the fetus at risk as toxins cross the placenta [42]. Although conclusive evidence in this area is lacking, some studies have reported premature delivery, low birth weight, developmental delay and similarities to symptoms of FAS [42]. There has also been description of an abstinence syndrome in infants exposed to volatile substances. This is reported to consist of "characteristic odour, excessive high-pitched crying, sleeplessness, hyperactive Moro reflex, tremor, hypotonia and poor feeding" [42].

Benzodiazepines

Prevalence and predictors

Benzodiazepines are prescribed medications which are also used in a non-prescribed manner, including by injection [42, 264]. The prevalence of non-prescription benzodiazepine use during pregnancy is not known, there have been anecdotal reports through consultation of an increase [18].

Outcomes

Use of benzodiazepines during pregnancy is associated with:

- An increased risk of preterm birth and low birth weight
- Low Apgar score after late exposure
- Neonatal Abstinence Syndrome

Emerging psychoactive substances

In 2013, use of emerging psychoactive substances in the past 12 months was reported by 0.4% of the population. Use of synthetic cannabis was reported by 1.2%. The highest rates of use were among 14-19 year olds and the prevalence decreased as age increased [249]. There is limited understanding of the effects of emerging psychoactive substances during pregnancy. A 2009 NZ randomised trial examining the effects of benzylpiperazine (BZP) in women found that it significantly increased blood pressure and heart rate [268].

Poly drug use

A 2006 record linkage study of NSW births showed that poly-drug use was common for pregnant illicit drug users and that poly-drug use carries additional risks for the fetus [144].

A US study found that among women who were at risk of an alcohol exposed pregnancy, around half were also at risk for a tobacco exposed pregnancy. These women were more likely to use alcohol

[18] Reported by stakeholders in consultation – see Appendix 8 for further details.

more often, have mental health issues, have less education and employment and have more frequent sexual intercourse and less use of contraception [63]. Another study of the same data found that among women at risk of an unintended pregnancy, there was a higher likelihood of being at risk of both an alcohol and tobacco exposed pregnancy than a pregnancy exposed to either substance alone [36].

Appendix 2 – Screening and brief intervention

Contexts for screening, intervention and referral

A broad range of primary health care providers and services can ask about alcohol, drugs and contraception, to ensure that women who are most at risk are identified and assisted [99]. These settings could include primary health care settings, emergency rooms, community health centres [62], child protection services [99], sexual health centres or family planning clinics [269, 270] and other community contexts including social work [271].

Women with alcohol use problems may be more likely to seek help outside of formal alcohol treatment settings [272], meaning that health professionals in a wide range of non-specialised contexts may be in a position to identify these women and assist them with brief intervention or referral.

Brief screening questions can be incorporated into regular health care, including antenatal care. A 2010 US study reported that one question about binge drinking incorporated into regular health care was able to identify 97.7% of those at risk of an alcohol exposed pregnancy [273]. A small pilot study of brief advice for pregnant adolescents in the UK also found that the antenatal clinic was a good environment to achieve change [274].

A regular, quick, screen in a range of contexts can identify risk of a alcohol or other drug exposed pregnancy and trigger further intervention, in depth assessment and referral to specialised treatment services where appropriate [61, 275, 276].

It is recognised that primary health care professionals have limited time and the identification and management should not be time consuming for the majority of women. Based on the most recent NDSHS 2013 data, over half of pregnant women reporting abstaining from alcohol during pregnancy and would be low risk requiring no further action except to reinforce healthy behaviours [249]. The majority (96%) of the pregnant women that reported drinking drank at low levels (1-2 drinks) and less than 5% may need brief advice or additional time for treatment and referral to specialist treatment.

Self-report of alcohol and drug consumption

The validity of a screening tool is assessed against an existing standard such as a tool which has already been validated [277], or a biomarker like urine or blood results. The sensitivity of a test is the likelihood that someone who is a risky alcohol or other drug user will be detected by the screening questions. The specificity is the likelihood that someone who is not a risky alcohol or other drug user will screen negative. Sensitivity is generally preferable, because of the relative importance of identifying women with at-risk pregnancies [277].

Although some of the evidence is inconsistent, self-report measures of alcohol and drug consumption appear to have good validity and clinical utility. While some studies have shown poor agreement between self-report and biochemical markers [20, 278], others have shown good agreement [279-282]. A US study in 2011 compared the proportion of pregnant women in an obstetric clinic who self-reported smoking with anonymous urine samples, and found no significant difference, indicating that pregnant women generally reported their smoking accurately [280].

In addition, a 2012 systematic review and meta-analysis of self-report of alcohol and drug consumption using the Timeline Follow-Back (TLFB) reported good agreement rates with biological measures for people with a substance-use disorder. Weighted average agreement rates for cannabis ranged from 87.3% to 90.9%, for cocaine from 79.3% to 84.1%, for opiates were 94% and for non-specified substances ranged from 88.5% to 91.0% [281]. Other studies have reported that the self-report methods in the TLFB are reliable in the general population for both alcohol and other drugs [282].

There are also uncertainties about the effectiveness and cost-utility of using biological markers rather than self-report in pregnancy women. Testing for alcohol cannot indicate the dose or frequency of consumption over time [281, 283] and biomarkers indicating alcohol use may independently increase during pregnancy [66]. The validity of urine screening results for alcohol and drug in pregnancy is unclear [42]. Biological tests are also more invasive and may be less acceptable to patients [281].

A challenge in using self-report for alcohol consumption is the methodological issues in measurement. One of these challenges is that people find it difficult to determine how many standard drinks they consume, because a standard drink measure (10g of alcohol in Australia) generally differs from drink serving sizes [284]. In addition, self-report of other drug use can be difficult because of the varying purity, potency and mode of delivery of illicit drugs [282]. It can also be difficult for people to recall alcohol and other drug use accurately in general. Various strategies have been developed to address this, including visual guides.

Despite these limitations, it is still likely to beneficial to ask open and direct questions to pregnant women in order to provide appropriate support [285]. As a public health measure, screening is an opportunity to provide brief intervention or referral to specialist treatment. If women choose not to disclose their substance use, they may not be ready to make changes or may not trust their health care professional. Both these situations indicate that intervention may not be successful [285]. In addition, universal screening can be normalised by being incorporated into routine care [62].

Brief screening tools for detection of drug use in pregnant women have not been sufficiently validated in an Australian context, other than for alcohol and tobacco. There is a significant need for development and validation of a robust, brief screening tool for other drug use by pregnant women in Australia.

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) Version 3 is a screening tool which identifies and assesses risk and severity of dependence for a range of substances. The ASSIST has been validated for the general population internationally and in Australia [286, 287]. The Australian validation study established cut-off risk scores with good sensitivity and specificity for a range of substances and was found to differentiate between substance use, abuse and dependence (low, moderate and high risk) for some substances [287].

A recent Australian study investigated the ASSIST in screening for risk of nicotine, alcohol and cannabis use in pregnant women. The analysis concluded that the role of the ASSIST was uncertain in pregnant women, as it did not show good agreement with existing screening tools which were either validated in pregnancy or frequently used with pregnant women. The study did not support changing cut-off risk scores for pregnant women themselves, but was able to determine cut-off points for fetal risk for both alcohol and cannabis [72].

Appendix 3 – Analysis of screening tools

The AUDIT-C

The AUDIT-C is a simplified version of the AUDIT tool. It is a quick screening tool which has three questions about alcohol consumption. It aims to detect risky and harmful patterns of alcohol consumption [288]. The AUDIT-C is recommended in a range of guidelines and policies nationally.

The use of the full AUDIT was evaluated in a recent study in QLD. It was reported to satisfactorily identify pregnant women who had used drugs or alcohol, although it was not always able to fully detect some differences in the patterns of alcohol or other drug consumption over time. In particular, it was not always able to detect when women had stopped using drugs or alcohol on receiving a pregnancy diagnosis [68].

A 2010 systematic review assessed research from the US into brief screening tools for alcohol use in pregnancy. The systematic review highlighted that the AUDIT-C obtained sensitivity of 100% for past-year alcohol dependence, when used with a cut-off score ≥3 in a 2005 study [67, 289]. It obtained sensitivity of 96% for alcohol use-disorders with a cut-off ≥3, and the full AUDIT tool obtained sensitivity of 95% for high-risk drinking [67, 289].

It is worth noting that the specificity of these tools was lower, as was the positive predictive value, meaning that for every risky drinker identified, up to three women could be falsely identified as risky drinkers [67]. However, higher sensitivity is generally preferable in this context, because the importance of identifying the risks to the fetus outweighs the risks of incorrect screening results or excessive screening [277].

Other studies in the general population have determined that a cut-off score of 3 can maximise the sensitivity and specificity of the AUDIT-C, meaning that a score of ≥3 is indicative of risk [290-292]. This includes a validation study which found sensitivity of 90% for alcohol abuse or dependence and 98% for heavy drinking, with specificity of 60%, for a cut-off score of 3. Changing the cut-off to 4 increased specificity but sensitivity dropped to 86% [292].

A recent report to the then Commonwealth Department of Health and Ageing reviewed the literature on screening for alcohol in pregnancy and proposed that women be screened for alcohol intake with a valid instrument that assesses the pattern of consumption. This report suggested use of the AUDIT-C [284]. This report also viewed the T-ACE, TWEAK and AUDIT-C as having acceptable sensitivity in pregnant women, based on evidence from the 2010 systematic review [284].

The ASSIST Version 3

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) Version 3 is a screening tool for alcohol, smoking and other substances.

A recent Australian study investigated the utility of the ASSIST Version 3 in determining the level of risk for nicotine, alcohol and cannabis use in pregnant women [72]. The analysis concluded that its role was uncertain in pregnant women, as it did not show good agreement with existing screening tools which were either validated in pregnancy or frequently used with pregnant women [72].

However, the study suggested that the ASSIST Version 3 has some utility, because it is simple and brief and has the capacity to generate the Specific Substance Involvement Score, reflecting the risk attributable to a specific substance [72]. The study was also able to determine a cut-off score for fetal risk for both alcohol and cannabis. It concludes that nicotine screening could be the primary screening point with follow-up screening for alcohol and other substances [72].

The TLFB

The Time Line Follow Back (TLFB) records alcohol and other drug use retrospectively, by using a calendar to identify occasions of alcohol or drug use and quantity consumed. The TLFB uses the calendar and a number of other tools including key dates and a standard drink conversion guide, to aid the recall of consumption over a time period up to 12 months [283].

The TLFB is widely reported to have high validity for alcohol consumption across a range of contexts [281-283]. A 2012 systematic review and meta-analysis found that the TLFB had good validity for a range of illicit substances when used with people with a substance-use disorder [281]. The TLFB has also been reported to have good reliability for tobacco, cannabis and cocaine use in the general population, for both treatment-seeking and non-treatment seeking populations [282]. The TLFB has also been used for methamphetamine, opioids, prescription drugs and sexual behaviour [282].

The TLFB format provides a detailed picture of the quantity and frequency of substances used over time, and of binge occasions, making it a useful analytical tool for use with pregnant women.

The IRIS

The Indigenous Risk Impact Screen (IRIS) is an Australian, culturally appropriate screening tool used to assess substance use and mental health in Indigenous Australians. The IRIS has been validated and used in community and custodial settings for both Indigenous men and women in Australia. It has been reported to be slightly less effective at detecting binge drinking in women than men in community settings [293, 294]. It has not been specifically validated in pregnancy.

The T-ACE

The T-ACE is an alcohol-specific tool. It is an adaptation of the CAGE that adds a tolerance question (T) and removes the guilt question (G). The T-ACE has been reported to have higher sensitivity (76%) than the CAGE (59%) [277]. The T-ACE does not assess binge drinking [295].

Some reports indicate that the tolerance question has good predictive validity for risk drinking. This may be because the tolerance question does not directly ask about alcohol consumption and so may avoid social desirability bias in the response [66].

Another study has found that tolerance alone is not a strong basis for classifying risk drinking, but that increasing the total T-ACE score to 3 increases its predictive value. Raising the T-ACE cut-off score from 2 to 3 is reported to maintain high sensitivity while doubling specificity [66, 295]. This revised scoring system is known as the T-ACER3 and has also been reported as having stronger predictive validity for long-term neuro-behavioural outcomes in children [295].

The T-ACE is the screening tool recommended for pregnant women in the US by the *American College of Obstetricians and Gynaecologists* and the *National Institute on Alcohol Abuse and Alcoholism*. It is reported to have acceptable validity with women of different ethnicities in the US [296].

However, a 2010 Canadian validation study which compared the T-ACE with the TWEAK reported that while both performed similarly, the T-ACE was less effective at predicting risk drinking in pregnant women than the TWEAK, when used with a cut off score of 2 or more. This study did confirm that the T-ACE performed better with a cut-off point of 3 or more than 2 or more, but found that neither the T-ACE or the TWEAK particularly effectively identified problem drinking [297].

In addition, a 2010 US study of non-pregnant women which compared the use of T-ACE with the use of medical records, found that neither was highly effective in identifying risky drinking [298].

The TWEAK

The TWEAK is an alcohol-specific tool. It is an adaptation of the MAST, for women [277]. Two versions of the tolerance (T) question are possible, asking either how many drinks a woman can consume (hold) before falling asleep or passing out, or how many drinks are required before a woman feels intoxicated (high). The hold version of the tolerance question appears to be better at identifying periconceptional risk drinking [277].

The 2010 systematic review of screening tools reported that then TWEAK had higher sensitivity but slightly lower sensitivity than the T-ACE for periconception risk, but that its sensitivity was lower for risky drinking during pregnancy [67].

The TWEAK has been variously reported as being similar, having a slight advantage or having no advantage over the T-ACE in identification of risky drinking in pregnancy, indicating that the two tools are likely to be generally comparable [66, 297].

The PRO

The Prenatal Risk Overview (PRO) screens for both alcohol and other drug use, amongst thirteen psychosocial risk domains. Two 2012 US studies examined the validity of the PRO in screening for drug use and for alcohol use by comparing its questions with the DSM-IV Structured Clinical Interview [299, 300].

For alcohol, the PRO had high sensitivity in detecting alcohol dependence in the study population. Validation of the PRO alcohol use module obtained sensitivity of 100% and specificity of 77% for alcohol dependence. For a diagnosis of alcohol use disorder, the PRO had sensitivity of 84% and specificity of 80%. For alcohol abuse, the sensitivity was 83% and specificity 80%. Positive predictive value was low but negative predictive value was high at 98-100% [300]. Arguably, the low positive predictive value and high negative predictive value is not concerning, given that identification of risky behaviour is more important than over-classification, in this population [300].

In the validation study for substance use, the main drug used was cannabis. For women who used drugs in a way which carried a high risk to the fetus, the sensitivity of the test was 78.8% and for moderate risk drug use, the sensitivity was 88.5%. The specificity was 87.3% for high risk and 74.3% for moderate risk [299].

For both alcohol and other drugs, the PRO tests for patterns of consumption both prior to and after awareness of pregnancy [299, 300]. The PRO was designed in the US and uses socio-demographic constructs relevant to that context. It has been successfully implemented in US contexts [301].

The 4Ps Plus

The 4Ps Plus assesses the risk of substance use [99]. It asks indirect questions and so may be a non-threatening way of gathering information [277]. The 4Ps Plus is reported to have sensitivity of 83% and specificity of 80% [66, 99]. A fifth P (peers) can be added for pregnant adolescent women [66].

The QDS

The Quick Drinking Screen (QDS) uses one question to screen for risk of alcohol exposed pregnancy, and in one study, was found to identify 97.7% of cases [273]. A further study compared the QDS with the TLFB and found that they had similar utility [302]. The QDS estimated slightly fewer drinking occasions than the TLFB, but is a brief screening tool which may be useful when lengthy screens are not possible [302].

The TQDH and PAUI

The Ten Question Drinking History (TQDH) was designed to screen for the risk of FAS. It was developed in 1982 and introduced in a US hospital based obstetrics department with moderate uptake by staff [303]. The Prenatal Alcohol Use Interview (PAUI) is an adaptation of the TDQH. The PAUI was investigated in a small study in the US in 2000, and when compared with carbohydrate-deficient transferrin (a biologic indicator of recent heavy drinking), it had sensitivity of 59% and specificity of 71% [304].

The SURPPS

The Substance Use Risk Profile Pregnancy Scale (SURPPS) is a three question tool designed in the US in 2010 to assess how likely it is that a woman is using drugs or alcohol [279]. The SURPPS incorporates questions from the TWEAK, 4Ps, the Addiction Severity Index and two questions on domestic violence [279]. The SURPPS has been reported to have better sensitivity for low risk women than for high risk women [279].

The DAST-10

The Drug Abuse Screening Test 10 (DAST-10) measures drug use in the past year, without focussing on specific drugs. The DAST-10 was examined against a reference of hair and urine samples in a 2010 US Study [305]. The study found a sensitivity of only 47% for any drug use and specificity of 82%. The low sensitivity led the researchers to conclude that the DAST-10 has limited use for pregnant women [305].

CRAFFT

The CRAFFT screens for alcohol and other drug use and was developed for use with adolescents. Its feasibility was tested in a US study of young women, but the study did not gather sufficient data to show its sensitivity or specificity [306].

Assessment of tools

The assessment of screening tools in the following table is based on these criteria:

- Sensitivity for **high risk** alcohol or drug consumption
- Generalisability
- Ease of use

Screening tool	Type of drug	Type of question	Investigated in pregnancy	Number of items	Scoring	Recommendation
AUDIT-C **Alcohol Use Disorders Identification Test-Consumption questions**	Alcohol	**Frequency** • How often do you have a drink containing alcohol? **Quantity** • How many drinks do you have on a typical day when drinking? **Binge** • How often do you have 6 or more drinks on one occasion?	Yes, but no substantive Australian validation study in pregnant women	Three	Scoring guide given for each question – result added for total score out of 12. ≥3 = increased risk	Recommended

ASSIST V3
 	
Alcohol, Smoking and Substance Use Involvement Screening Test Version 3
	Alcohol and drug	**Frequency**
		• In your life, which of the following substances have you ever used? (list of alcohol, tobacco and other drugs).
		• In the past three months, how often have you used the substances you mentioned? (first drug, second drug, etc)
		
		Dependence
		• In the past three months:
		  ○ How often have you had a strong desire or urge to use (first drug, second drug, etc)?
		  ○ How often has your use of (first drug, second drug, etc) led to health, social, legal or financial problems?
		  ○ How often have you failed to do what was normally expected of you because of your use of (first drug, second drug, etc)?
		  ○ How often has a friend, relative or anyone else ever expressed concern about your use of (first drug, second drug, etc)?
		• Have you ever tried and failed to control, cut down or stop using (first drug, second drug, etc)?
		• Have you ever used any drug by injection?
			An Australian study found that the ASSIST had poor agreement with existing / validated screening standards for pregnant women	Eight	Scores ranked and total score added for each substance, risk classification level given for each substance (low, moderate and high risk).	Could be useful for further assessment

TLFB **Timeline Follow Back**	Alcohol and drug	Calendar records frequency and quantity	Has been used in *Project Choices* trials	Varies depending on time period assessed (30 days to 360 days)		Could be useful for further assessment

Screening tool	Type of drug	Type of question	Investigated in pregnancy	Number of items	Scoring	Recommendation
FTND **Fagerstrom Test for Nicotine Dependence**	Tobacco	**Frequency** • Do you smoke more frequently during the first hours after awakening than during the rest of the day? **Quantity** • How many cigarettes per day do you smoke? (10 or less, 11-20, 21-30, 31 or more) **Dependence** • How soon after you wake up do you smoke your first cigarette? (after 60 minutes, 31-60 minutes, 6-30 minutes, within 5 minutes) • Do you find it difficult to refrain from smoking in places where it is forbidden? • Which cigarette would you hate most to give up? (first in the morning, any other) • Do you smoke even if you are so ill that you are in bed most of the day?		Six items	Scored and categorised 0-2 very low dependence, 3-4 low dependence, 5 medium dependence, 6-7 high dependence, 8-10 very high dependence)	Could be useful for further assessment
IRIS Indigenous Risk Impact Screen	Alcohol and drug and mental health	13 substance use and psychosocial domains	Not validated in pregnancy			Could be useful for further assessment
T-ACE / T-ACER3 **Tolerance, Annoyed, Cut down, Eye-opener**	Alcohol	**Dependence** • How many drinks does it take to make you feel high? • Have people annoyed you by criticizing your drinking? • Have you ever felt you ought to cut down on your drinking? • Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?	Yes – US studies	Four	T: ≥2 = 2 points A: Yes = 1 point C: Yes = 1 point E: Yes = 1 point T-ACE cut-off of 2 indicates risk drinking T-ACER3 (revised version) cut-off of 3 indicates risk drinking	Not best option
TWEAK **Tolerance, Worried, Eye-opener, Amnesia, Cut down**	Alcohol	**Dependence** • One version of either: How many drinks can you hold? or How many drinks does it take to make you feel high? • Have close friends or relatives worried or complained about your drinking in the past year? • Do you sometimes take a drink in the morning when	Yes – US studies	Five	T: ≥3 = 2 points W: yes = 2 points E: yes = 1 point A:yes = 1 point K: yes = 1 point	Not best option

Screening tool	Type of drug	Type of question	Investigated in pregnancy	Number of items	Scoring	Recommendation
		you first get up? • Do you sometimes feel the need to cut down on your drinking?			Has been validated for cut-off scores of 2 or 3 as indicative of likely risk drinker	
PRO **Prenatal Risk Overview**	Alcohol and drug and other psychosocial risk factors (13 domains)	**Frequency** Drug use: • Think about the past 12 months before you knew you were pregnant - on how many days did you use marijuana or any other drug not prescribed for you by your doctor? • Since you knew you were pregnant, on how many days did you use marijuana or any other drug not prescribed for you by your doctor? Alcohol: • Think about the past 12 months before you knew you were pregnant - on how many days did you drink an alcoholic beverage? • Since you knew you were pregnant, on how many days did you drink an alcoholic beverage? Tobacco: • How many days a week did you smoke all or part of a cigarette? (asked for both 1 month pre pregnancy awareness, and post pregnancy awareness) **Quantity** Alcohol: • On the days that you drank alcohol, how many drinks did you usually have each day? (ask for both pre and post pregnancy awareness) Tobacco: • On the days you smoked cigarettes, how may cigarettes did you smoke per day, on average? (ask for both 1 month pre pregnancy awareness, and post pregnancy awareness) **Dependence** Drug use: • During the past 12 months, have you neglected your responsibilities because of drug use?	Yes, with sensitivity of 83.6% and specificity of 80.3% for alcohol use disorders. For drug use disorder, sensitivity and specificity rates for the PRO Moderate/High Risk classifications were 88.5% and 74.3%, respectively, and for High Risk only, 78.8% and 87.3%.	Eight items in the alcohol use module – 6 of these relate to pre-pregnancy awareness and 2 to post-pregnancy awareness. Three items in the drug use module. Two items in the cigarette smoking module.	Alcohol use module: scored high risk if any alcohol use post - pregnancy awareness, plus frequent or high quantity consumption pre pregnancy awareness or an adverse consequence. Also high risk if daily use or 2 drinks on single occasion at least once per week. Scored moderate risk if pre-pregnancy awareness use but no current use, or if use patterns are lower than high risk. Drug use module : Scored high risk if pre-pregnancy awareness response was daily use, if yes reported for drug related neglect of responsibilities, or if any drug use reported since pregnancy awareness. Scored moderate risk if pre-pregnancy awareness response was weekly, monthly or rarely, no history of neglected	Not best option

Screening tool	Type of drug	Type of question	Investigated in pregnancy	Number of items	Scoring	Recommendation
		Alcohol: • (In the 12 months before you know you were pregnant) did you have a feeling of guilt or remorse after drinking? • Did a friend or family member tell you about things you said or did while you were drinking that you could not remember? • Did you neglect any of your responsibilities because of alcohol use? • Did you take a drink in the morning when you first got up?			responsibilities and no use since pregnancy awareness. Scored low risk if no use before or after pregnancy awareness.	
4Ps Plus **Parents** **Partner** **Past Pregnancy** **(Add Peers for 5Ps)**	Alcohol and drug	**Frequency** • Have you ever drunk beer, wine or liquor? **Quantity** • In the month before you knew you were pregnant, how many beers/ how much wine/ how much liquor did you drink? • In the month before you knew you were pregnant, how many cigarettes did you smoke? **Dependence** • Did either of your parents ever have a problem with alcohol or drugs? • Does your partner have a problem with alcohol or drugs?				Not best option
QDS **Quick Drinking Screen**	Alcohol	**Frequency** • On average in the last 12 months / 90 days, how many days per week did you drink alcohol? **Dependence** • When you did drink alcohol, on average, how many standard drinks would you have had in a day? (then multiplies by frequency to obtain quantity) **Binge** • How many times in the past 12 months/ 90 days, have you had 5 or more standard alcohol drinks on one occasion? (gives standard definition) What was the greatest number of standard drinks you consumed in one day?		Three items		Not best option

Screening tool	Type of drug	Type of question	Investigated in pregnancy	Number of items	Scoring	Recommendation
TQDH **Ten Question Drinking History**	Alcohol	**Frequency** • How many times a week do you drink? (asked for beer, wine, liquor) **Quantity** • How many cans / glasses / drinks do you have at one time? (asked for beer, wine, liquor) **Binge** • Do you ever drink more? (asked for beer, wine, liquor) (not quantified) **Dependence** • Has your drinking changed during the past year?	Not validated although a 1982 study evaluated whether it was implemented by hospital staff.	Ten items		Not best option
PAUI **Prenatal alcohol use interview**	Alcohol	**Frequency** • When did you have a drink last? • How many times per week are you drinking now? • If not currently drinking, before you were pregnant, how many times per week were you drinking? **Quantity** • How many (cans, glasses, drinks) did you have then (last occasion)? • What did you drink? • How many (cans, glasses, drinks) did you have each time (occasions during pregnancy)? **Binge** • Ever drink more - like more on the weekend? If yes, how much do you have then? **Dependence** • Has anyone in your family ever had a drinking problem? • How old were you when you had your first drink? • Did you get into any trouble because of drinking? • How much could you hold at that time (or how many drinks did it take to make you feel high)? • How much can you hold now (or how many drinks does it take to make you feel high)?	Investigated in US study in 2000, with sensitivity of 59% and specificity of 71%	13 items		Not best option

Screening tool	Type of drug	Type of question	Investigated in pregnancy	Number of items	Scoring	Recommendation
SURPPS **Substance Use Risk Profile Pregnancy Scale**	Alcohol and drug	**Frequency** • Have you ever smoked marijuana? • In the month before your knew you were pregnant, how many beers, how much wine, or how much liquor did you drink? **Quantity** • In the month before your knew you were pregnant, how many beers, how much wine, or how much liquor did you drink? **Dependence** • Have you ever felt that you needed to cut down on your alcohol or drug use?	Yes, but with greater validity in low risk populations (sensitivity 91% and specificity 67%) than high risk populations (sensitivity 57% and specificity 88%)	Three items	Scoring: the number of alcohol drinks before pregnancy is classified as *none* or *any*. *Any* is a positive response. The total number of positive responses for all items is then assessed: 0 = low risk 1 = moderate risk 2-3 = high risk Can be scored for low risk or high risk populations. In low-risk populations, one or more positive responses is a positive screen. In high-risk populations, two or more positive responses is a positive screen.	Not best option
DAST-10 **Drug Abuse Screening Test 10 item version**	Not alcohol, all other drugs, not specified	**Dependence** • During the past year, have you used drugs other than those required for medical reasons? • Do you abuse more than one drug at a time? • Are you always able to stop using drugs when you want to? • Have you had blackouts of flashbacks as a result of drug use? • Do you ever feel bad or guilty about your drug use? • Does your spouse (parents) ever complain about your involvement with drugs? • Have you neglected your family because of your drug use? • Have you engaged in illegal activities in order to obtain drugs? • Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?		Ten items (shortened version)		Not best option

Screening tool	Type of drug	Type of question	Investigated in pregnancy	Number of items	Scoring	Recommendation
		• Have you had medical problems as a result of your drug use?				
CRAFFT **Car, Relax, Alone, Forget, Friends, Trouble**	Alcohol and drug	**Dependence** • Have you ever ridden in a car driven by someone (including yourself) who was 'high' or had been using alcohol or drugs? • Do you ever use alcohol or drugs to relax, feel better about yourself or fit in? • Do you ever use alcohol or drugs while you are by yourself, alone? • Do your family or friends ever tell you that you should cut down on your drinking or drug use? • Have you ever gotten into trouble while you were using alcohol or drugs?	Developed for use with adolescents. Feasibility was tested in a US study of young women but with insufficient data to show sensitivity or specificity, further studies are needed.	Six items	Yes or no questions, Yes scores 1 point for each question. Score of 2 or more indicates positive screen with suggestion that for alcohol-exposed pregnancies in young people, cut-off should be 1.	Not best option

Adapted with permission from *Alcohol in Pregnancy: What Questions Should We Be Asking?* [284] with additional information from [66-68, 72, 277-279, 284, 293-295, 299, 300, 302-307].

Appendix 4 – Indicators of substance use

The 2013 book *Treating Women with Substance Use Disorders During Pregnancy: A Comprehensive Approach,* gives an overview of some indicators of risk of substance use during pregnancy [79]. These indicators include:

Behavioural indicators
Agitation
Aggression
Anxiety
Cigarette smoking
Depression
Disorientation
Euphoria
Hallucinations
Increased physical activity
Intoxication (nodding, slurred speech, lack of coordination)
Irritability
Marijuana use may indicate other illicit drug use
Nervousness
Paranoia
Prescription drug-seeking behaviour
Rapid speech
Repeated behaviours (such as constantly twisting hair, picking or scratching her skin)
Suicidal ideations/ attempts
Sedation

Physical indicators
Dilated or constricted pupils
Rapid eye movements
Red/eroded nasal mucosa, nose bleeds
Gum or periodontal disease
Skin abscesses/ injection sites
Clinically concerning increased or decreased pulse and blood pressure
Increased body temperature
Weight loss/low Body Mass Index
Many medical events (numerous hospitalisations, wounds from weapons, infections)
Liver problems (cirrhosis, hepatitis)
Pancreatitis
Diabetes
Falls and bruises

Reproduced with permission from *Treating Women with Substance Use Disorders During Pregnancy: A Comprehensive Approach* [79].

Appendix 5 – Quick Guide

Identifying women at risk from alcohol, smoking or other drug use during pregnancy

Alcohol, tobacco and other drug use during pregnancy is risky and may cause harm to the fetus. Intervention is required for pregnant women at increased risk:

- drinking more than 1 – 2 drinks per week
- binge drinking
- dependent on alcohol
- smoking
- other drug use

Ask all pregnant women about alcohol, smoking and other drug use in a non-judgemental way as early as possible and at every visit

Ask about alcohol using the AUDIT-C

1. How often do you have a drink containing alcohol?
2. How many standard drinks of alcohol do you drink on a typical day when you are drinking?
3. How often do you have 6 or more drinks on one occasion?

AUDIT-C Scoring Guide below

Assess smoking and other drug use, including prescription medication. Ask about:

- Frequency
- Quantity
- Pattern of use

Also consider other health indicators of drug use, such as:

- mental health issues or
- blood borne viruses

- Less than 1 – 2 drinks per week
- AUDIT-C score of 0 – 2
- Non-smoker
- Does not use other drugs

→ Reinforce healthy behaviours
→ Not drinking is the safest option
→ Continue to discuss alcohol, smoking and other drug use in routine care

- More than 1 – 2 drinks per week
- AUDIT-C score of 3 or greater
- Smoker or recent quitter
- Uses other drugs

→ Brief intervention
→ Smoking cessation
→ Treatment and support

Next page

AUDIT-C Score	0	1	2	3	4
Question 1	Never	Monthly or less	2 – 4 times per month	2 – 3 times per week	4 + times per week
Question 2	1 – 2	3 – 4	5 – 6	7 – 9	10 +
Question 3	Never	Less than monthly	Monthly	Weekly	Daily or almost daily

Scoring Guide (total points)
3 or greater = increased risk

For further information including Standard Drinks chart, see *Supporting Pregnant Women who use Alcohol or Other Drugs: A Guide for Primary Health Care Professionals*. Available at www.ndarc.med.unsw.edu.au

The *Australian Guidelines to Reduce Health Risks from Drinking Alcohol* advise that **not drinking is the safest option for women who are planning a pregnancy, pregnant or breastfeeding.**

Consuming 1 to 2 standard drinks per week is likely to be low risk.

Supporting pregnant women at increased risk

More than 1 – 2 drinks per week, AUDIT-C score of 3 or greater, smoker or uses drugs

Brief intervention

- Provide feedback on assessment and discuss risks.
- Give non-judgemental advice.
- Assist to set goals to reduce alcohol or drug use and to develop personal strategies to achieve goals.
- Continue to discuss at each visit as rapport builds and to assess ongoing risks

Smoking cessation

- Psychosocial intervention including relapse prevention
- Referral to Quitline
- Consider Nicotine Replacement Therapy if other intervention not successful
- Relapse prevention, including post-partum

Treatment and Support

- Refer to a specialist antenatal clinic as early as possible
- Refer to drug treatment services if no specialist antenatal clinic available
- Consult with specialists as needed (obstetrician, addiction medicine specialist)
- Follow up referrals to ensure care is in place
- Identify who is responsible for care coordination
- Plan for antenatal care and birth
- Address nutrition including thiamine and folic acid supplementation
- Consider psychosocial needs including mental health issues, domestic violence and child protection
- Assertively follow-up baby and mother post-partum
- Provide support for breastfeeding and safe sleeping
- Provide contraceptive advice as early as possible after birth

For further information including contact details for services see

Supporting Pregnant Women who use Alcohol or Other Drugs: A Guide for Primary Health Care Professionals, available at www.ndarc.med.unsw.edu.au

The National Drug and Alcohol Research Centre, UNSW Australia, received funding for the Substance Misuse in Pregnancy Resource Development Project from the Australian Government

Appendix 6 – Sample of assessment tools

There are a range of tools which may be useful as part of comprehensive psychosocial assessment. This list is not intended to be comprehensive but indicates some key tools, some of which can be used in primary care settings and some of which should be administered by a psychologist, psychiatrist or other appropriately qualified clinician.

Alcohol, Tobacco and other Drugs

The Time Line Follow Back (TLFB)

The TLFB can be used for initial screening and for gathering more detailed information about pregnant women's alcohol or drug use. The TLFB records alcohol and other drug use retrospectively, by using a calendar to identify occasions of alcohol or drug use and quantity consumed. The TLFB uses number of other tools within the calendar including key dates and a standard drink conversion guide, to aid the recall of consumption over a time period up to twelve months [283].

The TLFB is widely reported to have high validity for alcohol consumption across a range of contexts [281-283]. It also been reported to have good reliability for tobacco, cannabis and cocaine use in the general population, for both treatment-seeking and non-treatment seeking populations [282]. The TLFB has also been used for methamphetamine, opioids, prescription drugs and sexual behaviour [282]. A 2012 systematic review and meta-analysis also found that the TLFB had good validity for a range of illicit substances when used with people with a substance-use disorder [281].

The TLFB format provides a detailed picture of the quantity and frequency of substances used over time, and of binge occasions, making it a useful analytical tool for assessing alcohol and drug consumption by pregnant women.

Fagerstrom Test for Nicotine Dependence (FTND)

The FTND is a short, six-item tool which assesses self report of smoking consumption [308]. The *NSW Clinical Guidelines* suggest that the revised FTND may be useful for more comprehensive assessment of pregnant women's dependence on nicotine [42].

The Indigenous Risk Impact Screen (IRIS)

The IRIS is an Australian, culturally appropriate screening tool used to assess substance use and mental health. The IRIS has been validated and used in community and custodial settings for both men and women in Australia. It has been reported to be slightly less effective at detecting binge drinking in women than men in community settings [293, 294]. It has not been specifically validated in pregnancy.

Addiction Severity Index (ASI)

The ASI is a structured clinical interview which assesses alcohol consumption and associated psychosocial issues. It is a 155 item scale which takes approximately 45 minutes to complete. Validity studies for the ASI have generally shown good reliability and validity, although it performs less well with people with severe psychiatric disorders. The ASI originated in the US and may need to be adapted to the Australian context. A specific version for women as been developed (the Psychosocial History) and is reported to outperform the ASI, but to be lengthier to administer [92].

Other drug and alcohol assessment tools [93]:

- Severity of Dependence Scale (SDS)
- Substance Dependence Severity Scale (SDSS)
- Opiate Treatment Index (OTI)

- Severity of Opiate Dependence Scale (SODQ)
- Benzodiazepine Dependence Questionnaire (BDEPQ)
- Substance Abuse Subtle Screening Inventory version 3 (SASSI-3)

Antenatal

The Edinburgh Postnatal Depression Scale (EPDS)

The Edinburgh Postnatal Depression Scale is a validated tool for use with pregnant women which screens for symptoms of perinatal depression [230]. The EPDS is recommended by the *National Perinatal Depression Initiative* for routine screening for depression in the perinatal period. The beyondblue *Clinical Guidelines – Depression and Related Disorders in the Perinatal Period* also recommend that the Edinburgh Postnatal Depression Scale be used as part of assessment of symptoms of depression for all women in the antenatal and postnatal periods. The beyondblue guidelines recommend a cut-off score of 13 as an indicator for follow-up [155]. The EPDS is recommended in many State and Territory based Antenatal Care Guidelines (see Appendix 9).

The Antenatal Risk Questionnaire (ANRQ)

The ANRQ is a shortened version of the Pregnancy Risk Questionnaire is an Australian psychosocial assessment tool which predicts risk of postnatal depression. A validity study of the ANRQ in predicting postnatal depression found that it had moderate psychometric validity. When used with a cut-off score of 23, sensitivity was 62% and specificity was 64%. The ANRQ had good acceptability for staff and patients. The validity study suggests that the ANRQ could be used as part of a comprehensive psychosocial risk assessment package in combination with other tools and as an adjunct to the Edinburgh Postnatal Depression Scale [309].

The Antenatal Psychosocial Health Assessment (ALPHA)

The ALPHA tool assesses a range of risk factors associated with psychosocial health. A 2005 Canadian randomised controlled trial found that use of the ALPHA tool increased the likelihood that GPs, obstetricians and midwives would identify psychosocial concerns, especially high levels of concern. In addition, using the ALPHA tool assisted with identification of concerns about family violence. The ALPHA tool includes assessment of smoking and alcohol or drug use. However, in this study, the odds of detecting these factors in the intervention group were lower than in the control group [310]. This suggests that it may not be best suited for comprehensive assessment of women at risk of an alcohol or drug exposed pregnancy.

Psychosocial

NSW Safe Start Psychosocial Risk Assessment

In NSW, the Safe Start policy provides a framework for psychosocial assessment, covering domains of support, major stressors, low self-esteem, history of mental health problems, relationships, adverse childhood experiences and domestic violence.

Global Appraisal of Individual Needs (GAIN)

The GAIN is a biopsychosocial assessment tool with 100 scales, which has been validated with pregnant women [311].

Other psychosocial assessment tools [92, 93]

- Kessler Psychological Distress Scale (K-10)
- General Health Questionnaire (GHQ)
- Symptom Checklist-90-Revised (SCL-90-R) and shortened version Brief Symptom Inventory (BSI)

- The Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Beck Scale for Suicidal Ideation (BSS) and Beck Hopelessness Scale (BHS)
- Trauma Screening Questionnaire (TSQ)
- Traumatic Life Events Questionnaire (TLEQ)
- Psychosis Screener
- PTSD Symptom Scale Self-Report (PSS-SR)
- The PTSD Checklist
- The Primary Care PTSD Screen (PC-PTSD)
- Depression Anxiety Stress Scale (DASS 21)
- Brief Psychiatric Rating Scale (BPRS)
- Psychiatric Diagnostic Screening Questionnaire (PDSQ)
- Spielberger State Trait Anxiety Inventory (STAI)
- Impact of Events Scale (IES)

Appendix 7 – Pharmacotherapies for substance use during pregnancy

Drug	Used for	Risks	Australian TGA pregnancy classification
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.	A
Calcium carbimide	Alcohol sensitising agent, used in the abstinence phase of alcohol treatment.	No proven increase in the frequency of malformations or other direct or indirect harmful effects on the fetus having been observed.	A
Disulfiram	Used in the abstinence phase of alcohol treatment.	Evidence on adverse effects during pregnancy are scant and it is therefore not recommended for use.	B2
Acamprosate	Reduces the hyperexcitable state that results from chronic alcohol use.	No information on studies in pregnant women found.	B2
Clonidine	Management of alcohol withdrawal.	No controlled data from human pregnancy studies.	B3
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.	C
Valproate	Management of alcohol withdrawal.	Produces neural tube defects and is hence precluded from use in pregnancy.	D
Carbamazepine	Anticonvulsant medication used in alcohol patients who have multiple episodes of withdrawal.	Contraindicated in pregnant women. A twofold increase in major congenital abnormalities found in epileptic women who took the drug during the first trimester of pregnancy.	D

Valproate	Management of alcohol withdrawal.	Produces neural tube defects and is hence precluded from use in pregnancy.	D
Naltrexone	Opiate agonist that reduces the positive reinforcement of alcohol.	Contradindicated in pregnancy and lactation. An Australian case study of 18 women reported naltrexone did not increase fetal abnormalities.	B3
Buprenorphine	Opiate substitution treatment.	Opioid analgesics may cause respiratory depression in the newborn infant. Withdrawal symptoms in newborn infants have been reported with prolonged use of this class of drugs.	C
Methadone	Opiate substitution treatment.	Opioid analgesics may cause respiratory depression in the newborn infant. Withdrawal symptoms in newborn infants have been reported with prolonged use of this class of drugs.	C
Nicotine	Nicotine replacement therapy.	The harmful effects of cigarette smoking on maternal and fetal health are clearly established. The specific effects of nicotine therapy on fetal development are unknown. Short-term exposure during the first trimester is unlikely to cause a hazard to the fetus. Although NRT contains nicotine it does not contain the other 7000+ harmful substances in cigarette smoke.	D
Bupropion	Used to reduce nicotine craving and withdrawal.	Bupropion should not be taken with medication that lowers seizure threshold including concurrent alcohol and/or benzodiazepine use and/or withdrawal.	B2
Varenicline	Used to reduce nicotine cravings for and decreases the pleasurable effects.	There is currently limited evidence on the use of varenicline during pregnancy.	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 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.

Category X **-** Drugs which have such a high risk of causing permanent damage to the fetus that they should not be used in pregnancy or when there is a possibility of pregnancy.

Appendix 8 – Results of stakeholder consultation

A range of professionals with interest and expertise in substance use in pregnancy were contacted, informed about the project and invited to be part of a consultation group. There was representation from every state and territory and professionals working in health services in a variety of settings including general practice, maternity, drug and alcohol, family planning and justice health were involved.

The consultation group members provided information on services available in their state, clinical practice in the identification and treatment of pregnant women who use substances and workforce development needs. The group provided input on the development of the resource, including format ideas and dissemination strategies. Input was provided over the phone, in meetings and as written feedback. Information provided by the stakeholders is summarised below.

Identification

The abstinence message is not applicable for all women and there is a need to lift the stigma so that there is an adequate response when women continue to drink or use drugs. Broadly, two 'groups' of women with quite different needs can be conceptualised.

The first group is marginalised, more chaotic, likely to be disadvantaged and likely to have poor health literacy. They may present late for antenatal care, or not receive any. They may not be engaged with services or only engaged to a small degree. For this more marginalised population, engagement is the priority. These women attend in a variety of contexts and there needs to be a holistic view of their health needs. This group is demographically more reflective of women that present to drug and alcohol treatment services.

The second group includes women who are higher functioning, likely to be binge drinkers or alcohol dependent, likely to have higher socio economic status and be employed, likely to be older, and not engaged with services. These women may not identify as having a problem. There is less evidence about the identification and treatment of these women.

Services need to be integrated rather than in agency silos and should address women where they are, rather than where health professionals think they should be. Women may be dealing with a range of issues and their alcohol and other drug use may not be the top priority. Other issues may need to be considered prior to addressing alcohol and other drug use. Professionals have to be opportunistic in discussions about alcohol and other drug use. Engagement can't only address health domains and should also address other psychosocial needs.

Primary health care is about addressing health needs holistically. There should be standards outlining the ideal level of care, with implementation supported in different settings. A universal approach is problematic as particular settings will require different strategies.

There are few examples of where universal screening has been consistently implemented, and little continuity in GPs' screening practices. There are examples of how to build clinical capacity and if more GPs asked about alcohol, there would be a big population effect. There may be change mechanisms such as Medicare reimbursement. Having an ongoing relationship with a GP can develop rapport, but not everyone has access to a GP, or wants to engage with a GP. In addition, not all GPs are comfortable or confident to ask pregnant women about their substance use. Asking about mental health could be a way to prompt further investigation. Part of GPs reluctance to screen is about not knowing how to manage withdrawal and complex social factors.

It is also highly variable how assertively women are followed up. A critical issue is whether a coordinator or clinical lead is identified and whether anyone has 'ownership' of the issue. It needs to be seen as everyone's business.

Other areas where screening or identification is problematic:

- Women are presenting to Emergency Departments but there is often an unwillingness or inability to engage, a lack of referral and a lack of thorough assessment.
- Nurse screening – in remote areas screening for sexual health issues by nurses has been very difficult to implement. They are also dealing with significant other chronic issues.
- Early childhood nurses – where follow-up is not mandated and there is not a consistent approach.
- Private clinics/obstetricians – issues of disclosure and communication e.g. substance use and IVF treatment.
- Drug and Alcohol services – may have case management but may not adequately address women's health needs.

Good practice examples of screening/identification include:

- Screening with a handheld device at the Royal Women's Hospital, VIC.
- Use of mental health screening tools at the Planning Pregnancy clinic at the Royal Hospital for Women, NSW.
- A GP referral for telephone counselling program at Turning Point, VIC.
- Screening for tobacco, drug and alcohol, domestic violence and smoking at the King Edward Memorial Hospital, WA.
- An obstetrics data system use to ask about alcohol and medications at every visit, at the Royal Hobart Hospital, TAS.
- Social media being used by the Aboriginal Maternal and Infant Health Services in rural NSW and in Local Health Districts.
- The ENGAGE program in NSW Justice and Forensic Mental Health.

Opportunities to improve practice include:

- Education and support for GPs including attitudinal training.
- Work through the Medicare Locals, to establish more systematic screening.
- Practice nurses – may have less turnover than GPs and are able to engage with women.
- Improvements in the delivery of long acting reversible contraceptives.
- Opportunistic interventions in clubs and pubs with young women.
- Opportunistic engagement at community activities in regional and rural areas.
- Pharmacist - it may be possible to provide more support at pharmacies.
- Online services and social media, apps and resources which can be taken into communities.
- Models like the Mental Health First Aid courses, which require people to take responsibility for delivering training locally.
- Engagement of partners, family members, men and boys.

Management, referral, treatment and assertive follow-up

There needs to be opportunistic service provision and coordination/ continuity of care. Typically the issues are severe, and brief intervention is not sufficient.

Elements of good practice for management and referral could include:

- Recognition by health professionals on the high risk nature of pregnancies for dependent women.
- Empowerment of GPs with advice, support and knowledge of services.
- Pregnancy identified early in any context where women present, and pregnancy care provided prior to 12 weeks.

- Case identification in antenatal settings.
- A ‘no wrong door’ approach with women not turned away from any service following identification and instead supported to appropriate help.
- A coordinated model of care with identification of a nominated case manager/ coordinator/ clinical lead/ key worker.
- Engagement of families in process of goal identification.
- Electronic referrals for better patient identification and management
- Use of tele-medicine where this is appropriate and not cumbersome.
- There needs to be wrap-around care, where the service comes to the woman as it is unlikely that women will attend multiple services.
- Hospital based care may not be appropriate, so support needs to be linked to community services and clinics (such as methadone clinics). Wherever women first present should be the starting point for care.
- Collaborative work across disciplines and the establishment of strong partnerships and referral pathways. ‘Joined-up’ care teams.
- Good care plan documentation and sharing of information.
- Offering alternatives to hospital based care – such as drop in antenatal care to other community and health services.
- Consideration of co-location of services, particularly in rural areas.
- Assertive follow-up including models of home visiting.
- Engagement of Medicare Locals, as these are ideally placed to coordinate referral pathways.
- Staff need education and capacity to address the issues, particularly where there is high demand. For change to be sustainable there needs to be coordination, with women assertively linked to other services.
- Building capacity in staff to recognise that primary care addresses a range of areas which may impact on substance use and wellbeing, including transport, housing, finances, access to services like Centrelink, Medicare, bank accounts.
- Models of care providing intensive, long term support, such as the Whole Family Teams in NSW which provide high intensity services.
- Addressing issues in the whole family as these impact on the outcomes for mothers and babies.
- Advanced skills and techniques within the sector to engage women that do not currently consent to treatment. Engage them on issues other than their substance use.

Feasibility in different settings

Process for referral, management and assertive follow-up

Coordination and referral

- Services need to be aware of what other supports are available.
- Practical barriers and social factors need to be addressed, for example, transport is a huge problem, money for food is an issue, housing and domestic violence are important issues. Engage women on these issues.
- There also needs to be an acknowledgement that displacement from country can underlie many health problems for Indigenous Australian women.

Treatment and care

- Women need to be identified when they come into care and there should be discussion with someone skilled in addiction medicine because of the risks of withdrawal, and women should be engaged in treatment early.

- Need to build capacity around detoxification in general settings so that pregnant women have access, with pregnancy not a barrier to treatment.
- Women should be able to be admitted to obstetric hospitals when there are complications.
- There needs to be more education and training for staff in psychosocial interventions for pregnant women.
- Antenatal care should be provided in a range of settings and clinics, not just hospital-based.
- Women should be provided with more information and education and there should also be more education for dads and families.
- Consultative liaison is important.

Assertive follow-up

- A stay is hospital after delivery is critical and important for assessment.
- There needs to be a multidisciplinary approach with partnerships.
- There are a range of needs for incarcerated women post-release such as sexual health, blood borne viruses, domestic violence, housing, financial, linkage to community service and handover to community mental health and community drug and alcohol services.
- There needs to be engagement with the wider family and communities.
- In some areas, such as rural communities, women may not wish to stay in hospital longer and may be anxious to return home. There needs to be strong links to the women's community and services in that area.
- There should be routine paediatric assessment and ongoing follow up after birth.

Training and service development needs

- Interagency work can improve referral mechanisms.
- There is currently limited professional education in the medical curriculum and medical graduates need skills to engage with drug and alcohol users.
- There needs to be more education and awareness-raising about long acting reversible contraceptives, and professional education, particularly for nurses.
- Remote staff needs access to support when mothers and babies return home from hospital.
- There are different levels of training need, and training needs to be ongoing.
- There could be online hubs with relevant information and support.

Resource format and dissemination strategies

Consultation identified a range of ongoing training needs for the primary health care sector. Stakeholders suggested an online training hub with relevant information, support and links to existing resources, based on the best practice process flowcharts (Figures 3 and 4). There is a need to provide education so that primary care professionals are able to initiate coordinated and multidisciplinary care and facilitate access to specialist treatment and antenatal services. The training resource should include clinical guidelines for management and links to existing tools for use in different settings.

Uptake of training and education needs to be supported locally and include the establishment and strengthening of collaborative, interagency partnerships to improve referral and coordination of care.

Training uptake could also be supported with Continuing Professional Development points and engagement with state-wide training bodies and professional associations.

Another opportunity for practice improvement is to increase professional education and skill development in the medical curriculum.

- Online generally a good format - possibly a flowchart with links to relevant training and resources.

- Continuing Professional Development points are beneficial, and engagement with state-wide training bodies and the RACGP and RANZCOG.
- The resource should include links to clinical guidelines for management.
- Could include a checklist for use in different settings.
- There should be a needs assessment of the target audience.
- Engagement with Medicare Locals would be beneficial.
- It would be good to add onto existing resources rather than create additional tools.

The draft educational resource was circulated to national stakeholders for further input. Detailed feedback on a range of issues related to content, tone, feasibility and local applicability was received and incorporated.

Appendix 9 – Specialist services: results of the service audit

This audit aimed to identify specialist antenatal services for pregnant substance using women in each state and territory of Australia. Specialist antenatal services have staff that have expertise in addiction medicine and run in conjunction with general antenatal care. They offer women individualised treatment plans that address substance use and associated psychosocial issues. The focus of this audit is on government provided services. There is wide variation in availability to services both between and within states, with few services outside of metropolitan areas.

In addition to specialist antenatal services, there are some high risk pregnancy clinics that include pregnant women who use alcohol or other drugs but also provide services to women identified as being at high risk due to factors other than substance use, including women with mental health needs or intellectual disability.

New South Wales

There are a number of specialist services in NSW that provide services to pregnant women who use drugs and alcohol. A review of substance use in pregnancy services conducted in 2007/08 in NSW reported the substance use in pregnancy programs are situated mainly in the Greater Sydney area [242].

They include services in Inner and Eastern Sydney, Sutherland/St George, Royal Prince Alfred Hospital, Nepean health services, Westmead and Blacktown health services.

There are specific Drug Use in Pregnancy Services (DIPS) located in the Mid North Coast of NSW and Western Sydney, Chemical Use in Pregnancy Services (CUPS) located at the Langton Centre in the Royal Hospital for Women in Sydney and also in Sutherland, a Drug Use in Pregnancy Service (DUPS) at Westmead and Blacktown and the Perinatal and Family Drug Health (PAFDH) located at the Royal Prince Alfred Hospital.

There are limited specialist services outside of Sydney available to women in regional and rural NSW. There is a specialist service in Wollongong (Substance Use in Pregnancy and Parenting – SUPPS) and a service in the (former) North Coast Area Health Service that covers the restructured Northern and Mid North Coast Local Health Districts (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 provide services for entire Local Health Districts while others are situated in particular cities or hospitals that run high risk pregnancy clinics, including a well established clinic in Newcastle at the John Hunter Hospital.

The specialist antenatal clinics tend to focus on Opiate Substitution Treatment (methadone and buprenorphine). There is some variability in practice among the specialist services but they involve multidisciplinary teams and conduct comprehensive assessments of women for key issues including medical history, mental health, substance use, domestic violence and child protection screening.

In some specialist services, care is provided to women throughout pregnancy and includes a plan for after-care post-delivery, to ensure appropriate drug and alcohol support is established at discharge. Follow up and after care was identified as an area for improvement in a recent study of treatment services in pregnancy [60].

Government alcohol and other drug services in NSW give priority treatment to pregnant women. In addition to government provided services, there are a range of non-government organisations that

provide services to women. A review of these services for women has recently been conducted including services that assist pregnant women [312].

Although not exclusive to substance using pregnant women, the Aboriginal Maternal and Infant Health Service (AMIHS) in NSW provides services to improve the health of Aboriginal women during pregnancy and decrease perinatal morbidity and mortality for Aboriginal babies. Implemented in 2001 and expanded in 2007, the AMIHS has 45 AMIHS sites over 80 locations across the state.

Services are delivered through a continuity-of-care model. Midwives and Aboriginal Health Workers collaborate to provide a high quality, culturally sensitive maternity services. They are provided in partnership with Aboriginal people, are women centred and based on primary health-care principles.

Antenatal and postnatal care, from as early as possible after conception up to 8 weeks postpartum is provided by AMIHS midwives and Aboriginal Health Workers in the community. Women are linked into mainstream maternity services to ensure that risk management and education are available to the AMIHS teams. AMIHS services include; comprehensive and regular antenatal health checks, maternity hospital bookings, smoking cessation programs, referral and support to access other services, health promotion and community development activities, post natal checks and support and Information on infant feeding and nutrition.

Victoria

The Women's Drug and Alcohol Service (WADS), is funded by the VIC Department of Health and is the only state-wide service that provides clinical support for pregnant women with complex substance use and dependence in VIC. WADS also provides professional support and education. Training is provided predominantly to midwifery, drug and alcohol workers, medical practitioners and maternal and child nurses.

WADS is funded to support all public hospitals in VIC that provide maternity and neonatal services for issues relating to alcohol and other drug use. It has been operating at the Royal Women's Hospital in Melbourne as a specialist clinic for pregnant women with drug and alcohol issues since 1987.

WADS is a voluntary service for pregnant women with ongoing drug and alcohol issues. Referrals come from GPs, other health providers, or self-referral. The clinic caters to women with complex psychosocial problems coupled with alcohol and drug dependence. It has a multidisciplinary team which includes social workers and midwives and in the clinic there are obstetricians, paediatrician, clinical psychologist, dietician, pharmacist and an addiction medicine specialist. The service is enhanced by the provision of secondary consultation, including a 24 hour on-call obstetric service. Women are case managed by a midwife and social worker and seen fortnightly or weekly by the team depending on the gestation.

WADS provides a state-wide service, with women attending from across the state although the service provides linkage and advice to ensure women are supported in their community. WADs provides detoxification to women across Victoria in conjunction with De Paul House at St Vincent's Hospital and then women are linked back to their community. WADS midwives visit the detoxing women second daily to provide support and ongoing assessment of the pregnancy.

Traditionally WADS has had an opiate treatment focus although there is some indication that methamphetamine and benzodiazepine use is becoming more common. Clinicians report that although the proportion of women presenting with alcohol use is not high it is suggested that women may not being appropriately screened. This was also reported in NSW and other states.

WADS recently undertook a survey of maternity services in VIC and found that 25% of services did not screen for substance use. All metropolitan based hospitals reported they routinely screened women for substance use. Of those hospitals that did not routinely screen, 14% only screened if there

was an indication or history of substance use. The survey findings suggest that 11% did not ask about substance use at all [313].

WADS are part of the *Victorian Network for Complex Pregnancies and Substance Use* and have regular meetings with other services in VIC providing care to substance using pregnant women. These include Chemical Dependency Units in various hospitals that treat pregnant women (including in Box Hill, Frankston, and Geelong), the Maternity Outreach Support Service (MOSS) at Sunshine Hospital, Alcohol Drugs & Pregnancy Team (ADAPT) at the Monash Medical Centre, the Transition Clinic at Mercy Hospital for Women and the Angliss Maternity Drug & Alcohol Service, The Angliss Hospital.

The Victorian Government recently announced investment in a new four bed residential unit for new mothers with drug or alcohol addiction, which will provide residential treatment for women and accommodate their children up to four years old. Opening of the unit is planned for 2016.

Queensland

There are two main hospitals in Brisbane with specialist antenatal clinics for pregnant women with substance use issues; the Mater Mothers Hospital and the Royal Brisbane and Women's Hospital.

CHAMP is a specialised antenatal clinic, offered by Mater Mother's Hospital, to provide care to pregnant women with substance use issues. The weekly clinic supports women throughout their pregnancy. The team involves midwives, consultant obstetricians, social worker, protection officer and community liaison for psychiatry. The staff have knowledge and experience of current treatment options for drug dependence, including OST; blood-borne viral infections (e.g. hepatitis C) and transmission risks. Women are referred to inpatient and outpatient drug and alcohol treatment as required.

The CHAMP clinic staff support women with mental illness or psychosocial problems and act as advocates for pregnant women with special needs.

The CHAMP Clinic provides a range of services including; antenatal health checks with midwives, access to an obstetrician and medical team, health information and education and interventions for alcohol and other drug use. Support is provided during the postnatal stay and for a short time after discharge. Parenting information, advice and referral to other health/support services is provided both within the hospital and community.

Referrals are mainly through the general antenatal clinic at the hospital. Referrals to the clinic also come from drug and alcohol services, GPs, child protection and sometimes emergency departments. Women can self-refer to this clinic.

The Mater Mothers Hospital CHAMP clinic supports other tertiary hospitals including Gold Coast Hospital and the Sunshine Coast University Hospital. CHAMP staffs address enquiries from clinicians and women outside of Brisbane.

The Royal Brisbane and Women's Hospital (RBWH) is the largest tertiary referral hospital in Queensland and offers comprehensive maternity care by a multidisciplinary team for women with complex needs through the SHADES clinic. This service supports women with alcohol and substance use, intellectual disability, social disadvantage, mental illness and young women. It includes support for women on Opioid Replacement Therapy. Midwifery and obstetric care is provided with allied health professionals utilised as required. The RBWH is the referring hospital for Rockhampton, Mackay and Cairns Hospitals.

There are no other specialist antenatal clinics in Queensland outside of Brisbane. As in other states, alcohol and other drug services in Queensland give priority to pregnant women for treatment.

There are a range of non-government organisations that provide services to pregnant women that use alcohol and other drugs, including the AMEND program. This program covers Brisbane and the Gold Coast. The program provides a home based treatment service focusing on pregnancy and parenting issues. They receive self-referrals and referrals from specialist antenatal clinics, perinatal mental health services, corrective services and the Department of Child Safety.

South Australia

There are two specialist services in SA for pregnant women who use drugs and alcohol. The clinics are located in Adelaide: one at The Women's and Children's Hospital and the other at the Lyell McKewin Hospital and provided by the Drugs and Alcohol Services South Australia (DASSA) Obstetric Unit.

The clinic includes a multidisciplinary team with nursing staff, close liaison with perinatal mental health and social workers. The clinics occur weekly.

The services are for pregnant women and their partners from conception until after delivery. The service provides assessment, treatment, education, support and advocacy to ensure the safest outcome for mother and baby.

Western Australia

Women and Newborn Drug and Alcohol Service (WANDAS) is a specialist antenatal service based at King Edward Memorial Hospital (KEMH), providing services to women experiencing drug and alcohol issues during pregnancy. KEMH is WA's largest maternity hospital and only referral centre for complex pregnancies in WA.

The WANDAS team is made up of a number of health professionals including doctors (consultant obstetricians), midwives, social workers, and mental health professionals. The team provides access to other services including detoxification physiotherapist and dieticians.

The service provides holistic care throughout pregnancy and three months post birth. The team provides referrals to other health and community services after this time.

Referrals are through the general antenatal clinic at the hospital, drug and alcohol services, Child protection and through GPs. Women can self-refer to this clinic.

KEMH also has The Women's Health Clinical Support Unit (WHCSU) and a Perinatal Mental Health Unit that supports women with mental health issues. WHCSU provides information for consumers and health professionals on the mental health of parents and families during the perinatal period.

Tasmania

The Royal Hobart Hospital (RHH) is the only hospital in Tasmania with an antenatal service for women with complex biopsychosocial needs including the Drug and Alcohol in Pregnancy Service (DAPS). This weekly clinic is multidisciplinary, providing holistic care for women with substance use issues or dependence. The team includes a consultant obstetrician, two midwives, a clinical midwife specialist and a social worker. In addition, the midwife specialist is able to case manage up to eight to ten additional women suitable for midwife pregnancy care but with multiple and complex needs including substance dependence. These women are identified at booking in and referred via the Complex Care/DAPS clinic.

Women are referred from GPs or identified by midwives at the booking-in appointment at the hospital. There are good links between the Complex Care/DAPS Clinic and community agencies supporting women with drug and alcohol issues and referrals are made accordingly.

http://www.dhhs.tas.gov.au/mentalhealth/alcohol_and_drug/services
http://www.dhhs.tas.gov.au/mentalhealth/alcohol_and_drug/services/community_sector_organisations

Australian Capital Territory

There are no specialist antenatal clinics for substance using pregnant women in the ACT but the Canberra Hospital provides additional antenatal services to high risk pregnant women with a few programs designed for women with additional needs.

The IMPACT Program is a coordination service for pregnant women, their partners and their young children (less than two years of age) who are clients of Mental Health ACT or are receiving OST and require assistance to manage their involvement with multiple services.

The Pregnancy Enhancement Program (PEP) supports women exposed to substance use or mental health issues in pregnancy. This program provides pregnancy care by a known midwife, and includes social worker and drug and alcohol worker support.

The Perinatal Mental Health Consultation Service (PMHCS) is a tertiary service provided by Mental Health ACT. It is a consultation and liaison service that specialises in the assessment, diagnosis and treatment of women experiencing significant mental health issues in the preconception, antenatal and postnatal periods. The service provides a weekly clinic (one and a half days) that is staffed by a psychiatrist, registrar, psychologists and a registered nurse. This tertiary service does not provide clinical management or ‘supportive counselling’.

Northern Territory

There are no specialist antenatal clinics for substance using pregnant women in the NT. Pregnant women attending the antenatal clinic at Royal Darwin Hospital that are identified with substance use are referred to drug and alcohol services. Women requesting help are provided with the contacts for the Alcohol and Other Drug service and an appointment with this team will be scheduled for their next antenatal appointment or before if requested. Women presenting to the antenatal clinic are asked about their use of drugs and alcohol, although the questions asked may depend on the midwife. It was suggested that more education and training is required for midwives to ensure they are confident asking about drug and alcohol use. At 36 weeks gestation midwives ask all women about their alcohol and tobacco use as required by medical records.

The Alice Springs Hospital has maternity services but no specialist antenatal drug and alcohol service. Maternity services liaise with drug and alcohol treatment services in the hospital. There are specific services to assist young women and Aboriginal women including women that are pregnant..

The Remote AOD Workforce members provide drug and alcohol support to communities and this includes supporting pregnant women. They are all imbedded within Primary Health Care Centres (Both NT Government and Non-Government, Aboriginal Community Controlled Health Organisations) and work from a harm minimisation and strengths focused framework. All of the frontline AOD workers live in the communities in which they work and the majority are local people. http://remoteaod.com.au/

Appendix 10 – Antenatal care guidelines relevant to substance use

National

Recommendations from the *Antenatal Care Clinical Practice Guidelines Module 1* [314]

- As early as practical in pregnancy, ask all women questions about psychosocial factors, including previous or current mental health disorders. If a woman discloses risk factors, ask whether she would like help with any of these issues.
- Use the Edinburgh Postnatal Depression Scale as a component of the assessment of all women for symptoms of depression in the antenatal period. Be aware that women who score 13 or more on the Edinburgh Postnatal Depression Scale (EPDS) may be experiencing anxiety, either alone or with depression. Base decisions about further assessment on the woman's answers to questions 3, 4 and 5 of the EPDS and her response to enquiry about 'worrying'.
- If a woman scores 1, 2 or 3 on EPDS question 10, assess her current safety and the safety of other children in her care and, acting according to clinical judgement, seek advice or refer immediately for mental health assessment.
- At the first antenatal visit, explain to all women that asking about domestic violence is a routine part of antenatal care. Enquire about each woman's exposure to domestic violence. Ask about domestic violence when alone with the woman, tailoring the approach to her individual situation and your own skills and experience (e.g. use open-ended questions about her perception of safety at home or use an assessment tool).
- Be aware that training programs improve the confidence and competency of health professionals in identifying and caring for women experiencing domestic violence.
- Responses to assisting Indigenous Australian women who are experiencing domestic violence need to be appropriate to the woman and her community. Health professionals should be aware of family and community structures and support. Health professionals should be aware of resources for domestic violence services in their community that can be called for urgent assistance. This may include local safe houses or the Strong Women Workers in their community.
- At the first antenatal visit: assess the woman's smoking status and exposure to passive smoking; give the woman and her partner information about the risks to the unborn baby associated with maternal and passive smoking; and if the woman smokes, emphasise the benefits of quitting as early as possible in the pregnancy and discuss any concerns she or her family may have about stopping smoking.
- Offer women who smoke referral for smoking cessation interventions such as cognitive behavioural therapy.
- At each antenatal visit, offer women who smoke personalised advice on how to stop smoking and provide information about available services to support quitting, including details on when, where and how to access them.
- If, after other options have been explored, a woman expresses a clear wish to use nicotine replacement therapy, discuss the risks and benefits with her.
- If nicotine replacement therapy is used during pregnancy, intermittent–use formulations (gum, lozenge, inhaler and tablet) are preferred to continuous-use formulations (nicotine patches).
- Smoking status should be monitored and smoking cessation advice, encouragement and support offered throughout pregnancy.
- Health care professionals involved in the care of Indigenous Australian women should be aware of the high prevalence of smoking in some communities, and take account of this social norm when discussing smoking and supporting women to quit.
- Culturally appropriate smoking cessation services should be offered.
- In discussing smoking and supporting Indigenous women to quit smoking, health professionals should draw on the expertise of anti-tobacco workers where available.

- Advise women who are pregnant or planning a pregnancy that not drinking is the safest option as maternal alcohol consumption may adversely affect the developing fetus.
- Advise women that use of prescription and over-the-counter medicines should be limited to circumstances where the benefit outweighs the risk as few medicines have been established as safe to use in pregnancy.

New South Wales

Antenatal Care Record (yellow antenatal card) [315]

- Asks about cigarettes per day, alcohol average grams per week, standard drinks.

Booking History (Royal Hospital for Women)

- Asks about mental health disorders, smoking, pattern of alcohol consumption, illegal drug usage, drug support needed, whether currently on drug support and prescription drug use.

Recommendations from the Maternal and Child Health Primary Health Care Policy [316]

A comprehensive primary health care assessment of physical, emotional, psychological and social factors is to be conducted antenatally – at the first point of contact with NSW Health during pregnancy and as early as possible in the antenatal period.

The minimum core set of psychosocial variables to be assessed antenatally and postnatally including: lack of social or emotional support and availability of practical and emotional support; recent major stressors, changes or losses, such as financial problems, migration issues, someone close dying; low self-esteem including self-confidence, high anxiety and perfectionistic traits; history of anxiety, depression or other mental health problems, substance use; relationship problems or dysfunction; adverse childhood experiences; domestic violence.

Victoria

Victorian Maternity Record [317]

- Health assessment - maternal history and examination includes mental health, alcohol and substance use. Asks whether the woman drinks, standard drinks per week before pregnancy and currently and whether the woman has used other drugs including heroin, cannabis, ecstasy, speed, methadone.
- Smoking assessment including whether has smoked in the last 12 months, if yes then a complete smoking assessment at booking-in visit including current smoking, partner smoking, smoking behaviour stage, written resource provision and Quitline referral. Assessment to be completed at every visit for smokers and recent quitters.
- Recommends asking about alcohol and other drug use in early-mid pregnancy and postnatally, as well as a smoking assessment and response after birth.

Queensland

Hand Held Pregnancy Health Record [318]

- Women's health history taking includes mental health, smoking, alcohol and other drug use, triggering more in-depth tobacco screening or drug and alcohol screening tool if there is a positive response.
- Tobacco screening tool provided including current smoking, number of cigarettes per day, partner and household smoking, quitting stage, benefits of quitting, education including Quitline referral, written resources and referral to Indigenous Health Clinic if appropriate. Screening tool is to be completed at every opportune visit for smokers and recent quitters.

- Drug and alcohol screening tool includes referral to local support service for assessment and ongoing support if a positive response to any drug use in the past 3-6 months. Asks about alcohol during the pregnancy including frequency of drinking occasions, number of standard drinks per day, how often more than six standard drinks on one occasion, readiness to stop drinking, barriers to stopping, assessment of risk with referral to local support services and discuss concerns with treating team. Includes education, written resources and referral to Indigenous Health Clinic. To be completed at every opportune visit.

Recommendations from the Minimum Antenatal Schedule [319]

- At first visit GP/midwife, preferably before 12 weeks: Pregnancy confirmed- maternal counselling including tobacco/alcohol/other drug cessation
- At 12–18 weeks: Safe start or similar tool, tobacco/alcohol/other drug cessation and Edinburgh Postnatal Depression Scale completed
  Maternal counselling including tobacco/alcohol/other drug cessation, and breastfeeding
- At 20 weeks: Maternal counselling including tobacco/alcohol/other drug cessation and breastfeeding
- At 30–32 weeks: Standard antenatal visit including maternal counselling on tobacco/alcohol/other drug cessation and breastfeeding
- At 34 weeks: Edinburgh Postnatal Depression Scale completed
- At 36 weeks: Standard antenatal visit including maternal counselling on tobacco/alcohol/other drug cessation and breastfeeding

South Australia

South Australian Pregnancy Record [320]

- Asks about alcohol (drinks per week), smoking (number of cigarettes per day), and illicit drug use.
- Asks about psycho-social history.
- At first visit, screen for perinatal mental health as per the National Perinatal Mental Health Initiative.
- Smoking assessment every third visit for smokers and recent quitters including quitting stage and referral to Quitline.

Recommendations from the *Perinatal Practice Guidelines* [219]

- Complete South Australian Pregnancy Record (SAPR), including personal history, family history, significant factors, past pregnancies, LMP cycle
- Complete Edinburgh Postnatal Depression Scale (EPDS) and Antenatal Risk Questionnaire (ANRQ) with the woman at booking and refer as appropriate (see PPG: screening for perinatal anxiety and depression for further information on screening tools)
- Complete Smoke-free Pregnancy Assessment and Intervention information template

Western Australia

Obstetric History, Health Department of Western Australia [321]

- Personal history and risk assessment ask about drugs (non-prescription), marijuana, cigarettes, alcohol, psychological history and domestic violence.

Pregnancy Health Record (King Edward Memorial Hospital) [322]

- Includes a tobacco smoking assessment asking if the woman has ever smoked, whether anyone in the household smokes, smoking habits, includes the Fagerstrom Test for Nicotine Dependence and recommendations for Nicotine Replacement Therapy and a detailed assessment to plan

cessation and offer support. Also includes written resources for the woman. To be assessed at all opportune visits.
- Includes a section on substance use including alcohol, smoking, marijuana, speed, heroin and other, and whether these are used currently, previously or never, using assessment tool provided by WANDAS service.
- Asks about psychiatric illness in the past or present.

Recommendations from the Antenatal Shared Care Guidelines for General Practitioners, King Edward Memorial Hospital, Women and Newborn Health Service [323]

- First visit - discuss alcohol, smoking, diet, illicit drug use.
- Complete Edinburgh Postnatal Depression Scale

Recommendations from the King Edward Memorial Hospital Obstetrics and Midwifery Clinical Guidelines [324]

- The following principles underpin care for pregnant women who use alcohol and other drugs: engagement and continuity of care, specialised management of care, communication, cultural care, harm minimisation, multidisciplinary team care, referral for specialist treatment, referral for psychological care, partner and family support and involvement, and access to social workers.
- Women who have current and significant alcohol and other drug use, are abstinent from alcohol or other drugs but still requiring support from a specialist team or service, or are imprisoned pregnant women, should be referred to the specialist multidisciplinary clinic WANDAS early in the pregnancy.

Tasmania

Royal Hobart Hospital, Digital Medical Record and Obstetrix

- All antenatal records are kept electronically in these systems. Staff ask about smoking and alcohol intake at each antenatal visit. Alcohol and other drug use is asked about at the booking-in assessment. Women with substance use issues can be referred to the complex care clinic.

Queen Victoria Maternity Unit, Launceston General Hospital, Hand Held Antenatal Record [325]

- Booklet advises women to avoid alcohol, marijuana, heroin, amphetamines and other drugs, also recommends not to smoke and provides Quitline details.
- Antenatal Record front page asks about recreational drug use, smoking and alcohol. Also provides prompt to ask about smoking and alcohol in comments section for regular visits.

Recommendations from the Antenatal Shared Care Information Kit (Southern) [326]

- Pre-pregnancy: document woman's history of diet, smoking, alcohol, drug use (including illicit drugs). Consider lifestyle behaviour advice.
- First visit: advise to cease smoking/illicit drugs (consider lifestyle behaviour advice)
- Twelve weeks at Royal Hobart Hospital: Edinburgh Perinatal Depression and psychosocial assessment conducted.
- Antenatal checks include: smoking and use of illicit drugs.
- Encouraging smoking cessation, or reduction of smoking where cessation is unlikely, is highly beneficial for both mother and fetus. Smoking cessation training in providing brief interventions ('ABC') can be provided in GP practices.
- Women are offered the opportunity to complete the EPDS during the Booking Visit at the Royal Hobart Hospital.

Recommendations from the Maternity Shared Care Resource (Northern) [327]

- Indications for consultative review and collaborative shared care include drug dependence or misuse or history of mental health disorders.
- At every antenatal visit the woman should be asked about her smoking behaviour. The benefits of quitting at any stage in pregnancy should be emphasised.
- First antenatal visits include history taking about recreational drug use, smoking and alcohol, advice to be given on smoking, drug and alcohol use, cessation intervention should be offered to all pregnant women who smoke or have recently quit, also provide depression screening.

Australian Capital Territory

ACT Health Maternity Shared Care Guidelines [328]

- Women using illicit drugs may be suitable for shared care and should be seen as early as possibly in the pregnancy by their GP and care discussion with relevant specialist or obstetrician.
- Women with substance abuse are high risk and should be cared for by obstetricians in the Antenatal Clinic to determine further pregnancy care.
- Prior to conception, GP should take a history of diet, smoking alcohol and other drug use including illicit drugs.
- At 6-10 weeks and confirmation of pregnancy, GP to discuss implications of smoking and substance abuse, advise cessation of smoking and offer appropriate referrals. There is no known safe level of alcohol use in pregnancy. All women should be advised not to drink in pregnancy.
- Midwife to complete EPDS before the 32 week visit (reviewed by Antenatal Clinic Staff at 30 weeks).
- Within 1 week of birth, GP to check mother and infant, feeding and family relationships, assess psychological wellbeing of mother and support networks and discuss contraception options.
- At 6 weeks, GP to check psychological wellbeing of mother.
- Clinical parameters in first trimester – essential to check alcohol, smoking and other drugs.
- Provides information for women about smoking, alcohol and other drug use.

Northern Territory

Pregnancy Health Record [329]

- Effects of smoking, alcohol and other drug use during pregnancy to be discussed, also smoking cessation programs.
- Smoking status and alcohol status to be assessed at first visit and at 36 weeks, including no of cigarettes and drinks per day and identification of a quit date.
- If positive response to tobacco or alcohol use, further assessment including tobacco consumption details, form of tobacco used, method of use of tobacco, alcohol consumption details, form of alcohol used, method of use of alcohol, frequency of use of alcohol, number of standard drinks of alcohol consumed and number of grams of alcohol consumed per time period.

Recommendations from Minymaku Kutju Tjukurpa Women's Business Manual [153]

- Use a team approach with family, partner and health staff including nurse, doctor, Aboriginal health worker.
- Plan for labour in the antenatal period, especially for substance-dependent women, early discharge is not appropriate.
- Consider ongoing child protection issues.
- Staff should be trained in interviewing and brief intervention and understand referral pathways.
- All women should be asked about their alcohol and other drug use at initial visit and at subsequent visits, including:

    - prescribed medication, alcohol, tobacco and chewing tobacco, other drugs, herbal/natural drugs
    - Pattern of use – duration, frequency, amount, whether partner or other family members use.
    - Previous use, quitting, relapses.
- Assess whether the woman is drug dependent.
- Plan with the woman what intervention is needed and organise action and follow-up.
- Use the 5As for tobacco, cannabis, alcohol, inhalants, kava and other substance use.

Recommendations from the Remote Health ATLAS – Antenatal and Postnatal Care [330]

- Antenatal and postnatal care primarily informed by the *Minymaku Kutju Tjukurpa Women's Business Manual* which is the authorised clinical protocol.

Pregnancy Health Record/ Antenatal Care Summary provides information on core topics to discuss with the woman during pregnancy

Appendix 11 – Policy and guidelines

International

Policy/ guideline	Link
World Health Organisation Guidelines for the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy 2014	http://www.who.int/substance_abuse/publications/pregnancy_guidelines/en/

National

Policy/ guideline	Link
NSW Clinical Guidelines for the Management of Substance Use during Pregnancy, Birth and the Postnatal Period, 2014	http://www.health.nsw.gov.au/mhdao/programs/da/Pages/substance-use-during-pregnancy-guidelines.aspx
National Clinical Guidelines for the Management of Drug Use During Pregnancy, Birth and the Early Development Years of the Newborn 2006	http://www0.health.nsw.gov.au/pubs/2006/ncg_druguse.html
Australian Government Department of Health Clinical Practice Guidelines: Antenatal Care 2012	http://www.health.gov.au/antenatal
Australian Guidelines to Reduce the Health Risks from Drinking Alcohol	https://www.nhmrc.gov.au/guidelines/publications/ds10
Fetal Alcohol Spectrum Disorders in Australia: An Update June 2012	http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/mono-fasd
Australian Government Department of Health – FASD Action Plan	http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pubhlth-strateg-drugs-alcohol-index.htm
National Drug Strategy 2010-2015	http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/Publishing.nsf/content/nds2015
National Tobacco Strategy 2012-2018	http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/national_ts_2012_2018
National Guidelines for Medication-Assisted Treatment of Opioid Dependence	http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/ng-mat-op-dep
Alcohol Treatment Guidelines for Indigenous Australians	http://www.health.gov.au/internet/alcohol/publishing.nsf/Content/AGI02
beyondblue Clinical Practice Guidelines. Depression and related disorders – anxiety, bipolar disorder and puerperal psychosis – in the perinatal period, 2011.	http://www.beyondblue.org.au/resources/health-professionals/clinical-practice-guidelines/perinatal-clinical-practice-guidelines

New South Wales

Policy/ guideline	Link
Nursing and Midwifery Clinical Guidelines - Identifying and Responding to Drug and Alcohol Issues, NSW Health, 2008	http://www0.health.nsw.gov.au/policies/gl/2008/GL2008_001.html http://www.health.nsw.gov.au/mhdao/cgnmp/Pages/handouts.aspx
Nursing and Midwifery Management of Drug and Alcohol Issues in the Delivery of Health Care, NSW Health 2007	http://www0.health.nsw.gov.au/policies/pd/2007/PD2007_091.html

NSW Supporting Families Early Package – SAFE START Strategic Policy 2009	
NSW Health Neonatal Abstinence Syndrome Guidelines 2013	http://www0.health.nsw.gov.au/policies/gl/2013/GL2013_008.html
NSW Wales Opioid Treatment Program: clinical guidelines for methadone and buprenorphine treatment of opioid dependence	http://www0.health.nsw.gov.au/policies/gl/2006/GL2006_019.html
Drug and Alcohol Withdrawal Clinical Practice Guidelines 2008	http://www0.health.nsw.gov.au/policies/gl/2008/GL2008_011.html
Domestic Violence – Identifying and Responding, NSW Health 2006	http://www0.health.nsw.gov.au/policies/pd/2006/PD2006_084.html

Queensland

Policy/ guideline	Link
QLD Health Helping Smoker's Quit A Health Professionals Guide to Brief Intervention	http://www.health.qld.gov.au/atods/documents/30593.pdf
QLD Health Clinical Protocols for Detoxification	http://www.health.qld.gov.au/health_professionals/atod/default.asp
QLD Health Maternity Clinical Guidelines and Neonatal Clinical Guidelines	http://www.health.qld.gov.au/qcg/html/publications.asp

Victoria

Policy/ guideline	Comments
Royal Women's Hospital Clinical Guidelines Drug and Alcohol - Methadone Stabilisation In Pregnancy	https://www.thewomens.org.au/health-professionals/clinical-resources/clinical-guidelines-gps/
Royal Women's Hospital Clinical Guidelines Drug and Alcohol - Alcohol Withdrawal Management	https://www.thewomens.org.au/health-professionals/clinical-resources/clinical-guidelines-gps/
Turning Point Screening and Assessment Tools	http://www.turningpoint.org.au/Treatment/For-Health-Professionals/New-screening-and-assessment-tools1.aspx
Alcohol and Other Drug Withdrawal: Practice Guidelines Second Edition 2012	http://www.turningpoint.org.au/Media-Centre/professionalDevelopment%20-%20Copy/GetFile.axd?oid=22d5bd3f-876a-4ba2-acb1-ba94c4f4a5b4

Western Australia

Policy/ guideline	Link
Final Policy Framework for Reducing the Impact of Parental Drug and Alcohol Use on Pregnancy, Newborns and Infants, Drug and Alcohol Office May 2008	http://www.dao.health.wa.gov.au/DesktopModules/Bring2mind/DMX/Download.aspx?EntryId=235&Command=Core_Download&PortalId=0&TabId=211
Strong Spirit Strong Mind Aboriginal Drug and Alcohol Framework for Western Australia 2011-2015	http://www.dao.health.wa.gov.au/Informationandresources/Nationalandstatepolicies.aspx

South Australia

Policy/ guideline	Link
Clinical Guideline South Australian Perinatal Practices Guidelines – Substance Use in Pregnancy 2013	http://www.sahealth.sa.gov.au/wps/wcm/connect/Public+Content/SA+Health+Internet/Clinical+resources/Clinical+topics/Perinatal+practice+guidelines/
Fetal Alcohol Spectrum Disorders: A Guide for	http://www.sahealth.sa.gov.au/wps/wcm/connect/

Midwives	public+content/sa+health+internet/health+topics/health+conditions+prevention+and+treatment/alcohol/alcohol+and+pregnancy

Northern Territory

Policy/ guideline	Link
Minymaku Kutju Tjukurpa: Women's Business Manual 2008	http://remotephcmanuals.com.au/html/publications
Remote Health ATLAS – Antenatal and Postnatal Care 2013	http://remotehealthatlas.nt.gov.au/antenatal_&_postnatal_care.pdf

Australian Capital Territory

Policy/ guideline	Link
ACT Health Antenatal Shared Care Guidelines	http://www.health.act.gov.au/c/health?a=dlpubpoldoc&document=813
ACT Health IMPACT Program Guidelines 2008	http://health.act.gov.au/health-services/community-based-health-services/women-youth-children-health-services/impact/

Tasmania

Policy/ guideline	Link
Tasmania Antenatal Shared Care Information Kit – South	http://www.tasmedicarelocal.com.au/sites/default/files/antenatal-shared-care-information-kit-south-2013.pdf
Maternity Shared Care Resource For General Practitioners	http://www.tasmedicarelocal.com.au/sites/default/files/Maternity_Shared_Care_Resource_North_March%202013.pdf

Appendix 12 – Projects addressing alcohol or other drug use in pregnancy

Western Australia Department of Health: Strong Spirit Strong Future

This project has three elements: culturally-secure resources, community awareness-raising and workforce development. It aims to raise Indigenous Australian's awareness of the harms associated with alcohol and other drug use in pregnancy and with respect to sexual health. It also aims to improve awareness in regional communities of the harms associated with alcohol use in pregnancy. In addition, it aims to improve professional awareness, competence and confidence to deliver evidence-based early interventions, treatment and referral to women of childbearing age with respect to alcohol use and FASD.

National Drug Research Institute: Postermaker App

This project aims to enable Indigenous Australian communities across Australia to produce resources that reflect the shared issues but local differences in addressing alcohol, pregnancy and FASD around the country. It was developed after consultation with Indigenous communities across Australia. The app provides pre-loaded messages and images that can be used in the creation of local resource, or it can be used to create evidence-based text and images to use in local resources. www.fasdpostermaker.com.au

Foundation for Alcohol Research and Education: Women Want To Know Project

This project promotes the *NHMRC Alcohol Guidelines*. It targets health professionals that see pregnant women and includes video vignettes and online training courses for GPs, midwives, obstetricians. Resources include the AUDIT-C and leaflets for health professionals and consumers. Links to accredited online training offering Continuing Professional Development points and resources are available at www.alcohol.gov.au

The World Health Organisation: Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) Version 3

The ASSIST is a brief screening tool which generates a specific risk score for each substance. While the ASSIST version 3 has not been sufficiently validated in pregnancy, a recent Australian study suggested that it could have some utility for assessing the specific risk attributable to tobacco, alcohol or cannabis. The Australian study established fetal risk cut-off scores for both alcohol and cannabis [72].

NSW Health: Aboriginal Maternal and Infant Health Service Toolkit

The Toolkit is an educational resource website for mental health and drug and alcohol staff recruited to enhance service delivery within the AMIHS program in NSW. The Toolkit is an interactive website within the Health Education and Training Institute website, however access is limited to those staff as a trial, exploring key aspects of mental health and alcohol and drug approaches for pregnant Indigenous women and their families and communities.

Telethon Institute: Alcohol and Pregnancy and FASD resources for health professionals

The Alcohol and Pregnancy and FASD resources for health professionals previously published and printed by the Telethon Institute are now printed by the Drug and Alcohol Office, Western Australia. The resources include a booklet for health professionals, a fact sheet for health professionals and a wallet card for women.
www.dao.health.wa.gov.au/Informationandresources/Publicationsandresources/Healthprofessionals.aspx

Murdoch Children's Research Institute: Asking Questions in Alcohol Project, and Alcohol in Pregnancy – What Questions Should We Be Asking (Report)

Report to inform work to reduce alcohol related harms in pregnancy, and a cohort study into alcohol consumption in pregnancy assessing effect on dose and impact on children.

World Health Organisation: Guidelines for the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy 2014

Released in 2014, these guidelines provide recommendations for the identification and management in health care services of pregnant women who use substances with the goal of better health outcomes for both pregnant women and their fetus or infant.

Appendix 13 – Case study

The following case study was provided by stakeholders and could be used in learning activities.

Potential learning points include:

- Provision of earlier than standard access to antenatal care – identifying and referring women at risk
- Coordination of care and communication
- Provision of breastfeeding support and postnatal review
- Flexibility of services and women-centred care.

Case study

AB, a 27 year old woman, was found to be pregnant when she presented to an Emergency Department with abdominal pain. An ultrasound showed she was five weeks pregnant. The pregnancy was unplanned. The Emergency Department scheduled a follow up appointment at the antenatal clinic at 12 weeks.

AB was using ice, oxycontin and heroin. She was couch-surfing and did not have stable accommodation. At the time of pregnancy diagnosis, AB had just commenced on Suboxone treatment in a public Opioid Substitution Treatment (OST) clinic. Following awareness of pregnancy, she was transferred to buprenorphine mono and assisted to take proactive steps towards getting other drug use under control.

AB was reviewed daily in the public OST clinic. AB had a strong desire to have the best outcome for her baby in pregnancy and beyond. She was linked in with specialist pregnancy service, supported with counselling and admitted to a women's detoxification and rehabilitation service for three months. She engaged well with services and moved to boarding house accommodation when she was 30 weeks pregnant. AB was able to abstain from drug use but found it very difficult to stop smoking tobacco throughout the pregnancy. She was able to limit the amount of tobacco she smoked during pregnancy.

The baby required some intervention for Neonatal Abstinence Syndrome but was otherwise healthy. AB continues in OST treatment and maintains abstinence. She is currently breastfeeding the baby and is being supported to continue this. This support is provided by the public OST clinic, although it is outside their core business, as no other suitable postnatal support services for breastfeeding were found.

AB continues to be seen daily at the OST clinic for ongoing support. Her new partner doesn't use drugs, is supportive and is happy to be involved with caring for the baby. The baby is progressing well and is currently six weeks old. AB continues to smoke and the service continues to provide ongoing support for smoking cessation. She only smokes outside away from her baby.

Appendix 14 – Gaps in the evidence

This project, through literature review and consultation, has identified limitations in the evidence base and in clinical practice for interventions to address alcohol and other drug use in pregnancy. These include:

Prevalence

- In Australia, there is insufficient population-based prevalence data for alcohol and other drug use during pregnancy.
- Minimal data on tobacco use in pregnancy is collected in the National Perinatal Dataset with a dichotomous variable for smoking status.
- There is no national data collection about alcohol use in pregnancy.
- There is no national data collection about cannabis and other illicit drug use in pregnancy.
- There is no national data collection about access to drug and alcohol treatment services by pregnant women.
- This lack of data limits the ability to determine the extent of the problem and address specific levels of harm in relation to patterns of consumption.

Identification

- Although Australian guidelines recommend all pregnant women be asked about their alcohol and other drug use, there is limited evaluation of current practice. The available evidence suggests women are not adequately screened.
- No brief screening tool for drug use in pregnant women has been adequately validated in Australia.
- There is limited information about the extent of drug or alcohol screening of pregnant women in broader settings, such as sexual health and family planning services.

Treatment and support

- There is a need for early referral to antenatal services for pregnant women at risk.
- There is a lack of funded drug and alcohol treatment places, particularly treatment places that appropriately address women's specific needs.
- Specifically, there is a lack of drug and alcohol treatment programs which cater for women with children.
- There is inconsistent coverage of specialist drug and alcohol treatment services for pregnant women with a lack of services in non-metropolitan areas.
- There is a lack of research on effective contraceptive counselling strategies for women who have dependent or risky alcohol or other drug use.
- A lack of information about the effectiveness of screening and brief intervention for pregnant substance-using women in Australia.
- There is limited information about the effectiveness of brief intervention and motivational interviewing in pregnant women that use alcohol and other drugs in Australia.
- There is a lack of research into effective smoking cessation interventions for Indigenous Australian women.
- There is a lack of high-quality research into effective psychosocial treatment options for pregnant women who use alcohol and other drugs.
- There is a lack of high quality research into effective pharmacological treatments for pregnant women who use alcohol.
- There is limited understanding of the effectiveness of referral pathways from primary care into specialist antenatal and drug and alcohol services for pregnant women.

Evaluation

- There is little evaluation research of programs that treat pregnant women who use alcohol or other drugs in Australia.
- There is a lack of evaluation research of public health interventions to reduce alcohol consumption by pregnant women [331]
- There is limited understanding of the extent to which national clinical guidelines for alcohol, tobacco and other drug screening and intervention in pregnancy are implemented by primary health care professionals in Australia.
- There is a lack of information about education and training for primary health care staff and evaluation of the impact of this education.

Policy

- Some challenges at the policy and funding levels include:
- Financial compensation for GPs for assessment and management of complex cases (funding models).
- Limited availability of residential treatment places for women, including places that support women with children.
- Limited availability of specialist antenatal services, particularly in regional and rural areas.
- In areas where there are limited resources, there is a need for provision of information and support by experienced clinicians. Documentation of clinical pathways and appropriate funding models are required to support this.
- The need for more research into effective psychosocial interventions for pregnant women.
- The need for additional funding to support service and professional development for primary health care professionals [60].
- No national data collection about drug and alcohol use in pregnancy apart from tobacco, therefore no ‘prompt’ for health care professionals in routine care.
- The need to develop and evaluate nationally accessible education and training programs linked to Continuing Professional Development points.
- The need to evaluate public health educational campaigns to determine their effect and identify how improvements can be made [60].

Glossary of acronyms

4Ps	**P**arents, **P**artner, **P**ast and **P**regnancy
5As	**A**sk, **A**dvise, **A**ssess, **A**ssist, **A**rrange
ACT	**A**ustralian **C**apital **T**erritory
ASSIST	**A**lcohol, **S**moking and **S**ubstance **I**nvolvement **S**creening **T**est
AUDIT-C	**A**lcohol **U**se **D**isorders **I**dentification **T**est-**C**onsumption
CAGE	**C**ut-down, **A**nnoyed, **G**uilty, **E**ye-opener
CRAFFT	**C**ar, **R**elax, **A**lone, **F**orget, **F**riends, Trouble
DAST-10	**D**rug **A**buse **S**creening **T**est
DSM	**D**iagnostic and **S**tatistical **M**anual of **M**ental **D**isorders
EPDS	**E**dinburgh **P**ostnatal **D**epression **S**cale
FAS	**F**etal **A**lcohol **S**yndrome
FASD	**F**etal **A**lcohol **S**pectrum **D**isorders
FTND	**F**agertstrom **T**est for **N**icotine **D**ependence
IRIS	**I**ndigenous **R**isk **I**mpact **S**creen
LHD	**L**oca**l** **H**ealth **D**istrict
MAST	**M**ichigan **A**lcohol **S**creening **T**est
MDMA	**M**ethylene-**d**ioxy**m**eth**a**mphetamine (ecstasy)
NAS	**N**eonatal **A**bstinence **S**yndrome
NDSHS	**N**ational **D**rug **S**trategy **H**ousehold **S**urvey
NHMRC	**N**ational **H**ealth and **M**edical **R**esearch **C**ouncil
NT	**N**orthern **T**erritory
NRT	**N**icotine **R**eplacement **T**herapy
NSW	**N**ew **S**outh **W**ales
OTP	**O**pioid **T**reatment **P**rogram
OST	**O**pioid **S**ubstitution **T**herapy
PAUI	**P**renatal **A**lcohol **U**se **I**nterview
PRO	**P**renatal **R**isk **O**verview
QDS	**Q**uick **D**rinking **S**creen
QLD	**Q**ueensland
SA	**S**outh **A**ustralia
T-ACE	**T**olerance, **A**nnoyed, **C**ut down, **E**ye-opener
TAS	**T**asmania
TLFB	**T**ime**l**ine **F**ollow-**B**ack
TQDH	**T**en **Q**uestion **D**rinking **H**istory
TWEAK	**T**olerance, **W**orried, **E**ye-opener, **A**mnesia, Cut down (**K**)
UK	**U**nited **K**ingdom
US	**U**nited **S**tates
VIC	**V**ictoria
WA	**W**estern **A**ustralia
WHO	**W**orld **H**ealth **O**rganisation

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