Substance Use in Pregnancy

Background

Substance use in pregnancy is a common and important issue in maternity care. The use of tobacco and alcohol are common, but the use of cannabis, opioid analgesics, heroin, amphetamines and newer “synthetic” drugs are also important. The simultaneous use of several drugs (‘polysubstance use’) is a common phenomenon. Patterns of substance use before pregnancy are important considerations, as such use commonly carries into pregnancy.¹ ² There are also recognised differences between urban, rural, and remote populations in both Australia and New Zealand.³

Substance use is associated not only with adverse pregnancy outcomes, but with a cascade of health, legal, social, and financial problems that adversely affect the welfare of the mother and child. For these reasons, broad psychosocial assessment⁴ is necessary to understand the reasons⁵ for the woman's substance use, helping allow these to be addressed.

Incidence and Costs

The incidence of substance use in pregnancy differs among populations.¹ The economic cost of the increased incidence of preterm birth and small for dates neonates associated with substance use in pregnancy¹⁰ is considerable.

A systematic economic evaluation of drug abuse treatment and HIV prevention programs in pregnant women has been conducted using the criteria recommended by the Panel on Cost-Effectiveness in Health and Medicine and the BMJ checklist for economic evaluations.¹¹

Diagnosis

Substance use may be identified through antenatal screening.⁶ If identified, sensitive counselling and referral to an appropriate multidisciplinary drug and alcohol management program should be undertaken and, if indicated, to a women’s mental health service.⁷ If potentially harmful alcohol use is suspected, the T-ace¹² questionnaire may be used.

Provision for basic needs including a place to sleep, food, and security are prerequisites to further progress. Education, empathy, counselling and ongoing support that is respectful and culturally sensitive should be offered. Although the pregnant woman may initially be engaged in antisocial activity to finance her substance use, it is important not to be judgmental but to focus on her welfare and that of the child.

If substance use has not previously been identified, screening should be considered in certain clinical settings: unexplained late presentation for antenatal care; previous children deemed to be at social risk; and, with first detection of hepatitis B, hepatitis C, or HIV in pregnancy.
Barriers to care

Pregnant women with substance use disorders may be deterred by shame and fear of the judgemental remarks of others, or by a lack of access to services that are acceptable. The cost of transport, car parking, child care and the cost of medicines and dietary supplements can be prohibitive. Inappropriate environments such as an emergency department or an inpatient ward lacking privacy inhibit the disclosure of sexual abuse in childhood or domestic violence (common antecedents to the development of substance abuse) as these are usually only discussed in a supportive environment where no family or other persons are present.

Co-existing mental health disorders

Anxiety and depression, bipolar disorder, schizophrenia or personality disorders may contribute to substance use in pregnancy, or may be the effect of substance use in pregnancy. If a mental health disorder is suspected, referral to a mental health service, liaison psychiatrist, or community mental health service should be undertaken. Consent must be obtained before contacting other care providers.

Safety

Threatened or actual violence to other persons in the health care facility is managed by zero tolerance and involvement of Security Services or Police. A Treatment Contract may be helpful. Exclusion from the health care facility may rarely be required as a temporary measure.

Management

The following specialised modules of care may be undertaken as appropriate or concurrently:

1. Treatment of withdrawal, including pharmacotherapy if appropriate.
2. Provision of information about substance use, and encouragement to participate in decisions about care.
3. Involvement of the partner, family, the extended family and community according to the woman’s preference and available supports.
4. Medical, mental health, psychosocial, pregnancy, and drug and alcohol management, and care of co-morbidities.
5. Pre-birth child protection notification to be made if appropriate.
6. Links to community or Indigenous health, mental health, drug and alcohol support services, midwifery and or neonatal nursing services, outreach services, general practitioner or Flying Doctor services should be established and maintained.
7. Pre- birth liaison with paediatric colleagues to provide early counselling for parents of possible outcomes for baby
8. Management of Neonatal Abstinence Syndrome is provided if this occurs.
9. Information, counselling and support are provided to minimise the incidence of relapse.
10. Appropriate follow-up arrangements are made for both mother and baby.

Neonatal Abstinence Syndrome

Monitoring of the neonate is recommended, with neonatal abstinence syndrome scoring according to the appropriate guidelines. The neonate of a woman with substance use disorder may develop signs of withdrawal, usually within the first week of life. Opioids, alcohol, cannabis, benzodiazepines, amphetamines and antidepressants are most commonly implicated. The effect on the neonate depends on the substance used, the amount, duration, maternal renal and hepatic function and whether full-term or preterm. The occurrence of neonatal abstinence syndrome is not related to the dose of methadone.
SUBSTANCE USE IN PREGNANCY

The available evidence supports not ingesting or using any of the following substances in pregnancy or while breastfeeding.

Alcohol

Use of alcohol in pregnancy is common.9 Less than 1% of women report alcohol use in pregnancy to maternity care givers, but population surveys show that one third drink some alcohol during pregnancy, commonly in the setting of unplanned pregnancy17,18 and two thirds drink some alcohol during lactation.1 The extent of the fetal effect is related to the gestational age of the pregnancy when exposure occurs, and the amount of alcohol consumed.

Fetal Alcohol Spectrum Disorders and Fetal Alcohol Syndrome are characterised by varying degrees of neurodevelopmental and intellectual impairment and facial dysmorphic changes.20 Systematic review of the evidence for low to moderate alcohol intake21 shows that fetal damage is dose-related. Dependence can be assessed with an alcohol withdrawal scale.22 With heavy alcohol use, thiamine 100mg daily (preferably by intramuscular or intravenous injection) should be prescribed.23

If a woman accepts the advice to cease drinking alcohol, inpatient treatment with diazepam substitution and withdrawal, or outpatient support may be arranged according to circumstances. Follow-up care and ongoing support are required.24

Tobacco

Fetal risks of smoking include an increased incidence of small for dates neonates, preterm births and of Sudden Infant Death Syndrome (SIDS).25 Maternal risks include preterm rupture of membranes and placental abruption.25 Regardless of pregnancy status, smoking increases the risk of cervical, lung, pancreatic, kidney and bladder cancer and increases the incidence of cardiovascular disease and pulmonary disease.26 Passive smoking causes an increased incidence of SIDS, asthma, bronchitis, and ear infections.25

Nondisclosure of smoking in pregnancy is widespread. Disclosure is improved by asking "do you smoke the same as before you were pregnant?", "do you smoke less since you found out you were pregnant?", or "do you smoke occasionally?" compared to "do you smoke?".27 Counselling, nicotine patches,28 and telephone support services have been shown to be effective in reducing the incidence of smoking.25

Cannabis

There are no national population-based studies and few evidence-based studies on the effects or the management29 of cannabis use30 in pregnancy or lactation. Moderate to heavy cannabis users (1 gram or more per day) may show deficits in self-care, in the ability to drive a motor vehicle, in the quality of parenting, in family relationships and in the abilities to continue study or maintain employment.

There is evidence of higher rates of cannabis use in more remote communities, causing financial hardship and an increased rate of mental health disorders including psychosis, depression and suicide.31

Cannabis users are more likely to use other substances during pregnancy and lactation. There is evidence of neurodevelopmental deficit or delay in the neonates and children of cannabis users in pregnancy and lactation, including cognitive deficit, visuospatial dysfunction, impulsivity, inattention and depression in children of women who have used cannabis in pregnancy or lactation.32
**Opioids**

A small number of pregnant women use heroin, usually with other substances. Use in conjunction with benzodiazepines, alcohol, analgesics, or antihistamines may cause respiratory depression and death. Oxytocin use occurs more frequently than heroin use in some areas. Substance dependency due to the use of opioid analgesics may occur. Opioid use in pregnancy affects the capacities for self-care and for safe parenting.

Counselling about intravenous substance use should include discussion of the hazards of transmission of viruses such as Hepatitis C, Human Immunodeficiency Virus, Hepatitis B and the possible occurrence of septicemia endocarditis and local infection. Iso-immunisation affecting the Rhesus and atypical red cell antigens can occur but is uncommon in practice.

Dependent opioid users are managed with psychosocial support, pharmacotherapy with methadone or buprenorphine (including appropriate dose escalation in pregnancy as needed), management of comorbidities and management of neonatal abstinence syndrome if this occurs.

**Benzodiazepines**

Benzodiazepines may be used in pregnancy to manage anxiety until other medicines take effect. They are not appropriate for long-term use because dependence occurs readily. Unprescribed use to manage hyperactivity associated with the use of stimulants occurs and may lead to dependence. There are no confirmed teratogenic effects, however benzodiazepines may cause respiratory depression and death if combined with alcohol or opioids.

Tolerance to benzodiazepines occurs and dependent users may require high doses until the problem is addressed. Benzodiazepine withdrawal syndrome mimics anxiety and panic attacks, and may lead to seizures.

Short-acting benzodiazepines more readily lead to dependency but have less direct effect on the neonate in breastfeeding mothers. Initial use may occur in opioid users when the opioid supply does not meet the woman's needs or when methadone doses are sub-therapeutic.

Long-acting benzodiazepines are more readily discontinued but may cause neonatal hypotonia.

**Methamphetamine/ Ice**

The incidence of methamphetamine use in pregnancy is likely to be increasing. This may have both maternal and neonatal consequences. Methamphetamine use in pregnancy may increase the incidence of preterm birth. Its use increases mental and physical activity produces tachycardia, arrhythmia and elevated body temperature. Long-term use may lead to mental health disorders including anxiety and depression, confusion, a tendency to violence and insomnia. The consequences of intravenous substance use described above apply. The neonate or child of methamphetamine users in pregnancy may show neurobehavioral disorders.

**Cocaine, Gamma-hydroxybutyrate, Volatiles and others**

These substances are used less frequently by pregnant women than alcohol, tobacco, opioids, benzodiazepines and methamphetamine. Cocaine use in pregnancy may lead to placental abruption and fetal or neonatal cerebro-vascular events. Appropriate consultation or referral is recommended.
Conclusion

Substance use disorders have implications for pregnancy care, neonatal care, education, employment, social justice, relationships, physical and mental health, legislation and policing. Research may be hampered by poor reporting, possible observer bias and by polysubstance use, leading to poor quality data.

Similar ethical constraints occur to those constraints which apply to the study of medicines in pregnancy and lactation and to the study of nutrition.

Despite these limitations, much can be done to improve women’s health, mental health and pregnancy outcomes and to address the root cause of their substance use.

Glossary

Defined Vocabulary such as ICD-10 and HL 7 software allows integration of data between general maternity services, and specialised maternity services that provide care to women with substance use in pregnancy, and to neonatal and paediatric services, to facilitate outcome comparisons and longitudinal research studies.

Substance (or Drug) is a term which includes ethanol (alcohol), tobacco and any psychoactive substance, prescribed medicines (usually opioid analgesics, or benzodiazepines) and medicines prescribed for others which have been appropriated.

An ICD-10 ‘Harmful Use’ diagnosis requires a pattern of substance use that is causing damage to health. The damage may be physical (e.g. hepatitis from self-administration of injected substances) or mental (e.g. depression secondary to heavy consumption of alcohol).

An ICD 10 Dependence diagnosis requires the presence of three or more indicators of alcohol or other substance dependence. These indicators are: a strong desire to take the substance; impaired control over substance use; the occurrence of a withdrawal syndrome on ceasing or reducing use; tolerance to the syndrome on ceasing or reducing use; tolerance to the effects of alcohol or other substances, as indicated by needing larger doses to achieve the desired psychological effect; obtaining, using and recovering from alcohol or other substances take up a disproportionate amount of the user's time; and the user continues to drink alcohol or to take other substances despite associated problems. The problem should have been experienced for at least one month during the previous year to qualify for a diagnosis.

‘Withdrawal’ means any physical or mental symptoms which are precipitated by ceasing substance use, possibly due to inability to obtain further supplies of the substance of dependence.

Further reading

The NHMRC Australian Guidelines to Reduce Health Risks from Drinking Alcohol

Definition of NHMRC grades of recommendations

<table>
<thead>
<tr>
<th>Grade of recommendation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Body of evidence can be trusted to guide practice</td>
</tr>
<tr>
<td>B</td>
<td>Body of evidence can be trusted to guide practice in most situations</td>
</tr>
<tr>
<td>C</td>
<td>Body of evidence provides some support for recommendation(s) but care should be taken in its application</td>
</tr>
<tr>
<td>D</td>
<td>Body of evidence is weak and recommendation must be applied with caution</td>
</tr>
</tbody>
</table>
References


7. HEALTH Insite. A healthdirect Australia health information service. Mental Health of Women. (Level of evidence: C)

8. International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) Version for 2010. Chapter V Mental and behavioural disorders (F00-F99). Available at:


15. HEALTH Insite. A healthdirect Australia health information service. Mental Health of Women. (Level of evidence: C)


   (Level of evidence: C)

   (Level of evidence: B)

   (Level of evidence: C)


   (Level of evidence: C)

   (Level of evidence: C)

   (Level of evidence: B)

   (Level of evidence: B)

   (Level of evidence: C)

   (Level of evidence: B)

   (Level of evidence: C)

38. Use and abuse: Understanding the intersections of child abuse, drug use and mental health. Adults Surviving Child Abuse and the Centre for Gender Related Violence Studies 2010. Breckenridge J, Salter M and Shaw E. University of New South Wales, Sydney. Available at:

39. NHMRC additional levels of evidence and grades for recommendations for developers of guidelines. Table 2. Available at: https://www.nhmrc.gov.au/_files_nhmrc/file/guidelines/developers/nhmrc_levels_grades_evidence_120423.pdf
Full Disclaimer

This information is intended to provide general advice to practitioners, and should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient.

This information has been prepared having regard to general circumstances. It is the responsibility of each practitioner to have regard to the particular circumstances of each case. Clinical management should be responsive to the needs of the individual patient and the particular circumstances of each case.

This information has been prepared having regard to the information available at the time of its preparation, and each practitioner should have regard to relevant information, research or material which may have been published or become available subsequently.