# Amphetamine use in pregnancy

## Perinatal approaches to improve maternal and neonatal outcomes

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# Amphetamine Use in Pregnancy: Contemporary Approaches to Perinatal Care Improving Child and Maternal Outcomes


## Abstract

As the rates of amphetamine use continue to rise, so do the significant social and health implications associated with substance abuse in communities. This presents unique challenges for women, newborns and providers of perinatal care. This article aims to explore amphetamine use among women of childbearing age, and the subsequent effects on the woman and fetus/newborn. The complexity of these cases require a collaborative, woman-centred and multidisciplinary approach; in addition to specialised interventions and adjustments regarding routine antenatal, intrapartum and postnatal plans of care.


## Amphetamines: a complex social and health issue

Amphetamines are highly addictive, relatively low in cost and are easily procured (Pedersen, Sandberg, & Copes, 2015). Amphetamines and the issues associated with their use have overtaken other classes of illicit drugs since the 1990's with the majority of female users being of childbearing age (McDonnell-Dowling & Kelly, 2015). The United Kingdom, Australia and the United States of America currently have recorded high rates of amphetamine use (Barratt, Ferris, & Winstock, 2014), many users being females of childbearing age. Degenhardt et al. (2016) provides estimations that between 2013-2014 there were 268,000 regular users of amphetamines in Australia aged between 15-54 years of age, and 160,000 had a high dependency on

amphetamines. The sharp increase of the prevalence of amphetamine use globally will require particular consideration in the planning and allocation of future health care resources. This includes maternity services as the majority of women who use amphetamines are of childbearing age and subsequently pregnancies associated with amphetamine use are considered to be complex and pose an increased risk of complications occurring which may have significant health implications for both the woman and fetus/newborn (Gorman, Orme, Nguyen, Kent, & Caughey, 2014). It is important to note that women using amphetamines often already have sub optimal health associated with substance abuse, including periodontal issues, poor nutrition and mental health issues (Baghaie, Kisely, Forbes, Sawyer, & Siskind, 2017), and are often members of marginalised groups with complex psychosocial issues and history of reduced rates of health care access and attendance even prior to conception (Whiteford et al., 2013).

Amphetamines act as a psycho-stimulant which affects the central nervous system and depending on its form has the potential to cross the blood-brain barrier and also the placenta. Individuals under the acute or chronic influence of amphetamines may present with altered mood, agitation, hyper-arousal, skin lesions, hypertension, tachycardia, insomnia and appetite suppression resulting in weight loss (Diaz et al., 2014).

The impact of amphetamines on perinatal and neonatal outcomes are difficult to predict and are heavily influenced by the amount used, frequency of exposure and variations in composition of the drug consumed by each woman in addition to exposure to other substances, and other existing medical conditions (McDonnell-Dowling & Kelly, 2015). Documented maternal risks associated with amphetamine use during pregnancy include increased risk of placental abruption; premature rupture of membranes, preterm birth, hypertension in pregnancy including pre-eclampsia, cerebrovascular accident, anaemia, maternal and subsequent fetal tachycardia (Gorman et al., 2014). Perinatal amphetamine use is also associated with placental pathology, and often results in larger sized placentas, but this increase in size does not translate to functional benefits (Carter et al., 2016).

Potential effects of amphetamine exposure on the fetus during pregnancy includes intrauterine growth restriction (IUGR) due to placental insufficiency; fetal congenital abnormalities including cleft lip and/or palate, cardiac anomalies, limb malformation, smaller head circumference, and fetal death in utero (Behnke, Smith, & Abuse, 2013; Viteri et al., 2015). For neonates there is an increased rate of admission to special care nursery due to neonatal compromise resulting from obstetric emergency/traumatic birth or prematurity; low birth weight, and failure to thrive (Diaz et al., 2014). Neonates may also experience poor feeding, sleep disturbances and delays in meeting developmental milestones (Breen, Awbery, & Burns, 2014).

While there is a limited body of knowledge which explores the impacts of perinatal exposure to amphetamines on children beyond early childhood, a study conducted by

Diaz et al. (2014) found that children who had exposure to amphetamines in utero had increased rates of cognitive and behavioral issues compared to their peers at 7.5 years of age. Other research findings report that perinatally exposed children had altered brain morphology, and were consistently below average weight and height at birth, four years of age and eight years of age (Abar et al., 2014).

**Addressing psychosocial barriers to care**

Globally, 80% of individuals who access treatment for substance abuse have a history of trauma, and often have experienced multiple traumas in their lifetime (Mills, 2015). Subsequently for many women, their substance use is related to these past violent and past traumatic experiences (Wingo, Ressler, & Bradley, 2014). Many women with these backgrounds, accessing health care services is a source of anxiety and stress. Some women find the nature of questioning during assessments, or intimate procedures associated with perinatal care, a threat to their physical or emotional safety, and this has the potential to trigger negative associations or even compound or cause women to re-live previous traumas (Kezelman, 2016). Complications surrounding birth, or the impact of amphetamine exposure on the neonate requiring an admission to the special care unit, may also be additional sources of new trauma for the woman (Marcellus, 2014).

Women with substance abuse issues often face a barrage of critical social judgements and stereotyping, such as being morally corrupt or deviants of the social expectations which have been historically placed on women (Pajulo, Pajulo, Jussila, & Ekholm, 2016). The experience of actual or perceived stigma and judgement when accessing health

services in these women's past, present another deterrent to accessing the health system.

Fear surrounding potential for legal consequences, or children being apprehended by authorities, equates to another reason for poor attendance or late presentation to services in pregnancy (Linden, Torchalla, & Krausz, 2013). Evidence suggests that services which provide care that is non-judgemental and sensitive to individual women's psychosocial contexts result in increased attendance of antenatal care, increased ability for surveillance of maternal and fetal health status, which has a direct correlation with achieving positive health outcomes (Breen et al., 2014).

**Maternal and fetal/neonatal considerations when planning care**

During the antenatal period, in addition to the routine scheduled antenatal appointments, women using amphetamines should be encouraged to attend a booking visit as early as possible in pregnancy, and additional midwifery/obstetric appointments, in order to assess both positive and negative changes to maternal and fetal health status (Geraghty, 2015). This may involve increased surveillance via serial ultrasound scans to monitor fetal growth and wellbeing, and referring to other health professionals (e.g. dietetics, paediatrician, etc.) where required (Rausgaard, Ibsen, Jørgensen, Lamont, & Ravn, 2015).

The rationale for this level of surveillance is to identify complications or situations which risk of maternal or fetal compromise would indicate medical intervention, for example birthing the baby in the case of severe IUGR or event of placental malfunction. Serial ultrasounds may also have a positive effect on amphetamine-using pregnant

women by promoting maternal attachment, and motivating lifestyle changes to improve their health for the benefit of the developing fetus (Pajulo et al., 2016). Due to the increased risk of IUGR and abruption due to placental insufficiency related to amphetamine use (McLaurin & Geraghty, 2013), birth plans are usually discussed and scheduled with the woman, including induction of labour usually at or prior to 39 weeks gestation to avoid pregnancies continuing post-dates (Taylor et al., 2012).

Formal observations for withdrawal should be initiated both intrapartum and postnatally. In addition to routine care during the postnatal period, an increased length of stay is often recommended and allows for follow up from all modalities involved with her care prior to discharge (Gopman, 2014). Advice regarding contraceptives and avoiding unintended pregnancies in the immediate period following birth should be provided and discussed with the woman, and this opportunity for application/provision of contraceptive methods should be utilised with consent from the woman prior to discharge (Olsen, Banwell, & Madden, 2014).

Education regarding strategies surrounding safety for women and neonates should be reinforced, including safe sleeping, breastfeeding, and utilising support networks/persons who can care for her newborn if she decides to use amphetamines, or any other substances, once discharged from hospital (Gopman, 2014).

During the postnatal period neonates who have had perinatal exposure to amphetamines should be reviewed by a paediatrician prior to discharge from hospital. In cases of congenital abnormalities diagnosed prior to birth, paediatric consultation should have been initiated during the antenatal period, but additional follow up

consultation with the parents should also occur postnatally regarding relevant plans of care, for example future surgeries and subsequent check-ups (Taylor et al., 2012). Due to the short acting nature of amphetamines, neonates do not typically suffer from withdrawal, but withdrawal can occur as a result of fetal toxicity occurring during the third trimester (Breen et al., 2014). Observations for Neonatal Abstinence Syndrome (NAS) should also be attended to ensure neonates are not withdrawing from any additional or previously undisclosed substances. Neonates are at risk of continued exposure in the postnatal period as amphetamines are transferred to breast milk (Chomchai, Chomchai, & Kitsommart, 2016).

**Midwifery role**

The midwife's role, when caring for amphetamine using women, is to assist in facilitating strategies and assessing effectiveness of interventions in relation to the goal of care which is harm minimisation for the woman and fetus/neonate (Geraghty, 2015; Wright, Schuetter, Fombonne, Stephenson, & Haning, 2012). Midwives in these clinical practice settings also work closely alongside and collaborate with other members of the multidisciplinary team. Collaboration with the woman is essential in implementing an agreed plan of care, which facilitates the woman to be an informed and active participant in the care she receives, and promotes her capacity to make decisions which contribute to positive outcomes for both her and her baby, and wider family (Ebert, Bellchambers, Ferguson, & Browne, 2014). Midwives should be non-judgemental in their interactions with women, but also need to clearly communicate to the woman the impact of her amphetamine use on her pregnancy and fetal well-

being, and also discuss the potential complications which may be precipitated by amphetamine use.

Education is an essential element of midwifery care, particularly for women continuing to use substances while pregnant and postnatally. The midwife educates women on signs and symptoms of obstetric complications which require her to seek immediate advice and/or assessment for (McLaurin & Geraghty, 2013). They also assist women in formulating plans to have sober support persons who can supervise the woman's well-being during pregnancy, and also assume care of the baby once born, when she uses amphetamines and can be relied upon to seek urgent medical attention e.g. call an ambulance, in the event of an emergency (McLaurin & Geraghty, 2013).

Midwives are also involved with promoting women's confidence and capacity for parenting and skills required to care for a newborn through parent education (Wright et al., 2012). Advice regarding amphetamines and newborn feeding is also part of the midwifery role. If the woman is planning to breastfeed, she should be advised that she should not breastfeed within 24 hours of using amphetamines, and should continue to express breast milk and discard it during this time frame (Marinelli et al., 2016). In addition to this an alternative form of feeding should be provided such as surplus pre-expressed breast milk or formula. Education surrounding safe sleeping is also essential in regards to newborns being discharged to homes with caregivers who may be under the influence of substances (Cohen, Morley, & Coombs, 2015).

## Conclusion

Amphetamine use in pregnancy is a complex care issue and continues to be a social and public health concern. The priority of planning care is harm minimisation and implementing strategies which reduce risks including acute and long term adverse effects on the woman and newborn. Complications of amphetamines associated with exposure during pregnancy are significant, but difficult to predict, for both the woman and fetus/neonate. Perinatal care and outcomes are further enhanced by plans of care that are holistic, woman-centred, and involve health care services and practitioners who are experienced and well versed in the complexity of the nature of both women's psychosocial and medical/obstetric presentations in relation to substance use. Best practice promotes collaboration between the woman and the members of the multidisciplinary team in the formulation of individualised plans of care. Midwives have an important role and contribution to this team approach to care through the provision of routine aspects of care, assessing and evaluating care provided, supporting and facilitating behavioural change, and education. In regards to best practice management for women of childbearing age who use amphetamines, further review and research with strong design needs to be conducted to address existing gaps in research and to validate the quality of evidence it contributes.

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