

Social Drugs and Breastfeeding: Handling an issue that isn't black and white

Denise Fisher

Use of social drugs by a minority of pregnant and breastfeeding mothers is a fact of life. Extensive research has validated that breastfeeding is the only way to feed an infant for that infant to be able to achieve optimum growth, health and mental development. Drug-using mothers need to know this. They also need to know how their drug habit will impact on their baby and their lactation and how artificial formula will affect them and their baby. Informed decision-making, which achieves the best outcome for both baby and mother, is the goal.

Unfortunately these drugs are all drugs of addiction to varying degrees, so the 'easy' solution of "just give it up" isn't as easy as we'd like it to be – and may not be an option at all for some mothers. It's not a black and white issue – a 'one answer fits all' solution.

There's a significant risk:benefit judgment call to be made in every case. To be able to assist a mother and her other health care advisers to make an appropriate decision many factors should be considered together.

Careful and caring counselling is required of the health professional who is assisting a mother to make decisions that will impact on the present and future health of her baby. An understanding of the many social factors which influence her, the very latest information about specific drug transfer into breastmilk and its effect on the infant AND the effect on her infant of not being breastfed in each circumstance all need to be balanced in your counselling.

It is also significant to determine what other drugs (prescription or otherwise) the mother may be taking, as these could cause interactions potentiating the effect of one or the other. The stage of the lactation, the age of the baby, the condition of the baby (particularly if preterm or ill) and the number of breastfeeds or amount of breastmilk the infant receives are all factors which will influence your discussions and recommendations.

There are few recent figures available that reflect the incidence of illicit drug use during lactation but it is generally thought to be low. Polysubstance abuse (nicotine, caffeine and alcohol; or a mixture of licit and illicit drugs) causes cumulative and sometimes enhanced risk factors for the infant. Most women who continue their drug use during pregnancy are unlikely to stop it during lactation. However, don't underestimate what mothers will do for the benefit of their children.

NICOTINE

Social factors:

There are many reasons why a woman may be a smoker – some of these reasons are common with why a woman would choose to bottle feed her infant (or wean very early). Power relations, the construction of her social identity, social control and poverty are all closely related to why women smoke. Some of these factors are also involved with why a woman chooses to bottle feed – lack of body confidence, poverty and social identity.

According to the National Household Survey of 1998, 23.73% of women in the childbearing years (14 – 39) are regular smokers with nearly one-third of them smoking between 11 and 20 cigarettes per day. A further 7% are occasional smokers. Women do reduce or stop smoking during pregnancy with a smaller percentage returning to their habit after the birth of the baby. Bottle-feeding the baby has been found to be more closely related to a woman taking up smoking again.

Nicotine has also been reported to be one of the most addictive drugs.

Transfer of nicotine to the infant:

Transfer into breastmilk:

Nicotine is rapidly and completely absorbed from the respiratory tract into the mother's bloodstream. The transfer into breastmilk is by simple diffusion and the maternal serum and breastmilk levels of nicotine are closely related.

Nicotine has a half-life of about 97 minutes.

Absorption by the infant:

Nicotine is absorbed a little more slowly and less efficiently from the breastmilk. The infant also absorbs nicotine (along with tar and carbon monoxide and another 2000 or so by-products of cigarette smoke) readily from the air – passive smoking.

The levels in the baby's bloodstream are greater from passive smoking than from ingesting nicotine only via breastmilk, but the effects are cumulative.

Effect of cigarette smoking on lactation:

Women who smoke tend to breastfeed for a reduced length of time compared to other women in their socio-economic group who don't smoke. They also appear to have a reduced volume of breastmilk. This may be due to lowered prolactin levels, though the effect persists even after lactogenesis comes under autocrine control.

Effect of cigarette smoking on the infant:

Nicotine is a known appetite suppressant that also flavours the milk. Babies often show fussiness at the breast and sometimes breast refusal if the mother has just recently had a cigarette.

Other symptoms, which can be attributed to nicotine ingestion, include vomiting, diarrhoea, restlessness and an increased heart rate. There is an increase in colic in infants of mothers who smoke 5 or more cigarettes per day.

Babies who are bottle-fed in a household where smoking occurs are more frequently hospitalised and have a higher incidence of respiratory and gastro-intestinal illness. Colic is much more common in this group too. Infants exposed to slip stream smoke also have a higher incidence of middle ear infections and compromised lung function and development. However, probably the most significant effect of cigarette smoking in the household is the greatly increased risk of Sudden Infant Death Syndrome.

Breastfeeding will help to protect the infant against all of these increased risk factors.

Babies of mothers who smoke have an average birth-weight of 200g less than those whose mothers don't smoke. Weight gain in the first few months is also reported to be less – though by 12 months no differences are evident. Gross motor development and mental development don't appear to be affected by maternal smoking during lactation.

Counselling the breastfeeding mother who smokes

The American Association of Pediatrics (AAP) has classified nicotine as a drug contraindicated during lactation. The black and white argument: you're a smoker therefore you mustn't breastfeed! But is this really what is best for the infant?

“Clearly, it is not ideal to smoke and breastfeed. But it is worse to smoke and not to breastfeed.” (Minchin, 1991, p187)

Quitting would be the ultimate recommendation but, short of that, discussion should focus around reducing the infant's exposure to nicotine while ensuring the mother still appreciates the value of continuing to breastfeed her infant.

Strategies could include:

- reducing the number of cigarettes she smokes and perhaps changing to low nicotine brands
- smoke AFTER breastfeeding and use other settling techniques for the infant for the hour and a half it will take until nicotine has reached it's first half-life
- don't allow smoking in enclosed areas where the baby may be eg. inside the house or inside the car
- don't take baby into smoky environments and don't allow people to smoke around the baby
- cover hair with a scarf and clothing with a big old shirt while smoking – remove and leave outside after smoking. Wash hands and face after smoking.
- observe baby for nicotine-related symptoms and further reduce exposure if possible.

ALCOHOL

Social factors:

37% of women between 14 and 39 years of age drink alcohol regularly (at least one standard drink per week). Relatives, friends and health professionals for many years have recommended that the breastfeeding mother have a glass of alcohol to relax of an evening, purporting it to increase milk supply and perhaps even breastmilk quality. This is quite erroneous.

Transfer of alcohol to the infant:

Alcohol readily crosses into breastmilk by simple diffusion, achieving levels approximately equal to that in the maternal blood stream.

Alcohol flavours the breastmilk and changes the smell of breastmilk.

Effect of alcohol on lactation:

Oxytocin release, necessary for the milk-ejection reflex to function is inhibited, or at least partially inhibited, after 2 standard drinks of alcohol.

Milk volume is reduced by about 23% after one standard drink of alcohol.

Caloric value of breastmilk is unchanged after ingestion of alcohol.

Effect of alcohol on the infant:

Due to liver immaturity, infants detoxify alcohol at about half the rate of adults until they are at least 3 months old. Alcohol exposure to a younger baby can be far more detrimental than to an older infant.

1 standard drink per day has been associated with a decrease in psychomotor development.

Binge drinking (5 standard drinks) weekly has the same effect.

1 standard drink results in the infant suckling more but getting less milk and becoming mildly sedated.

Effect of alcohol on the mother

More than 2 standard drinks at a time can impair the mother's judgement and functioning. Regular alcohol consumption is often associated with depression and fatigue. The diet of a woman who drinks regularly may be deficient in nutrients.

Counselling the mother who consumes alcohol

Discussion should include:

- minimising alcohol exposure to the infant for at least the first 3 months of life
- choosing low alcohol drinks
- eating before and while drinking
- avoiding breastfeeding for 2 to 3 hours after drinking
- storing alcohol-free breastmilk for use after moderate or heavy drinking

CAFFEINE

Social Issues

Caffeine is one of the most popular drugs in the world. It is present in coffee, tea, cola-based drinks, some foods and medications. Many mothers use a cup of hot coffee to relax and aid milk ejection. Coffee varies considerably in the amount of caffeine present depending on the size of the cup and the method of preparation (eg Turkish 'mud' compared to soluble instant coffee).

Transfer of caffeine to the infant

Transfer into breastmilk varies from person to person depending on their ability to absorb and eliminate the drug. Generally, peak levels of caffeine are found in breastmilk 60 minutes after ingestion.

Less than 1% of the maternal dose is transferred to the infant.

A maternal dose of one or two cups of coffee (60 – 180 mg caffeine) is clinically insignificant for the infant.

Newborn babies may take up to 80 hours to metabolise caffeine. Because of this long excretion time in the very young baby, caffeine may accumulate in significant amounts. By 6 months of age they are able to metabolise caffeine in 2.6 hours.

Effect of caffeine on milk composition:

3 cups of coffee or more per day is associated with a reduction in iron content of breastmilk of up to one third of that of women who don't consume caffeinated beverages. Over a prolonged period of time this could result in iron deficiency anaemia in the infant.

Effect of caffeine on infant:

Consumption of more than 300mg caffeine (about 3 cups brewed or filtered coffee) per day has been associated with jitteriness and irritability in the baby and also poor sleeping patterns.

Maternal cigarette smoking accentuates the effects of caffeine in the breastfed infant.

Counselling the mother who consumes caffeine:

Advising the mother of the effects of caffeine on her infant will give her the opportunity to consider reducing her caffeine intake by choosing decaffeinated alternatives. Occasional caffeinated beverages and foods have minimal clinical effect on the infant.

MARIJUANA/CANNABIS

Social issues:

26.6% of Australian women between the ages of 14 and 39 used marijuana in the year prior to the Household Study. Usage during pregnancy in America is between 3 and 16% of women. In comparison with alcohol and nicotine usage, marijuana is the drug least likely to be reduced during pregnancy.

Transfer of marijuana to the infant

via breastmilk:

The active component (THC) is fat-soluble and accumulates in the breastmilk of chronic heavy users. Higher levels are found in breastmilk than in maternal serum, though even in heavy users this is insufficient to produce significant side effects in the infant.

via passive smoking:

As with nicotine the baby will absorb significant amounts of the drug if he is in an environment where smoking of marijuana is occurring.

Effect of marijuana on lactation

Some studies have found marijuana reduces basal prolactin levels therefore reducing milk supply.

Effect of marijuana on the infant

This remains quite controversial. Animal studies have shown that structural changes occur in the brains of newborn animals exposed to marijuana through their mother's milk. In the human baby the first 12 months to 2 years is a time of rapid growth and development of the brain and central nervous system – and insult at this time could have far-reaching effects.

Short-term effects appear to be confined to sedation, weakness and poor feeding patterns.

Effect of marijuana on the mother

Marijuana causes reality distortion and maternal judgement may be impaired. Secondary behavioural changes may interfere with a mother's ability to care for her infant or to breastfeed adequately.

After the marijuana 'high' the mother may sleep very deeply and be unresponsive to her baby's needs.

Counselling the mother who uses marijuana

The AAP has listed marijuana as a drug contraindicated during lactation. Heavy users of this drug are advised to either reduce their use or not to breastfeed their infant.

Advice similar to that given regarding cigarette smoking will reduce the exposure of the infant to slip stream smoke. For a mother who only occasionally uses marijuana she could prepare to have unaffected milk available for her infant and would be advised to have a carer who is not drug-affected to assist her with the infant during this time.

This is a difficult situation to counsel in as there is so little evidence of long-term detrimental effects of marijuana use on the infant, but there is considerable evidence of long-term detrimental effects of artificial baby milks on infants.

If you do advise formula feeding, can adequate hygiene be maintained? Is the mother sufficiently responsible to mix the formula in the appropriate strength? When she's 'stoned' can she be trusted to prepare formula and feed her baby? Can she afford to buy formula, or will she swap to unsuitable substitutes too early? Being fed a breastmilk substitute, her infant will suffer more ill health – will she seek adequate and timely treatment?

Are any, or all, of these factors more detrimental to the infant than continuing to be breastfed nutritionally superior milk, which has doubtful contamination?

HEROIN

Social Issues:

Approximately 1% of women between the ages of 14 and 39 used heroin in the 12 months before the National Household Survey. Of this number, 87% are probably infrequent users ie. may have only used it once in that 12 months. Heroin is seen as a highly addictive drug, however the usage surveys don't support this for most people who have used it. Regular users of heroin tend to be unemployed, though, surprisingly are more likely to have trade or tertiary qualifications. Lifestyle issues are very important to consider when counselling this woman.

Transfer of heroin to the infant:

Heroin passes into breastmilk.

It has a poor oral bioavailability from the milk – ie it is not absorbed well by the infant

Effect of heroin on the infant:

If the mother has been a regular user during pregnancy her baby will be growth retarded. The infant will experience withdrawal symptoms dependent on the mother's dosage and length of addiction. Sedation, respiratory depression, vomiting and irritability can occur from exposure via the breastmilk.

Effect of heroin on the mother:

She will be incapable of caring appropriately for her baby while affected with this drug.

Counselling the mother who uses heroin

Heroin use is considered by the AAP as a contraindication to breastfeeding.

If the mother is an occasional user she may be able to have her baby cared for by a responsible adult at those times. If she is a regular user her ability to care for the child at all is probably doubtful.

With occasional use and continuing to breastfeed the mother should be made aware of the risk of contracting hepatitis B, C or HIV. When the mother is in an acute stage of illness (such as when she first acquires the disease) Hep C and HIV can be readily passed on to her infant via breastmilk. This may also be a concern if her sexual partner is a substance abuser, putting her at risk.

METHADONE

Social issues:

Methadone is a long-acting opiate used in detoxification and treatment of opiate addicts (primarily heroin).

Transfer of methadone to the infant:

Methadone peaks in the maternal serum ½ to 1 hour after oral ingestion and has a very long half-life (13-55 hours). It transfers readily into breastmilk with concentrations approaching serum levels. Its oral bioavailability is about 50%. Despite AAP recommendations that women taking >20 mg per day not breastfeed, many studies have found the levels in breastmilk to be so low as to not have a deleterious effect on the infant at maternal doses much greater than that. The authors of these studies all recommend a 'no dose limit' policy for breastfeeding mothers.

Effect of methadone on the infant:

Methadone exposure via the breastmilk assists the baby to withdraw from the drug following intra-uterine exposure. Many breastfed babies will require no treatment, whereas bottle fed infants may suffer withdrawal symptoms worse than when withdrawing from heroin.

In a large study conducted at the Bi-Valley Medical Clinic in California, patients on methadone doses of 25-180 mg/day breastfed their infants. There were no adverse events associated with nursing or weaning in this population (duration of nursing was 3-24 months). (Poinsett, 2000)

Counselling the mother on a methadone program:

Mothers should be encouraged to continue to breastfeed their infants – it's preferable that the infant withdraws slowly from the drug and breastfeeding is the best way to do this.

To begin to limit exposure to the drug the mother could take her daily dosage just prior to the longest sleep the baby usually has. As solids are commenced and the baby breastfeeds less frequently, gradual withdrawal will occur.

Conclusion

Babies born to mothers who abuse drugs start life with a handicap. Their compromised intra-uterine life has affected their nutritional status, their growth and in some cases their intellectual ability. After birth they go through withdrawal symptoms that affect their health and adaptation to extra-uterine life.

Artificial baby milks provide second grade nutrition, no protection against infections, have the potential to cause chronic disease and inhibit the intellectual potential of the infant.

Breastmilk is medicine for these babies. No effort should be spared in assisting the mother to receive treatment for her addiction for her own and her baby's future. Giving birth and then breastfeeding can be an empowering and life changing experience for a woman and may be the catalyst that causes her to stop her substance abuse. Before counselling a woman to formula feed consider giving her the opportunity to meet this challenge.

Denise Fisher, BN, RN, RM, IBCLC
Sandpiper Education
PO Box 2405
Chermside Centre 4032
Queensland.

Bibliography:

Australian Institute of Health and Welfare. *National Drug Strategy Household Survey 1998*. [Online]. Available: <http://www.aihw.gov.au/publications/health/ndshs98.html>

Astley S, Little R 1990. Maternal marijuana use during lactation and infant development at one year. *Neurotoxicol teratol* 2(12) 161-168

Cobo E, 1973. Effect of different doses of ethanol on the milk-ejecting reflex in lactation women. *Am J Obst Gynecol* 115 817-821.

Hale T 1999. *Medications and Mothers' Milk* 8th ed, Pharmasoft Medical Publishing, Texas

Howard C, Lawrence R 1998. Breast-feeding and drug exposure. *Obs Gynec Clin of Nth Am* 25(1) 195-217.

Liston J 1998. Breastfeeding and the use of recreational drugs – alcoholism, caffeine, nicotine and marijuana. *Br Review* 6(2) 27-30.

Little RE 1989. Maternal alcohol use during breastfeeding and infant mental and motor development at one year. *New Engl J Med* 321 425-430

MacMahon, J 1997. Perinatal Substance Abuse: The impact of reporting infants to child protective services. *Pediatrics* 100(5) e1. Available: <http://www.pediatrics.org/>

Makkai T, McAllister I 1998. Patterns of drug use in Australia 1985 – 1995. *National Drug Strategy* [Online] Available: <http://www.health.gov.au/pubhlth/publicat/patterns.pdf>

Maza P, et al 1998. Maternal Lifestyles Study. Caretaking environment and stability of substance-exposed infants at one month corrected age. *An NY Acad Sc* 846, 358-361.

Mennella J 1998. Short-term effects of maternal alcohol consumption on lactational performance. *Alcohol Clin Exp Res*, 22(7) 1389-1392.

Mennella J, Beauchamp G 1992. The transfer of alcohol to human milk. *Br Review* 2(6) 286-290.

Minchin M 1991. Smoking and breastfeeding: An overview. *J Hum Lact* 7(4) 183-188.

Poinsett, PM re Bi-Valley Medical Clinic studies – personal communication

Schulte P 1995. Minimising alcohol exposure of the breastfed infant. *J Hum Lact* 4(11) 317-319.

Wiemann C, DuBois J, Berenson A, 1998. Racial/Ethnic differences in the decision to breastfeed among adolescent mothers. *Pediatrics* 101(6) e11. Available: <http://www.pediatrics.org/>