

PROTOCOL 1

Alcohol Use in Pregnancy and Lactation

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Overview

According to data collected in the 2015–2017 Behavioral Risk Factor Surveillance System conducted by the Centers for Disease Control and Prevention (CDC), 11.5% of pregnant women in the United States reported consuming at least one alcoholic drink during the past 30 days, and 3.9% reported binge drinking (five or more drinks during one episode). Among pregnant women who reported binge drinking, the average frequency of binge drinking was 4.5 episodes during the past 30 days. The highest prevalence of alcohol use during pregnancy was observed in older (ages 35–44 years), college educated, and unmarried women.

According to the same surveillance, the prevalence of any alcohol use was 53.6% among nonpregnant reproductive age women, indicating that pregnancy may be a time of increased motivation to decrease or stop drinking. Even among women with heavy alcohol use or patterns of use consistent with alcohol use disorder, 70–90% abstain from alcohol during pregnancy. Although many women achieve abstinence during pregnancy, studies have noted high rates of relapse during the postpartum period.

Alcohol use during pregnancy

Alcohol use during pregnancy has been associated with an increased risk of fetal death in some, but not all, studies. For example, an increased risk of miscarriage was reported in women who consumed more than three drinks per week (adjusted odds ratio 2.3; 95% confidence interval [CI] 1.1–4.5), compared to women who reported no alcohol consumption. In a Danish study of nearly 90 000 pregnant women, a higher risk of fetal death after

22 weeks' gestation (adjusted hazard ratio 2.20; 95% CI 1.73–2.80) was observed in pregnant women who reported either three or more drinks per week or two or more binge-drinking episodes, compared to women who did not drink.

Alcohol exposure during pregnancy also increases the risk of low birth-weight and extreme preterm birth (<32 weeks' gestation), factors which may contribute to higher rates of neonatal morbidity and mortality and may have long-term neurodevelopmental consequences.

Most studies have focused on the negative effects of alcohol on fetal development. Alcohol is a known teratogen and exposure early in pregnancy, during the period of organogenesis, has been associated with growth restriction and a constellation of physical abnormalities, including dysmorphic facial features, microcephaly, cardiac defects, and eye and ear abnormalities. Exposure to alcohol at any point during the pregnancy can compromise development of the fetal brain. Prenatal alcohol exposure is one of the leading causes of mental retardation and may result in long-term deficits in cognitive, behavioral, and emotional functioning.

Fetal alcohol spectrum disorders (FASD) encompass several diagnostic subtypes. Children with fetal alcohol syndrome (FAS) are the most severely affected and present with characteristic facial features (e.g., thin upper lip, small, wide-set eyes, upturned nose), microcephaly, small stature, and cognitive deficits, including developmental delays and lower IQ, as well as emotional and behavioral problems. Children with alcohol-related neurodevelopmental disorder (ARND) lack the characteristic facial defects and growth retardation seen in children with FAS but have alcohol-induced mental impairment.

The effects of alcohol exposure on the developing fetus are variable. While any amount of alcohol consumption may have adverse effects, binge drinking is especially concerning as it has been associated with higher risk of FASD. Children born to women of lower socioeconomic status appear to be more susceptible to the effects of alcohol in utero, a finding which suggests that other factors, including nutritional status and environmental exposures, may contribute to the pathophysiology of FASD. Currently, there is no known amount of alcohol consumption during pregnancy which is considered to be safe.

Prevalence estimates of FAS have varied widely from 0.5 to 3 per 1000 live births; however, studies using in-person assessments of school-aged children report higher estimates of FAS: 6–9 per 1000 children. Few estimates for the full range of FASDs are available; the most current estimate of the prevalence of FASD among US children is approximately 1%.

Alcohol use during lactation

Approximately half of all breastfeeding women in the US report consuming alcohol; however, relatively little is known about the consequences of

alcohol intake in breastfeeding women and their infants. Alcohol consumed by the mother passes into the breast milk, with levels peaking 30–60 minutes after an alcoholic beverage is consumed. While the alcohol from one drink can be detected in breast milk for about 2–3 hours, alcohol is detectable in the breast milk for about 4–5 hours if the mother consumes two drinks and for about 6–8 hours if she consumes three drinks, and so forth. Other factors influencing the amount of alcohol in breast milk include how fast it is consumed, whether it is consumed with food, the mother's body mass index (BMI), and how quickly she metabolizes alcohol.

It has been demonstrated that alcohol inhibits the release of oxytocin, the hormone which stimulates milk ejection, an effect which decreases the amount of milk available to the nursing infant. Higher amounts of alcohol intake appear to have a greater effect; however, one study noted that drinking as little as 0.3 g alcohol per kg (a little more than a 12-ounce beer or mixed drink) may reduce milk production by about 10%. Other studies have observed that the infants of mothers who consume alcohol tend to take in less breast milk per feeding and may also have disrupted sleep patterns.

The long-term effects of alcohol delivered to infants via breast milk have not been well studied. In a study of 400 infants born to women in a health maintenance organization, motor development, as measured by the Psychomotor Development Index (PDI), was significantly lower in infants exposed regularly to alcohol in breast milk (even after controlling for prenatal alcohol exposure), with an inverse dose–response relationship noted between frequency of maternal alcohol consumption and scores on the PDI. In a similar study from the same group, however, there was no association between alcohol exposure and scores on the Griffiths Developmental Scales in 18-month-old children.

Breastfeeding while consuming alcohol may carry some neurodevelopmental risk for the infant; however, of greater concern is the impact alcohol may have on childcare and safety. Parental use of alcohol is considered a risk factor for sudden infant death syndrome and other infant sleep-related deaths. Maternal alcohol use disorder (AUD) is associated with poor parenting skills, inadequate supervision, family disruption and conflict, family mobility, and increased risk for child abuse and neglect.

Screening for alcohol use

The US Preventive Services Task Force recommends that all adults seen in a primary care setting, including women seen annually by OB-GYNs, should be screened for alcohol use and counseling should be provided when there is evidence of risky or harmful drinking. Referral to a specialist for treatment should be considered when there is evidence of an AUD. There is evidence that routine screening and brief behavioral counseling

interventions in women who engage in at-risk drinking reduce the incidence of alcohol-exposed pregnancies.

All women seeking obstetric care should be screened for alcohol use within the first trimester of pregnancy and again during the postpartum period; however, screening for alcohol use in an obstetric setting can be more complicated. Many women fear that disclosure of their alcohol use may have negative consequences, such as criminal or civil penalties or the loss of custody of their children. Therefore, it is crucial that, when screening for substance use, clinicians must assure their patients that the information disclosed is privileged and confidential.

Many validated screening tools for AUDs are available, including the CAGE, Alcohol Use Disorders Identification Test (AUDIT), and the revised AUDIT-C; however, most of these commonly used tools have not been validated in pregnant populations. The American College of Obstetricians and Gynecologists (ACOG) and the National Institute on Alcohol Abuse and Alcoholism recommend using the T-ACE or revised TACER-3 (T-tolerance, A-annoyance, C-cutting down, and E-eye Opener) screening tools which have been specifically validated for use in pregnant women. Because T-ACE/T-ACER-3 define risky drinking as the consumption of one ounce or more of alcohol per day and identify patterns of use suggestive of AUD, additional questions must be used to assess for the use of any alcohol.

Another option is the Substance Use Risk Profile–Pregnancy (SURP-P), which was designed specifically to screen for alcohol and other illicit/recreational drug use in pregnancy. The SURP-P is easily administered and consists of three questions: 1) Have you ever smoked marijuana? 2) In the month before you knew you were pregnant, how many beers, how much wine, or how much liquor did you drink?, and 3) Have you ever felt that you needed to cut down on your drug or alcohol use? Scoring requires tallying the number of affirmative responses (0 = low risk, 1 = moderate risk, 2–3 = high risk).

Screening for alcohol use during pregnancy allows clinicians to stratify risk in women according to their patterns of use. It is recommended that women at low risk should receive brief counseling regarding the risk of alcohol use during pregnancy. Women classified as moderate risk should receive a brief intervention (described below), and women at high risk should be referred for specialized substance abuse treatment.

Providers must also be aware of the possibility of concurrent psychiatric illness, as women with risky alcohol use are more likely to suffer from psychiatric illness, and women with untreated psychiatric illness are more likely to use alcohol (and other substances) during pregnancy. Consultation with mental health professionals is indicated and attending to co-morbid

psychiatric illness can increase the likelihood of abstinence during pregnancy and improve compliance with prenatal care.

Intervention and referral to treatment

Screening, brief intervention, and referral to treatment (SBIRT) is a comprehensive, integrated public health approach used to identify and deliver services to those at risk for substance use disorders and has the potential to reduce the burden of substance use in pregnancy. SBIRT may be implemented in a variety of healthcare settings and adapted for culturally diverse populations. The Department of Health and Human Services Substance Abuse and Mental Health Services Administration (SAMHSA) provides many useful materials to facilitate implementation of SBIRT which consists of three basic components.

- 1 *Screening by a health professional* using validated instruments can quickly assess the severity of substance use and identify the appropriate level of care.
- 2 *Brief intervention* focuses on increasing insight and awareness regarding substance use and motivation toward behavioral change.
- 3 *Referral to treatment* provides those identified as needing more extensive treatment with access to specialty care.

After screening, women at moderate risk should receive a brief intervention which typically involves counseling sessions, approximately five minutes in length, tailored to the severity of the identified alcohol problem. During the

Table 1.1 Four components of brief intervention

Raise subject	"Thank you for answering my questions – is it OK with you if we talk about your answers?" "Can you tell me more about your past/current drinking or drug use? What does a typical week look like?"
Provide feedback	"Sometimes patients who give similar answers are continuing to use drugs or alcohol during their pregnancy." "I recommend all my pregnant patients not to use any alcohol or drugs, because of the risk to you and to your baby."
Enhance motivation	"What do you like and what are you concerned about when it comes to your substance use?" "On a scale of 0–10, how ready are you to avoid drinking/using altogether? Why that number and not a lower number?"
Negotiate plan	Summarize conversation. Then: "What steps do you think you can take to reach your goal of having a healthy pregnancy and baby?" "Can we schedule a date to check in about this next time?"

Source: Wright et al. (2016). © 2016 Reproduced with permission of Elsevier.

first meeting, the provider should state her/his concerns and help to set goals. Educational materials should be provided. Routine follow-up is essential; subsequent visits should involve encouragement, information, and reevaluation of goals. Wright and colleagues (Table 1.1) have modified SBIRT for use in pregnant women, leveraging the motivation inherent in the desire to have a healthy pregnancy.

Women who are unable to reduce or eliminate consumption of alcohol during pregnancy should be referred for more intensive intervention.

Conclusion

Alcohol consumption during pregnancy is relatively common, with the most recent surveys indicating that 11.5% of pregnant women in the US report consuming alcohol during pregnancy. While heavy alcohol use and binge drinking pose the greatest risk to the fetus, lower levels of exposure to alcohol have been associated with birth defects, neurodevelopmental deficits, and fetal alcohol spectrum disorders. OB-GYNs are ideally positioned to screen women for risky alcohol use both before and during pregnancy and can educate women regarding the risks of alcohol use during pregnancy and initiate interventions which significantly decrease the use of alcohol during the perinatal period.

Suggested reading

- American College of Obstetricians and Gynecologists' Committee on Health Care for Underserved Women. Committee Opinion No.654: Reproductive Life Planning to Reduce Unintended Pregnancy. *Obstet Gynecol* 2016;127(2):e66–9.
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