372 Alcohol and Substance Use

Definition/Cut-off Value

For Pregnant Women:

- Any alcohol use.
- Any illegal substance use and/or abuse of prescription medications.
- Any marijuana use in any form.

For Breastfeeding and Non-Breastfeeding Postpartum Women:

- Alcohol Use (1):
    - High Risk Drinking: Routine consumption of ≥8 drinks per week or ≥4 drinks on any day.
    - Binge Drinking: Routine consumption of ≥4 drinks within 2 hours.

  Note: A serving or standard sized drink is: 12 oz. beer; 5 oz. wine; or 1½ fluid ounces 80 proof distilled spirits (e.g., gin, rum, vodka, whiskey, cordials or liqueurs).
- Any illegal substance use and/or abuse of prescription medications.
- Any marijuana use in any form (breastfeeding women only).

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Substance use and misuse during pregnancy and postpartum may have physical and mental health consequences ranging from mild to serious (2). The use of alcohol, marijuana, illegal drugs and misuse of prescription drugs can threaten both maternal and fetal health. Misuses of prescription drugs include using medications as follows: for nonmedical reasons, prescribed for someone else, more often than the prescribed frequency, in larger-than-prescribed doses, and/or over a longer time than prescribed (3).

Substance use is known to lead to vitamin and mineral deficiencies that threaten physical and mental health, damage vital organs and the nervous system, and decrease immunity. Malnutrition occurs when the substance replaces other dietary nutrients or as a result from improper nutrient metabolism, absorption, utilization, or excretion even though the diet may be adequate. Harmful lifestyles are often associated with addiction, such as poor eating patterns, lack of exercise, and changes in sleep patterns. These compounding factors result in an increased risk of long-term health problems, including metabolic syndrome, diabetes, hypertension, weight problems, and eating disorders. People with substance addiction may suffer from calorie and protein malnutrition. In one study over 90% were underweight and 70% had

vitamin D deficiency and low levels of vitamin C. Another study showed that 50% were deficient either in iron or vitamins (vitamins A, C, and E being the most common). (4)

Substance use can impact the family and parenting in a number of ways, and may be linked with poor parenting practices, child neglect, and abuse due to (2):

- Impairments (both physical and mental) caused by alcohol or other drugs.
- Domestic violence, which may be a result of substance use.
- Expenditure of often limited resources on purchasing alcohol or other drugs.
- Frequent arrests, incarceration, and court dates.
- Time spent seeking out manufacturing or using alcohol or other drugs.
- Estrangement from primary family and related support.

While substance use has long been a public health concern, there is growing recognition that the United States is facing an epidemic due to an increase in opioid misuse, use disorders, and overdose, and that disparities exist between men and women with regard to both prescription opioid and heroin use (5). Although between 1999 and 2014 men were more likely than women to die of opioid overdoses, the gap in mortality has been closing (6). Between 1999 and 2010, overdose deaths from prescription pain killers increased more than 400% among women, compared to an increase of 237% among men (7). Although nonmedical use of prescription opioids among women has generally been decreasing since then, heroin use among women has been increasing, and at a faster rate among women than among men (8, 9, 10). For example, between 2002 and 2013, heroin use among women increased 100% compared to an increase of 50% among men (5).

Predictors of substance use among women of child bearing age include (2, 11, 12):

- Early Substance Use – Tobacco or marijuana use at an early age (12- 18 years of age) is a risk factor for continued use as an adult.
- Prepregnancy Substance Use – Alcohol and drug use prior to pregnancy is a predictor of continued use during pregnancy.
- Demographic Characteristics – Use and substance choice vary by demographic group:
    - Substance use after pregnancy is more likely for Native Americans and African Americans.
    - African American women and economically disadvantaged women are more likely to use illicit substances, particularly cocaine.
    - White women and women with higher education levels are more likely to use alcohol.
- Trauma – Substance use is increased among women who:
    - Were raised by parents who abused substances.
    - Have experienced physical and/or sexual abuse.
    - Have experienced intimate partner violence.
- Mental Health – Women with a diagnosis of substance use or chemical dependency may have one or more psychiatric disorders.

Alcohol and Substance Use during Pregnancy

Maternal substance use during and after pregnancy can have a long-term impact on both the mother and her child and can impact many areas of life such as: (2, 13, 14)

- Obstetrical and Prenatal Complications - Substance use (and withdrawal from them) during pregnancy may cause constriction of uterine blood vessels leading to insufficient blood flow to the placenta, separation of the placenta from the uterus, maternal hypertension, maternal hemorrhage, and/or premature labor. These complications may in turn increase risk of fetal loss, premature birth and still birth.
- Personal Health and Safety – Substance use is associated with increased likelihood of death by illness, accident or suicide; intimate partner violence; sexually transmitted diseases and unintended pregnancy. Although 31% to 47% of U.S. pregnancies are unintended, the proportion of unintended pregnancies for women with opioid use disorder was higher than 85%, according to recent research.
- Societal Impacts - Substance use is associated with an unstable family structure, separation and divorce, and potential for involvement of Child Protective Services (CPS). The Child Abuse Prevention and Treatment Act [42 U.S.C. § 5106a(b)] requires States to have policies and procedures in place to notify CPS agencies of substance-exposed newborns and to establish a plan of safe care for newborns identified as being affected by illegal substance abuse or having withdrawal symptoms resulting from prenatal drug exposure. For more information about State-specific requirements please see: https://www.childwelfare.gov/topics/systemwide/laws-policies/state/.
- Impact on Children - Children who are exposed to alcohol and other substances prior to birth can experience long-term cognitive, behavioral, social and emotional developmental consequences.

Based on data collected by the Substance Abuse and Mental Health Services Administration (SAMHSA), in 2012-2013 alcohol use among pregnant women aged 15-44 was 9.4%; 2.3% reported binge drinking and 0.4% reported heavy drinking. These rates were lower than the rates for non-pregnant women in the same age group (55.4%, 24.6% and 5.3% respectively). Alcohol use in 2012-2013 was lower among pregnant women aged 15 to 44 during the second and third trimesters than during the first trimester (5.0% and 4.4% vs. 19.0%). (3)

Nutritional needs during pregnancy are 10 to 30 percent greater than normal (15). Alcohol can disrupt body functions by causing nutrient deficiencies of vitamins and minerals (4). Alcohol inhibits fat absorption and thereby impairs absorption of vitamins A, E, and D which are normally absorbed along with dietary fats. Deficiencies of minerals such as calcium, magnesium, iron, and zinc are common in people who misuse alcohol, although alcohol itself does not seem to affect the absorption of these minerals (4).

There is no safe consumption of alcohol during pregnancy. Exposure to alcohol in utero can damage the developing fetus at any stage and is the leading preventable cause of birth defects and intellectual and neurodevelopmental disabilities (16, 17). Not only can nutritional deficiencies of a mother who misuses alcohol adversely affect the nutrition of the fetus, but alcohol itself can also restrict nutrient flow to the fetus. These prenatal factors can result in the infant being born with a Fetal Alcohol Spectrum Disorder (FASD). Fetal Alcohol Syndrome (FAS) is the most severe type of FASD. Fetal Alcohol Syndrome can affect children in different ways. A child with FAS might have abnormal facial features, growth and central

nervous system problems as well as problems with learning, memory, attention span, communication, vision, or hearing (18). (See risk 382 - *Fetal Alcohol Syndrome* for more information.)

In 2012 and 2013 illicit drug use (to include marijuana use) among pregnant women aged 15 to 44 was 5.4%. This was lower than the rate among women in this age group who were not pregnant (11.4%). Illicit drug use in 2012-2013 was lower among pregnant women aged 15 to 44 during the third trimester than during the first and second trimesters (2.4%t vs. 9.0% and 4.8%). (3)

Marijuana is the illicit drug used most frequently by women of child-bearing age (19). There is no known safe amount of marijuana use during pregnancy. Marijuana contains tetrahydrocannabinol (THC), which is the chemical in marijuana that makes one feel "high". Marijuana may be ingested in the form of marijuana edibles (cookies, brownies, candy, etc.) or inhaled when smoked. When inhaled, the smoke goes in to the lungs and immediately passes through the membranes and enters the bloodstream (2). THC can pass from the mother to the unborn child through the placenta if marijuana is ingested or inhaled during pregnancy. Children who are exposed to THC prior to birth can experience decreased academic ability, cognitive function and ability to remain attentive (20). Although some states have legalized marijuana for a variety of medical conditions upon a doctor's recommendation, as well as for recreational use, marijuana has been shown to have negative effects on brain development. Therefore, it is recommended that pregnant and breastfeeding women not use marijuana (2).

National Surveys on Drug Use and Health done by SAMHSA indicate that an annual average of about 21,000 pregnant women aged 15 to 44 misused opioids in the past month (21). The percentage of women misusing opioids in the past month was lower among pregnant women aged 15 to 44 than among non-pregnant women in that age range (0.9% vs. 2.6%) (21). Opiates and synthetic narcotics (e.g., heroin, oxycodone, Vicodin, Narco, Percocet, morphine, dilaudid) have serious health risks associated with their use including endocarditis; coma or sudden death from overdose; risk of HIV; and, if injected, viral hepatitis and other infections (2). A mother's use of these substances during pregnancy can lead to neonatal abstinence syndrome (NAS), which is a series of withdrawal symptoms experienced by an infant after birth due to intrauterine exposure to substances. Prenatal exposure to opioids increases the risk of low birth weight, stillbirth and sudden infant death syndrome (see risk 383 - *Neonatal Abstinence Syndrome* for more information).

For a summary of the effects of alcohol, marijuana, opioids and more information about the effects of other specific drugs during pregnancy, see table on page 5.

Alcohol and Substance Use during Breastfeeding

The breastfeeding mother should minimize alcohol use and avoid the use of other substances since most maternally ingested substances are transferred to human milk, though the concentration and potential danger to the breastfed baby is affected by interaction among a variety of factors. The American Academy of Pediatrics (AAP) recommends that the ingestion of beverages containing alcohol be minimized and limited to occasional intake for breastfeeding women. The following are recommendations for breastfeeding women who choose to drink (2, 22, 23, 24):

- Consult with health care provider before consuming alcohol.
- Do so only if breastfeeding is well established, consistent and predictable (no earlier than 3 months postpartum).
- Minimize ingestion of alcoholic beverages and limit it to occasional intake.

- Consume only a single alcoholic drink and wait at least 4 hours before breastfeeding or expressing milk to ensure the alcohol is not present in the milk.
- Breastfeed the infant or express human milk before consuming the alcohol.

Due to the lipophilic nature of THC found in marijuana, it is tremendously fat-soluble and therefore is readily transferred to human milk. Marijuana can impact the neurobehavioral development of the infant, and the AAP considers it to be a contraindication to breastfeeding. (2, 22, 23)

The maternal use of illegal substances and the misuse of prescription medicine is a contraindication to breastfeeding. However, according to the AAP, appropriate maternal use of prescribed medication is not a categorical contraindication to breastfeeding. For situations in which the mother is undergoing pharmacologic therapy, breastfeeding must balance the benefits to infants and mother against the potential risk of substance exposure to the infant. For example, research has shown that adequately nourished narcotic-dependent mothers should be encouraged to breastfeed if they are enrolled in a supervised medication-assisted treatment program and have negative toxicology screens for HIV and illicit drugs. (22) (See risk 383 - *Neonatal Abstinence Syndrome* for more information.)

The following table is a summary of effects of specific drugs on the mother, birth outcomes and breastfeeding (2). For more information, please see the *Substance Use and Prevention Manual: Screening, Education and Referral Resource Guide for Local WIC Agencies*: https://wicworks.fns.usda.gov/resources/wic-substance-use-prevention-guide.

Substance	Effects on Mother	Effects on Birth Outcomes	Effects on Baby*
Alcohol	• Impaired judgment, reflexes, memory, and coordination • Heart and liver damage • Pancreatitis • Peptic ulcers • Malnutrition • Alteration of menstrual cycle	• Miscarriage • Stillbirth • Low birth weight • Preterm delivery • Increased incidence of fetal distress at delivery • Sudden Infant Death Syndrome • Fetal Alcohol Spectrum Disorders	• Reduced growth • Reduced milk consumption • Delayed motor development • Altered postnatal growth, sleep patterns, and/or psychomotor patterns
Marijuana	• Increased blood pressure • Increased heart rate • Rapid pulse • Anxiety sensory distortions	• Visual abnormalities • Ocular hypertelorism (widely spaced eyes) • Severe epicanthus (skin folds at the corner of the upper eyelids)	• Poor sucking • Sedation • Reduced muscle tone • Delayed growth • Delayed motor development
Amphetamines (e.g., methamphetamine and dextroamphetamine)	• Irritability and confusion • Decreased appetite • Convulsions • Stroke • Heart failure	• Premature delivery • Low birth weight • Small for gestational age	• Poor sleep patterns • Irritability • Extreme agitation • Hallucinations • Seizures
Cocaine and Crack	• Increased heart rate • Increased blood	• Preterm delivery • Reduced head	• Vomiting • Diarrhea

Substance	Effects on Mother	Effects on Birth Outcomes	Effects on Baby*
Cocaine and Crack (continued)	pressure • Sudden death from cardiac arrhythmia or respiratory arrest • Irritability • Separation of the placenta from the uterus prior to delivery	circumference • Increased risk of spontaneous abortion • Increased risk of seizures • Neurological abnormalities	• High blood pressure • Seizures • Choking • Irritability • Neurobehavioral problems
Opiates & Synthetic Narcotics (e.g., heroin, morphine, codeine, oxycodone, and hydrocodone)	• Endocarditis • Decreased appetite • Respiratory depression • Coma or sudden death from overdose	• Low birth weight • Still birth • Neonatal Abstinence Syndrome • Sudden Infant Death Syndrome	• Irritability • Extreme agitation • Seizures • Poor sleep patterns • Hallucinations
Sedative – Hypnotics (e.g., benzodiazepines, barbiturates, and sleep medications)	• Apprehensiveness • Convulsions • Dilated pupils • Respiratory depression • Confusion • Slurred speech	• Increased risk of fetal malformations	• Restlessness • Tremor • Apnea • Diarrhea • Vomiting • Poor feeding

*The effect of substances on the baby should be carefully considered when providing support to breastfeeding dyads as these effects may be barriers to successful breastfeeding.

Implications for WIC Nutrition Services

Through established linkages and coordination with local resources, WIC staff are required to refer participants suspected of substance use, and those who disclose substance use, to existing assessment agencies for professional evaluation and treatment, as appropriate. In addition to providing referrals and coordinating/facilitating services, WIC's role in preventing substance abuse is to educate women participants, parents, and caretakers of participating infants and children about substance use–related problems with the intended effects of increasing participants' access to information about the dangers of substance use and abuse during pregnancy and breastfeeding as well as postpartum. WIC also provides supplemental foods that are rich in the nutrients lost from alcohol and substance misuse. WIC staff can assist participants by:

- Providing referrals (and follow-up on the referral) for professional assessment and treatment. Do not advise a woman who uses narcotics to stop use on her own. This step should be taken only under the supervision of a physician or treatment specialist.
- Encouraging women to improve their lifestyle and health habits during pregnancy and postpartum, since the concern for fetal health and/or the desire to be a good role model can be a powerful motivator to reduce or stop substance use (25).
- Emphasizing the importance of substance abuse treatment during the postpartum period to safeguard the health of the mother and reduce the risk in subsequent pregnancies.

- Recommending the Dietary Guidelines for Americans to address nutrition deficiencies associated with substance use.
- Providing breastfeeding promotion and support to women enrolled in supervised medication-assisted treatment programs.
- Recommending that the ingestion of beverages containing alcohol be minimized and limited to occasional intake for breastfeeding women. Provide instruction to wait at least 4 hours after consuming one alcoholic drink before breastfeeding or expressing milk. (If the appropriate amount of time has elapsed the woman may breastfeed or express her milk – it is not necessary to pump and discard the milk.)
- Referring to community resources for alcohol and substance use support groups.

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