Substance Use During Pregnancy and Breastfeeding

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Introduction

Substance use during pregnancy and while breastfeeding can dramatically impact the overall health, well-being, and quality of life of a child. Therefore, health care professionals should possess insight into substance use during pregnancy and breastfeeding to safely and effectively care for patients in need. This course will review concepts central to the care of patients engaging in substance use while pregnant or breastfeeding.

Section 1: Substance Use During Pregnancy

A 21-year-old female patient reports to a health care facility with complaints of nausea and cramps. Upon questioning from a health care professional, the patient reports that she is "late." The patient also reports that she smokes cigarettes, uses opioids to get "high," and drinks, at least, a "12-pack of beer" per week. Patient examination and blood work reveals that the patient is pregnant. Upon hearing the news that she is pregnant, the patient asks the health care professional if she has to stop using opioids and drinking alcohol. The health care professional pauses and considers the effects of substance use on infant health.

As previously mentioned, substance use during pregnancy and while breastfeeding can dramatically impact the overall health, well-being, and quality of life of a child. With that in mind, this section of the course will review substance use during pregnancy. The information found within this section of the course was derived from materials provided by the Centers for Disease Control and Prevention (CDC) unless, otherwise, specified (Centers for Disease Control and Prevention [CDC], 2022).

What is substance use?

Substance use may refer to the use of any substance, such as alcohol or drugs.

Health care professionals should note the following: a pregnant individual may suffer from polysubstance use; substance use may be related to an opioid use disorder (OUD); substance use may be related to a substance use disorder (SUD).

What is polysubstance use?

Polysubstance use may refer to the use of more than one substance (e.g., alcohol and drugs).

What is an opioid use disorder (OUD)?

An opioid use disorder (OUD) may refer to a problematic pattern of opioid use leading to clinically significant impairment or distress.

What is a substance use disorder (SUD)?

The term substance use disorder (SUD) may refer to a disorder that occurs when the recurrent use of alcohol and/or drugs causes clinically significant impairment, including health problems, disability, and failure to meet major responsibilities at work, school, or home.

What are the risk factors for substance use/SUD?

Risk factors for substance use/SUD include the following: environmental factors, socio-ecological factors, relationship factors, a family history of substance use/SUD, a history of trauma, social isolation, and stress.

What are the signs of substance use?

The signs of substance use include the following: slurred speech, an active tremor, shakiness, poor coordination, sweating, nausea, vomiting, aggression, agitation, compulsive behavior, craving, red eyes, dry mouth, drowsiness, involuntary eye movements, dilated pupils, nasal congestion, mouth sores, reduced consciousness, lack of pain sensation, intolerance to loud noise, dizziness, confusion, lack of awareness to surroundings, and needle marks.

What are the most frequently used substances during pregnancy?

The most frequently used substances during pregnancy include: alcohol, tobacco, marijuana, opioids, and stimulants (note: stimulants may refer to a class of drugs that increases activity of the body’s central nervous system).

Health care professionals should note that substances such as alcohol, tobacco, marijuana, opioids, and stimulants can have severe health consequences for infants.

How can substance use during pregnancy impact infant health?

Substance use during pregnancy can lead to the following complications: an ectopic pregnancy, stillbirths, preterm births, low birth weight, fetal alcohol spectrum disorders (FASDs), neonatal abstinence syndrome (NAS), and sudden infant death syndrome (SIDS).

What is an ectopic pregnancy?

The use of tobacco and other substances may lead to an ectopic pregnancy. Specific information regarding an ectopic pregnancy may be found below. The information found below was derived from materials provided by the March of Dimes (March of Dimes, 2017).

- An ectopic pregnancy may refer to a pregnancy characterized by embryo growth outside the womb.
- When an egg is fertilized, it typically travels down a fallopian tube and attaches to the lining of the uterus (also called the womb) (note: fallopian tubes may refer to the tubes between the ovaries; the uterus may refer to the place inside the body where a fetus develops). In most ectopic pregnancies, the fertilized egg attaches to a fallopian tube before it reaches the uterus.
- The signs/symptoms of an ectopic pregnancy include the following: bleeding from the vagina, feeling faint or dizzy, low blood pressure, back pain, shoulder pain, and pain in the pelvic area.
- Treatment for an ectopic pregnancy may include methotrexate or surgery.

What is a stillbirth?

The use of tobacco, alcohol, and opioids may lead to a stillbirth. Specific information regarding stillbirths may be found below. The information found below was derived from materials provided by the March of Dimes (March of Dimes, 2020).

- A stillbirth occurs when a baby dies in the womb after 20 weeks of pregnancy.

- In addition to substance use, risk factors for a stillbirth include: diabetes, high blood pressure, obesity, and stress.
- The signs/symptoms of a stillbirth include the following: the baby stops moving and kicking, cramps, pain, and bleeding from the vagina.
- Amniocentesis may be used to identify a stillbirth. Amniocentesis may refer to a procedure in which amniotic fluid is removed from the uterus for testing or treatment.
- The American College of Obstetricians and Gynecologists (ACOG) recommends that all pregnant women consider prenatal tests, such as amniocentesis.
- Treatment for a stillbirth may include surgery (e.g., Cesarean section).

What is a preterm birth?

As previously mentioned, substance use may lead to a preterm birth. Specific information regarding preterm births may be found below. The information found below was derived from materials provided by the CDC (CDC, 2021).

- A preterm birth may refer to the birth of a live baby that is born before 37 weeks of pregnancy are completed (note: the average length of a full-term pregnancy is between 39 - 40 weeks).
- The term preterm baby may refer to any baby born preterm.
- The warning signs of preterm labor include the following:
    - Contractions every 10 minutes or more often (note: the term contraction may refer to the tightening and shortening of the uterine muscles; contractions help push the baby out; contractions may feel like the abdomen is tightening like a fist)
    - Changes in vaginal discharge (e.g., a significant increase in the amount of discharge or leaking fluid or bleeding from the vagina)
    - Pelvic pressure (e.g., the feeling that the baby is pushing down)
    - Low, dull backache
    - Cramps that feel like a menstrual period

    - Abdominal cramps with or without diarrhea

- Preterm births can be prevented. Methods or strategies to prevent preterm births include progesterone supplementation and cervical cerclage (note: the term cervical cerclage may refer to a procedure that uses sutures or synthetic tape to reinforce the cervix during pregnancy in women with a history of a short cervix).

What is low birth weight?

The use of tobacco and other substances may lead to low birth weight. Specific information regarding low birth weight may be found below. The information found below was derived from materials provided by the March of Dimes (March of Dimes, 2021).

- Low birth weight is when a baby is born weighing less than five pounds, eight ounces.

- Low birth weight may lead to breathing problems, such as respiratory distress syndrome (RDS). Health care professionals should note the following: babies with RDS do not have a protein called surfactant that keeps small air sacs in a baby's lungs from collapsing; treatment with surfactant helps these babies breathe more easily; babies who have RDS also may need oxygen and other breathing help to make their lungs work.

- Low birth weight may lead to bleeding in the brain (also called intraventricular hemorrhage or IVH). Health care professionals should note the following: most brain bleeds are mild; more severe bleeds can cause pressure on the brain that can cause fluid to build up in the brain; this can cause brain damage; in some cases, a surgeon may insert a tube into the baby's brain to drain the fluid.

- Low birth weight may lead to patent ductus arteriosus. Health care professionals should note the following: patent ductus arteriosus occurs when an opening between two major blood vessels leading from the heart does not close properly; this can cause extra blood to flow to the lungs; in many babies who have patent ductus arteriosus, the opening closes on its own within a few days after birth; some babies may require surgery to close the opening.

- Low birth weight may lead to necrotizing enterocolitis. Health care professionals should note the following: necrotizing enterocolitis can be dangerous for a baby and can cause feeding problems, swelling in the belly, and other complications;

babies who have necrotizing enterocolitis may be treated with antibiotics and fed through an intravenous (IV) tube; some babies may require surgery to remove damaged parts of intestine.

- Low birth weight may lead to infections.
- Low birth weight may lead to: diabetes, heart disease, high blood pressure, intellectual and developmental disabilities, metabolic syndrome, and obesity.

What are fetal alcohol spectrum disorders (FASDs)?

Alcohol use during pregnancy may lead to fetal alcohol spectrum disorders (FASDs). Specific information regarding FASDs may be found below. The information found below was derived from materials provided by the CDC (CDC, 2022).

- FASDs may refer to a group of conditions that can occur in an individual who was exposed to alcohol before birth.
- The signs/symptoms of FASDs include the following: low body weight; poor coordination; hyperactive behavior; difficulty with attention; poor memory; learning disabilities; speech and language delays; intellectual disability; poor reasoning and judgment skills; sleep problems as a baby; vision and/or hearing problems; problems with the heart, kidneys, or bones; shorter-than-average height; small head size; and abnormal facial features, such as a smooth ridge between the nose and upper lip.
- FASDs include: fetal alcohol syndrome (FAS), alcohol-related neurodevelopmental disorder (ARND), alcohol-related birth defects (ARBD), and neurobehavioral disorder associated with prenatal alcohol exposure (ND-PAE).
- Individuals suffering from FAS typically have central nervous system (CNS) problems, minor facial features, growth problems, and problems with learning, memory, attention span, communication, vision, or hearing.
- Individuals suffering from ARND typically have intellectual disabilities and problems with behavior and learning.
- Individuals suffering from ARBD typically have problems with the heart, kidneys, and bones, as well as hearing problems.

- Individuals suffering from ND-PAE typically have thinking and memory problems (e.g., the child may have trouble planning or may forget material he or she already learned); behavior problems, such as severe tantrums, mood issues, and difficulty shifting attention from one task to another; trouble with day-to-day living, which can include problems with bathing, dressing for specific types of weather, and playing with other children (note: to be diagnosed with ND-PAE, the mother of the child must have consumed more than minimal levels of alcohol before the child's birth, [e.g., more than 13 alcoholic drinks per month of pregnancy or more than two alcoholic drinks in one sitting]).

- To effectively diagnose FASDs, health care professionals should look for: prenatal alcohol exposure; central nervous system problems (e.g., small head size, problems with attention and hyperactivity, and poor coordination); lower-than-average height and/or weight; abnormal facial features (e.g., smooth ridge between nose and upper lip).

- FASDs are preventable. To prevent FASDs, a woman should avoid alcohol if she is pregnant or might be pregnant (note: alcohol in the mother's blood passes to the baby through the umbilical cord).

- Health care professionals should note the following: there is not a known safe amount of alcohol to drink per day during pregnancy or when trying to get pregnant; there is not a safe time to drink during pregnancy; all types of alcohol are equally harmful, including all wines and beer; alcohol can cause problems for a developing baby throughout pregnancy, including before a woman knows she's pregnant; it is never too late to stop alcohol use during pregnancy.

- Treatment for FASDs includes the use of protective factors (note: protective factors may refer to individual or environmental characteristics, conditions, or behaviors that reduce the effects of stressful life events, disorders, and/or specific conditions). Protective factors that can be used in the treatment of FASDs include the following: diagnosis before six years of age; loving, nurturing, and stable home environment during the school years; absence of violence in the child's life; involvement in special education and social services.

What is neonatal abstinence syndrome (NAS)?

Neonatal abstinence syndrome (NAS) is often associated with opioid use during pregnancy. Specific information regarding NAS may be found below. The information found below was derived from materials provided by the CDC (CDC, 2021).

- NAS may refer to a group of conditions that are caused by withdrawal from prenatal drug exposure.
- NAS can be caused by exposure to opioids, antidepressants, barbiturates, and benzodiazepines.
- The signs/symptoms of NAS include the following: tremors; seizures; overactive reflexes (twitching) and tight muscle tone; fussiness, excessive crying or having a high-pitched cry; poor feeding; slow weight gain; breathing problems, including breathing really fast; fever, sweating or blotchy skin; trouble sleeping; diarrhea and/or throwing up; stuffy nose and/or sneezing.
- To effectively diagnose NAS, health care professionals should use a NAS scoring system (note: a NAS scoring system may refer to a scoring tool that may be used to quantify and diagnose neonatal withdrawal/NAS).
- Complications associated with NAS include: low birth rate, developmental delays, motor problems, behavior and learning problems, speech and language problems, sleep problems, ear infections, and vision problems.
- NAS is preventable. To prevent NAS, a woman should avoid substance use (e.g., avoid illicit drugs) if she is pregnant or might be pregnant (note: some drugs may cross the placenta and impact a fetus).
- To help prevent NAS, screening for substance use should be part of comprehensive obstetric care and should be done at the first prenatal visit.
- Treatment for NAS includes the use of opioid replacement therapy, fluids, and a high-calorie formula.
- Health care professionals should note that during NAS treatment a baby may be fussy and/or hard to soothe.

What is sudden infant death syndrome (SIDS)?

The use of tobacco, opioids, and other substances may increase the risk of sudden infant death syndrome (SIDS). Specific information regarding SIDS may be found below. The information found below was derived from materials provided by the CDC (CDC, 2020).

- SIDS may refer to the sudden, unexplained death of a baby younger than one year of age that doesn't have a known cause even after a complete investigation.
- SIDS may be referred to as "crib death" or "cot death" because it is associated with sleeping babies. Cribs themselves do not cause SIDS; however, the baby's sleep environment can influence sleep-related causes of death.
- SIDS is not the same as suffocation and is not caused by suffocation.
- SIDS is the leading cause of death among babies between one month and one year of age.
- Most SIDS deaths happen in babies between one month and four months of age, and the majority (90%) of SIDS deaths happen before a baby reaches six months of age; however, SIDS deaths can happen anytime during a baby's first year.
- Boys are at greater risk for SIDS.
- Evidence suggests that infants who die from SIDS are born with brain abnormalities or defects; such defects may be caused by substance use during pregnancy; defects are typically found within a network of nerve cells that send signals to other nerve cells; the aforementioned cells are located in the part of the brain that may control breathing, heart rate, blood pressure, temperature, and waking from sleep.
- In addition to substance use, the following risk factors may lead to SIDS: a baby sleeps on his or her stomach; a baby sleeps on soft surfaces, such as an adult mattress, couch, or chair or under soft coverings; baby sleeps on or under soft or loose bedding; baby gets too hot during sleep; a baby sleeps in an adult bed with parents, other children, or pets.
- Babies who typically sleep on their backs, and are then placed on their stomachs to sleep (e.g., for a nap) are at very high risk for SIDS.
- Evidence suggests that vaccines may have a protective effect against SIDS; all babies should see a health care professional regularly for well-baby checkups and

should get their vaccines on time as recommended by their health care professional.

- "Tummy time" can help prevent SIDS. The term tummy time may refer to a period of time where a baby is placed on his or her stomach while the baby is awake and someone is watching. Tummy time helps prevent flat spots on the back of a baby's head; makes the neck and shoulder muscles stronger so a baby can start to sit up, crawl, and walk; improves a baby's motor skills.
- When engaging in tummy time, individuals should: start out with three to five minute intervals of tummy time; spread out a blanket in a clear area of the floor for tummy time; try short tummy time sessions after a diaper change or after a baby wakes from a nap; place a toy or toys within the baby's reach during tummy time to help the baby learn to play and interact with his or her surroundings; sit in front of a baby during tummy time to encourage interaction and bonding; as the baby gets older increase tummy time sessions to a full hour per day.

Are there specific recommendations regarding substance use and pregnancy?

Yes, the American College of Obstetricians and Gynecologists (ACOG) developed specific recommendations regarding substance use and pregnancy. ACOG recommendations may be found below. The information found below was derived from materials provided by the ACOG (American College of Obstetricians and Gynecologists [ACOG], 2021).

- During pregnancy, women should not use tobacco, alcohol, marijuana, illegal drugs, or prescription medications for nonmedical reasons. Avoiding the aforementioned substances and getting regular prenatal care are important to having a healthy pregnancy and a healthy baby. Counseling and treatment should be made available to individuals having a hard time quitting unhealthy substances on their own.
- During pregnancy, individuals should not smoke cigarettes because when an individual smokes cigarettes during pregnancy, the fetus is exposed to many harmful chemicals including nicotine. Nicotine is one of 4,000 chemicals that can pass from a pregnant woman to the fetus; nicotine can damage a fetus’s brain and lungs.

- Individuals should stop smoking before pregnancy - however, stopping smoking during pregnancy is better than not stopping at all.
- Individuals should avoid secondhand smoke. Individuals should take steps to avoid secondhand smoke. Breathing secondhand smoke during pregnancy increases the risk of having a low-birth-weight baby. Also, babies who are exposed to secondhand smoke have an increased risk of SIDS; they are more likely to have asthma attacks and ear infections.
- Individuals should avoid e-cigarettes during pregnancy.
- Individuals should avoid smokeless tobacco. Smokeless tobacco also contains nicotine that can be passed to a fetus during pregnancy.
- Pregnant individuals who are dependent on alcohol should receive counseling and medical support to help them stop drinking alcohol.
- Individuals who are pregnant, planning to get pregnant, or breastfeeding should not use marijuana. ACOG believes women who have a marijuana use problem should receive medical care and counseling services to help them quit.
- Pregnant individuals and those planning to get pregnant should stop using medical marijuana.
- Pregnant individuals who have an opioid use disorder should receive medical care and counseling services, not punishment.
- Health care professionals should adhere to safe prescribing practices; encourage healthy behaviors by providing appropriate information and education; identify and refer patients already abusing drugs to addiction treatment professionals.
- Health care professionals should work to initiate patient enrollment in substance abuse treatment programs, when applicable (note: substance abuse treatment programs integrated with prenatal care have proved to be effective in reducing maternal and fetal pregnancy complications and costs).

Section 1 Summary

Substance use may refer to the use of any substance, such as alcohol or drugs. Health care professionals should work to identify substance use in pregnant individuals to help prevent ectopic pregnancies, stillbirths, preterm births, low birth weight, FASDs, NAS,

and SIDS. Finally, health care professionals should follow recommendations regarding substance use and pregnancy when caring for pregnant individuals.

Section 1 Key Concepts

- A pregnant individual may suffer from polysubstance use.
- Substance use may be related to an opioid use disorder (OUD).
- Substance use may be related to a substance use disorder (SUD).
- The most frequently used substances during pregnancy include: alcohol, tobacco, marijuana, opioids, and stimulants.
- Substance use during pregnancy can lead to an ectopic pregnancy, stillbirths, preterm births, low birth weight, FASDs, NAS, and SIDS.

Section 1 Key Terms

Substance use - the use of any substance, such as alcohol or drugs

Polysubstance use - the use of more than one substance

Opioid use disorder (OUD) - a problematic pattern of opioid use leading to clinically significant impairment or distress

Substance use disorder (SUD) - a disorder that occurs when the recurrent use of alcohol and/or drugs causes clinically significant impairment, including health problems, disability, and failure to meet major responsibilities at work, school, or home

Stimulants - a class of drugs that increases activity of the body's central nervous system

Ectopic pregnancy - a pregnancy characterized by embryo growth outside of the womb

Fallopian tubes - the tubes between the ovaries and the uterus

Uterus - the place inside the body where a fetus develops

Stillbirth - when a baby dies in the womb after 20 weeks of pregnancy

Amniocentesis - a procedure in which amniotic fluid is removed from the uterus for testing or treatment

Preterm birth - the birth of a live baby that is born before 37 weeks of pregnancy are completed

Preterm baby - any baby born preterm

Cervical cerclage - a procedure that uses sutures or synthetic tape to reinforce the cervix during pregnancy in women with a history of a short cervix

Low birth weight - when a baby is born weighing less than five pounds, eight ounces

Fetal alcohol spectrum disorders (FASDs) - a group of conditions that can occur in an individual who was exposed to alcohol before birth

Neonatal abstinence syndrome (NAS) - a group of conditions that are caused by withdrawal from prenatal drug exposure

NAS scoring system - a scoring tool that may be used to quantify and diagnose neonatal withdrawal/NAS

Sudden infant death syndrome (SIDS) - the sudden, unexplained death of a baby younger than one year of age that doesn't have a known cause even after a complete investigation

Tummy time - a period of time where a baby is placed on his or her stomach while the baby is awake and someone is watching

Section 1 Personal Reflection Question

How can health care professionals work to prevent ectopic pregnancies, stillbirths, preterm births, low birth weight, FASDs, NAS, and SIDS?

Section 2: Substance Use and Breastfeeding

This section of the course will focus on substance use and breastfeeding. The information found within this section of the course was derived from materials provided by the CDC unless, otherwise, specified (CDC, 2021).

What should health care professionals know about breastfeeding?

- Breastfeeding may refer to the act or process of feeding a child human breast milk.
- Breastfeeding is the best source of nutrition for most infants.
- Breastfeeding can have health benefits for a newborn child. Breastfeeding can help prevent infant malnutrition, digestion issues, and otitis media. Breastfeeding can help prevent the incidence of nonspecific gastrointestinal tract infections, hospitalizations due to respiratory tract infections, and SIDS.
- Breastfeeding can have health benefits for a new mother. Breastfeeding can help lower a mothers' risk of high blood pressure, type 2 diabetes, ovarian cancer, and breast cancer. Breastfeeding can also help new mothers lose weight and prevent postpartum depression (note: postpartum depression may refer to a form of depression associated with childbirth).
- The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding of infants for the first six months of life before introducing nutritious complementary foods, while encouraging social and systemic changes to support mothers who choose to breastfeed.
- The AAP recommends exclusive breastfeeding for the first six months. There is no need to introduce infant formula or other sources of nutrition for most infants. Beyond six months, breastfeeding should be maintained along with nutritious complementary foods.
- The AAP recommends that health care facilities implement maternity care practices that improve breastfeeding initiation, duration, and exclusivity.
- Individuals who choose to breastfeed beyond the first year need support from health care professionals, as well as protections against workplace barriers.
- Policies that protect breastfeeding include universal paid maternity leave; the right of a woman to breastfeed in public; insurance coverage for lactation support and breast pumps; on-site child care; universal workplace break time with a clean, private location for expressing milk; the right to feed expressed milk; and the right to breastfeed in child care centers and lactation rooms (note: express, within the context of breastfeeding, may refer to the act or process of removing breast milk

from the breast of an individual; expressed breast milk may refer to human breast milk that was removed from the breast).

- All 50 states, the District of Columbia, Puerto Rico and the Virgin Islands have laws that specifically allow women to breastfeed in any public or private location.
- The Patient Protection and Affordable Care Act (ACA) requires employers to support breastfeeding mothers to express breast milk for one year after each child's birth by providing mothers with reasonable break time and a private, non-bathroom space to express their breast milk.
- Breastfeeding education should be provided to all pregnant individuals and mothers with young children.
- Breastfeeding education should be provided in both the antenatal period of pregnancy and the postnatal/postpartum period of pregnancy, and up to 24 months or longer (note the term antenatal period of pregnancy may refer to the period of time from conception until birth; the term postnatal/postpartum period of pregnancy may refer to the period that starts after the birth of a child and continues for six to eight weeks after the birth of a child).
- Breastfeeding education during pregnancy or soon after birth should encourage mothers and their families to start a nurturing, caring, and responsive relationship with their infant; one of the goals of breastfeeding education should be to support a positive and loving environment in which a neonate can thrive.
- Human milk banks are a service established for the purpose of collecting milk from donors and processing, screening, storing, and distributing donated milk to meet the specific needs of individuals for whom human milk is prescribed by licensed health care professionals. When possible, human milk banks also serve healthy infants who have been adopted or are not able to get their own mother's milk.
- Freshly expressed human milk may be stored safely at room temperature (10 - 29°C, 50 - 85°F) for some period of time; studies suggest different optimal times for room temperature storage because conditions vary greatly in the cleanliness of milk expression technique and the room temperature; warmer ambient temperatures are associated with faster growing bacterial counts in stored milk; for room temperatures ranging from 27°C to 32°C (29°C = 85°F), four hours may be a reasonable limit; for very clean expressed milk with very low bacterial

counts, six to eight hours at lower room temperatures may be reasonable, but it is best to chill or refrigerate as soon as possible if the milk will not be used during that time (Academy of Breastfeeding Medicine, 2022).

- Individuals should smell stored milk; refrigerated and frozen human milk may have an odor different from fresh milk due to lipase-mediated triglyceride breakdown, releasing fatty acids; the odor likely comes from oxidation of these fatty acids; this lipolysis process has antimicrobial effects preventing the growth of microorganisms in thawed refrigerated milk; there is no evidence to suggest that infants often reject human milk due to this odor; many foods that humans eat, such as eggs, cheese, and fish, have an unpleasant odor that does not affect taste; one study demonstrated that freezing human milk to -80°C (-112°F) leads to less change in smell as compared to conventional freezing to -19°C; heating milk to above 40°C to deactivate lipase is not advised because this may destroy many of the immunologically active factors in human milk (Academy of Breastfeeding Medicine, 2022).

- Parents who are breastfeeding should be encouraged to breastfeed children age two years or younger before, during, and after their child's vaccination. Several aspects of breastfeeding are thought to decrease pain by multiple mechanisms: being held by the parent, feeling skin-to-skin contact, suckling, being distracted, and ingesting breast milk. Potential adverse events such as gagging or spitting up have not been reported. Alternatives to breastfeeding include bottle-feeding with expressed breast milk or formula throughout the child's procedure, which simulates aspects of breastfeeding.

- Individuals without suspected or confirmed coronavirus disease 2019 (COVID-19) and who have not been in close contact with someone who has COVID-19, or who is fully vaccinated for COVID-19 do not need to take special precautions when feeding at the breast or expressing milk (note: coronavirus disease 2019 [COVID-19] may refer to a respiratory illness that can spread from person to person, which is caused by a virus known as the severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2]; the term close contact may refer to being within six feet of any other person for a cumulative total of 15 minutes or more over a 24-hour period during that person's potential period of COVID-19 transmission).

- Individuals should not breastfeed or provide expressed milk for consumption to newborn children if one or more of the following criteria are met by the newborn

child or mother/individual providing breast milk: the newborn child is diagnosed with classic galactosemia (note: galactosemia may refer to a genetic metabolic disorder that affects how the body processes a simple sugar called galactose); the mother is infected with the human immunodeficiency virus (HIV); the mother is infected with T-lymphotropic virus type 1 or type 2; the mother is using an illicit drug (e.g., phencyclidine or cocaine) (note: narcotic-dependent mothers who are enrolled in a supervised methadone program and have a negative screening for HIV infection and other illicit drugs may breastfeed their children); the mother has suspected or confirmed Ebola virus disease (note: Ebola virus disease may refer to a rare and deadly disease caused by a virus within the genus Ebolavirus).

- Individuals should not temporarily breastfeed or provide expressed milk for consumption to newborn children if one or more of the following criteria are met by the mother/individual providing breast milk: the mother is infected with untreated brucellosis (note: brucellosis may refer to an infectious disease caused by bacteria); the mother is taking specific medications (e.g., amiodarone) (note: few medications are contraindicated while breastfeeding; although many medications do pass into breast milk, most have no known adverse effect on milk supply or on infant well-being; however, health care professionals should always weigh the risks and benefits when prescribing medications to breastfeeding mothers); the mother is undergoing diagnostic imaging with radiopharmaceuticals; the mother has an active herpes simplex virus (HSV) with lesions present on the breast (note: mothers can breastfeed directly from the unaffected breast if lesions on the affected breast are covered completely to avoid transmission). Health care professionals should note the following: mothers/individuals providing breast milk may be able to resume breastfeeding after consulting with a health care professional to determine when their breast milk is safe for their infant; mothers should be provided with lactation support to learn how to maintain milk production and feed their infants with pasteurized donor human milk or formula while temporarily not breastfeeding.

- Individuals should not temporarily breastfeed, but may provide expressed milk for consumption to newborn children if the mother has untreated, active tuberculosis (note: the mother may resume breastfeeding once she is treated appropriately for two weeks and is documented to be no longer contagious); the mother has active varicella (chicken pox) infection that developed within the five days prior to delivery to the two days following delivery. Health care professionals should note the following: airborne and contact precautions may require

temporary separation of the mother and infant, during which time expressed breast milk should be given to the infant by another healthy caregiver; mothers should be able to resume breastfeeding after consulting with a health care professional to determine when there is no longer a risk of spreading infection; mothers should be provided with lactation support to learn how to maintain milk production while not breastfeeding and/or while expressing their milk.

How can substance use during breastfeeding impact infant health?

Substance use during breastfeeding can lead to vomiting, diarrhea, irritability, feeding difficulties, sedation, respiratory depression, delays in motor development, seizures, and SIDS.

Are there specific recommendations regarding substance use during breastfeeding?

Yes, the Academy of Breastfeeding Medicine developed specific recommendations regarding substance use and breastfeeding. The Academy of Breastfeeding Medicine's recommendations may be found below. The information found below was derived from materials provided by the Academy of Breastfeeding Medicine (Academy of Breastfeeding Medicine, 2022).

- A health care professional trained in formal assessment of breastfeeding should perform and document an assessment of breastfeeding effectiveness at least once during the last hours preceding discharge of the mother and infant.
- Prior to discharge, anticipation of breastfeeding problems and concerns should be assessed based on maternal and/or infant risk factors. All problems and concerns with breastfeeding, whether observed by
  a health care professional or raised by the mother, should be attended to and documented in the medical record prior to discharge of the mother and infant. This includes prompt recognition and treatment plans for possible ankyloglossia, which can affect future breastfeeding (note: ankyloglossia may refer to a condition in which a short, thick or tight band of tissue tethers the bottom of the tongue's tip to the floor of the mouth). Health care professionals should develop a plan for the patient.

- Breastfeeding individuals should receive instruction on the technique of expressing milk by hand (whether or not they uses pumps) so they are able to alleviate engorgement, increase breast milk supply, maintain milk supply, and obtain milk for feeding to the infant should the individual and the infant be separated or if the infant is unable to feed directly from the breast.
- Breastfeeding individuals should be provided with lists of various local peer support groups and services.
- If the mother is medically ready for hospital discharge but the infant is not, every effort should be made to allow the mother to breastfeed the infant (note: maintenance of a 24-hour rooming-in relationship with the infant is optimal during the infant's extended stay).
- If the mother is discharged from the hospital before the infant is discharged the mother should be encouraged to spend as much time as possible with the infant, to practice skin-to-skin technique with the infant whenever possible, and to continue regular breastfeeding. During periods when the mother is not in the hospital, the mother should be taught to express and store breast milk and to bring it to the hospital for the infant. At the least, the mother should demonstrate successful expression of her milk before hospital discharge. If the mother has problems with the milk supply, early referral to a lactation consultant and/or a health care professional skilled in breastfeeding management and medicine is indicated.
- Infants of individuals with substance use disorders, at risk for multiple health and developmental difficulties, stand to benefit substantially from breastfeeding and human milk. A prenatal plan preparing the mother for parenting, breastfeeding, and substance abuse treatment should be formulated through individualized, patient-centered discussions with each patient. This care plan should include instruction in the consequences of relapse to drug or excessive alcohol use during lactation, as well as education regarding potential for donor milk, formula preparation, and bottle handling and cleaning should breastfeeding be or become contraindicated. In the perinatal period each mother and infant should be carefully and individually counseled on breastfeeding prior to discharge from maternity care.
- Patient evaluations should include the following elements of care: drug use and substance abuse treatment histories, including medication-assisted treatment

with methadone or buprenorphine; medical and psychiatric status; other maternal medication needs; infant health status (to include ongoing evaluation for NAS and impact on ability to breastfeed); the presence or absence and adequacy of maternal family and community support systems; plans for postpartum care and substance abuse treatment for the mother and pediatric care for the child.

- Patients with a substance use disorder who present a desire to breastfeed should be engaged in treatment pre- and postnatally. Maternal written consent for communication with substance abuse treatment providers should be obtained prior to delivery, if possible.
- Any discussion with patients who use substances with sedating effects should include counseling on safely caring for their infants and instruction on safe sleep practices.
- Health care professionals should encourage patients under the following circumstances to breastfeed their infants: engaged in substance abuse treatment; plans to continue in substance abuse treatment in the postpartum period; abstinence from drug use for 90 days prior to delivery; has the ability to maintain sobriety demonstrated in an outpatient setting; toxicology testing of maternal urine negative at delivery; engaged in prenatal care; compliant with prenatal care.
- • Methadone maintenance is the treatment of choice for pregnant and postpartum women with opioid dependence; evidence suggests that the concentrations of methadone found in human milk are low, and, thus, individuals on stable doses of methadone maintenance should be encouraged to breastfeed if desired, irrespective of maternal methadone dose.
- When the use of narcotics during pregnancy is determined to be consistent with an opioid use disorder rather than a modality for short-term pain relief, consideration of initiation of maintenance methadone or buprenorphine is strongly encouraged, and these individuals should be supported in breastfeeding initiation (note: buprenorphine is a partial opioid agonist used for the treatment of opioid dependency).
- Health care professionals should encourage stable methadone- or buprenorphine-maintained individuals to breastfeed regardless of dose.

- Management of mothers who use chronic opioid therapy for pain should be closely supervised by a chronic pain physician who is familiar with pregnancy and breastfeeding.
- Health care professionals should note the following: length of time on opioid medications, total dose, and whether the medications were used during pregnancy should help inform the decision of whether breastfeeding may be safely undertaken in certain cases (note: short courses of most low-dose prescription opioids can be safely used by a breastfeeding mother; caution is urged with codeine).
- Health care professionals should note the following: judicious amounts of oral narcotic pain medication, when used in a time-limited situation for an acute pain problem, are generally compatible with continued breastfeeding if supervision and monitoring of the breastfeeding infant are adequate.
- Rapidly increasing narcotic dosing in a breastfeeding mother should prompt further evaluation and reconsideration of the safety of continued breastfeeding.
- Health care professionals should counsel mothers who smoke cigarettes after giving birth to reduce their intake as much as possible, and not to smoke around their infant, to reduce infant exposure to second-hand smoke. Smoking cessation and nicotine replacement modalities, such as nicotine patches and gum, may be useful for some mothers.
- Health care professionals should give mothers who smoke tobacco additional support, as maternal smoking appears to be an independent and associated risk factor for non-initiation and early cessation of breastfeeding.
- Health care professionals should note the following: many mothers quit tobacco use during pregnancy, however postpartum relapse is common, with about 50% resuming tobacco use in the first few months after birth; nicotine and other compounds are known to transfer to the infant via milk, and considerable transfer of chemicals via second-hand smoke also occurs when infants are exposed to environmental
  tobacco smoke; tobacco smoke increases the incidence of respiratory allergy in infants, as well as SIDS; some smoking cessation modalities (e.g., nicotine patch; nicotine gum) are compatible with breastfeeding and can be encouraged in many circumstances.

- Health care professionals should counsel mothers who wish to drink occasional alcohol that alcohol easily transfers into human milk. Recommendations from the American Academy of Pediatrics, the World Health Organization (WHO), and others advise waiting 90 - 120 minutes after ingesting alcohol before breastfeeding, or expressing and discarding milk within that time frame.

- Health care professionals should note the following: many individuals who significantly decrease or eliminate their alcohol intake during pregnancy may choose to resume consuming alcohol after giving birth; alcohol interferes with the milk ejection reflex, which may ultimately reduce milk production through inadequate breast emptying; human milk alcohol levels generally parallel maternal blood alcohol levels; studies evaluating infant effects of maternal alcohol consumption are mostly mixed, with some mild effects seen in infant sleep patterns, amount of milk consumed during breastfeeding sessions, and early psychomotor development; breastfeeding individuals should limit alcohol intake to the equivalent of eight ounces of wine or two beers; breastfeeding individuals should wait two hours after drinking alcohol to resume breastfeeding to ensure complete elimination of alcohol from breast milk.

- Health care professionals should counsel mothers who admit to occasional or rare use of marijuana to avoid further use or reduce their use as much as possible while breastfeeding; health care professionals should advise new mothers as to its possible long-term neurobehavioral effects, and instruct them to avoid direct exposure of the infant to marijuana and its smoke.

- Health care professionals should strongly advise mothers found with a positive urine screen for THC to discontinue exposure while breastfeeding and counsel them as to its possible long-term neurobehavioral effects.

- When advising mothers on the medicinal use of marijuana during lactation, health care professionals must take into careful consideration and counsel on the potential risks of exposure of marijuana and benefits of breastfeeding to the infant.

- The lack of long-term follow-up data on infants exposed to varying amounts of marijuana via human milk, coupled with concerns over negative neurodevelopmental outcomes in children with in utero exposure, should prompt extremely careful consideration of the risks versus benefits of breastfeeding in the setting of moderate or chronic marijuana use.

- Health care professionals should counsel individuals to avoid breastfeeding if they are not engaged in substance abuse treatment, or engaged in treatment and fail to provide consent for contact with a counselor.
- Health care professionals should counsel individuals to avoid breastfeeding if they are not engaged in prenatal care.
- Health care professionals should counsel individuals to avoid breastfeeding if they experience a positive maternal urine toxicology screen for substances other than marijuana at delivery.
- Health care professionals should counsel individuals to avoid breastfeeding if they do not have plans for postpartum substance abuse treatment or pediatric care.
- Health care professionals should counsel individuals to avoid breastfeeding if they relapse to illicit drug use or legal substance misuse within the 30-day period prior to delivery.
- Health care professionals should counsel individuals to avoid breastfeeding if a health care professional observes behavioral or other indicators that an individual is actively abusing substances.
- Health care professionals should counsel individuals to avoid breastfeeding if they have a history of chronic alcohol use.
- Health care professionals should evaluate patients under the following circumstances, and determine appropriate advice for breastfeeding by discussion and coordination among the mother, maternal
  care providers, and substance abuse treatment providers: relapse to illicit substance use or legal substance misuse in the 90 - 30-day period prior to delivery; concomitant use of other prescription medications deemed to be incompatible with lactation; engaged later (after the second trimester) in prenatal care and/or substance abuse treatment; attained drug and/or alcohol sobriety only in an inpatient setting; lack of appropriate maternal family and community support systems; report that they desire to breastfeed their infant in order to either retain custody or maintain their sobriety in the postpartum period.
- In the United States, individuals who establish breastfeeding and subsequently relapse to illegal drug use are counseled not to breastfeed, even if milk is discarded during the time period surrounding relapse. There is no known pharmacokinetic data to establish the presence and/or concentrations of most

illicit substances and/or their metabolites in human milk and effects on the infant, and this research is unlikely to occur given the ethical dilemmas it presents. The lack of pharmacokinetic data for most drugs of abuse in recently postpartum women with substance use disorders precludes the establishment of a ‘‘safe’’ interval after use when breastfeeding can be reestablished for individual drugs of abuse; women using illicit substances in the postnatal period may exhibit impaired judgment and secondary behavioral changes that may interfere with the ability of the mother to care for her infant or to breastfeed adequately. Passive drug exposures may pose additional risks to the infant. Therefore, any woman relapsing to illicit drug use or legal substance misuse after the establishment of lactation should be provided an appropriate human milk substitute (e.g., donor milk; formula) and intensified drug treatment, along with guidance on how to taper milk production to prevent mastitis.

- Patients with a substance use disorder who has successfully initiated breastfeeding should be carefully monitored, along with the infant, in the postpartum period. Ongoing substance abuse treatment, postpartum care, psychiatric care when warranted, and pediatric care are important for women with substance use disorders. Lactation support is particularly important for infants experiencing NAS and their mothers. Communication among all care providers involved with the health, welfare, and substance abuse support of the mother and the child should provide an interactive network of supportive care for the patient and infant.

Section 2 Summary

Breastfeeding may refer to the act or process of feeding a child human breast milk. Individuals breastfeeding their infant may engage in substance use and/or may suffer from an OUD or a SUD. Health care professionals should identify such individuals to help prevent infant-related vomiting, diarrhea, irritability, feeding difficulties, sedation, respiratory depression, delays in motor development, seizures, and SIDS. Health care professionals should follow recommendations regarding substance use and breastfeeding when caring for patients.

Section 2 Key Concepts

- Breastfeeding is the best source of nutrition for most infants.

- Breastfeeding can have health benefits for a newborn child.
- Breastfeeding can have health benefits for a new mother.
- The AAP recommends exclusive breastfeeding of infants for the first six months of life before introducing nutritious complementary foods, while encouraging social and systemic changes to support mothers who choose to breastfeed.
- Substance use during breastfeeding can lead to vomiting, diarrhea, irritability, feeding difficulties, sedation, respiratory depression, delays in motor development, seizures, and SIDS.
- Health care professionals should follow recommendations regarding substance use and breastfeeding when caring for patients.

Section 2 Key Terms

Breastfeeding - the act or process of feeding a child human breast milk

Postpartum depression - a form of depression associated with childbirth

Express (within the context of breastfeeding) - the act or process of removing breast milk from the breast of an individual

Expressed breast milk - human breast milk that was removed from the breast

Antenatal period of pregnancy - the period of time from conception until birth

Postnatal/postpartum period of pregnancy - the period that starts after the birth of a child and continues for six to eight weeks after the birth of a child

Coronavirus disease 2019 (COVID-19) - a respiratory illness that can spread from person to person, which is caused by a virus known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

Close contact - being within six feet of any other person for a cumulative total of 15 minutes or more over a 24-hour period during that person's potential period of COVID-19 transmission

Galactosemia - a genetic metabolic disorder that affects how the body processes a simple sugar called galactose

Ebola virus disease - a rare and deadly disease caused by a virus within the genus Ebolavirus

Brucellosis - an infectious disease caused by bacteria

Ankyloglossia - a condition in which a short, thick or tight band of tissue tethers the bottom of the tongue's tip to the floor of the mouth

Section 2 Personal Reflection Question

How can health care professionals use the above recommendations to effectively care for patients engaged in substance use while breastfeeding?

Section 3: OUD/SUD Treatment

Pregnant individuals or individuals breastfeeding their children may be receiving or may require OUD/SUD treatment. Therefore, health care professionals should be familiar with OUD/SUD treatment options. With that in mind, this section of the course will focus on medication-assisted treatment (MAT) and group therapy. The information found within this section of the course was derived from materials provided by the Substance Abuse and Mental Health Services Administration (SAMHSA) unless, otherwise, specified (Substance Abuse and Mental Health Services Administration [SAMHSA], 2021).

Medication-Assisted Treatment (MAT)

Pregnant individuals or individuals breastfeeding their children may be receiving or may require medication-assisted treatment (MAT). Specific information regarding medication-assisted treatment (MAT) may be found below.

- Medication-assisted treatment (MAT) may refer to a type of comprehensive substance use disorder (SUD) treatment that provides both maintenance pharmacotherapy - using an opioid agonist, a partial agonist, or an antagonist medication, usually provided in a certified, licensed opioid treatment program or a health care professional’s office-based treatment setting - and other treatment services, including medical and psychosocial support services such as employment assistance or family services.
- Methadone may be used in MAT.

- Methadone is a synthetic, long-acting, full mu opioid receptor agonist that can produce analgesia, sedation, euphoria, and respiratory depression by binding to mu opioid receptors.
- A therapeutic and scheduled dose of methadone can eliminate withdrawal symptoms and reduce cravings in individuals with OUD.
- The half-life of methadone can vary from 8 to 59 hours depending on the patient; the average is 24 hours.
- Methadone induction should begin at a low dose and increase gradually with daily monitoring over days or weeks. At stable daily doses, serum levels peak two to four hours after dosing, then slowly decrease, providing 24 hours without overmedication or withdrawal.
- Methadone is approximately 70 to 80 percent bioavailable when patients take it orally for OUD. There is notable individual variability in bioavailability, ranging from 36 to 100 percent.
- The liver's CYP450 3A4 enzyme is primarily responsible for metabolizing methadone, although CYP2B6 and CYP2D6 enzymes are also involved. At the start of methadone treatment, methadone can increase CYP3A4 activity and accelerate its own metabolism in some individuals.
- Methadone dosing must be individualized because methadone's bioavailability, clearance, and half-life can vary considerably among patients.
- Health care professionals should check for potential drug-drug interactions and monitor patients receiving concomitant medications. Some medications (e.g., benzodiazepines, anticonvulsants, antibiotics, antiretroviral agents, some antidepressants) can induce or inhibit CYP450 enzymes, resulting in potential changes in methadone serum concentration, effectiveness, and side effect profile.
- Methadone is indicated for individuals meeting admission criteria, which for individuals 18 and older are: being currently "opioid-addicted;" having a history of at least one year of opioid addiction before admission; providing voluntary, written informed consent.
- Contraindications to treatment with methadone include an allergy to methadone and other instances in which opioids are contraindicated, such as acute asthma,

in patients with abnormally high carbon dioxide blood levels (e.g., from pulmonary disease or sleep apnea), or paralytic ileus.

- Methadone can cause respiratory depression, particularly during initial dosing and dose titration. The goal of methadone dosing in the first weeks of treatment (i.e., induction) is to relieve withdrawal but avoid over sedation and respiratory depression.
- Concurrent misuse of alcohol or benzodiazepines with methadone (or buprenorphine) increases respiratory depression risk.
- Health care professionals should ensure that patients understand the risk of potential respiratory depression and unintentional overdose death when combining methadone with alcohol, benzodiazepines, or other central nervous system (CNS) depressants.
- Patients at risk for serious alcohol or benzodiazepine withdrawal syndrome (including seizures and delirium tremens) may need inpatient medically supervised withdrawal.
- Methadone treatment is associated with QTc prolongation, which often occurs without clinical consequences (note: QTc prolongation is an abnormally long time in electrocardiogram (ECG) tracing between the start of a Q wave and the end of a T wave).
- Health care professionals should use a lower-than-usual starting dose in individuals with no or low opioid tolerance (e.g., 5 mg to 10 mg).
- Health care professionals should ensure awareness among pregnant patients or patients who may become pregnant that NAS can occur in newborns of mothers treated with methadone. Individuals receiving methadone treatment while pregnant should talk with their health care professional about NAS and how to reduce the risk of NAS. Research indicates that the dose of opioid agonist medication is not reliably related to the severity of NAS.
- Health care professionals should alert patients to the potential for misuse and diversion of methadone.
- Health care professionals should inform patients that they will develop physical dependence on methadone and will experience opioid withdrawal if they stop taking methadone.

- Health care professionals should caution patients that methadone may affect cognition and psychomotor performance and can have sedating effects; urge patients to be cautious in using heavy machinery and driving until they are sure that their abilities are not compromised.
- Health care professionals should inform patients about other possible side effects of methadone, such as: dizziness, nausea, vomiting, sweating, constipation, and edema.
- Adrenal insufficiency has been reported in patients treated with opioids. Ask patients to alert health care professionals of nausea, vomiting, loss of appetite, fatigue, weakness, dizziness, or low blood pressure.
- Health care professionals should carefully monitor each patient's response to treatment if they are prescribed or stop taking a CYP450 34A inducer or inhibitor; methadone dosages may need to be adjusted up or down depending on the medication and whether treatment is starting or stopping.
- Buprenorphine may be used in MAT.
- Buprenorphine is a synthetic mu opioid receptor partial agonist approved by the Food and Drug Administration (FDA) for use in maintenance treatment for OUD.
- Buprenorphine is commercially available as a buprenorphine-only product or a combination buprenorphine/naloxone product. When taken as directed buprenorphine does not produce the euphoria and sedation associated with heroin or other opioids but can reduce or eliminate withdrawal symptoms, including cravings, in individuals with OUD.
- Buprenorphine and buprenorphine/naloxone formulations are effective treatments for OUD.
- Buprenorphine reduces opioid withdrawal and craving and blunts the effects of illicit opioids.
- As a partial agonist, buprenorphine's maximum effect on respiratory depression is limited when compared to full agonists.
- Buprenorphine has a long elimination half-life, which varies from 24 to 69 hours with a mean half-life of 24 to 42 hours.
- Buprenorphine has fewer clinically relevant drug interactions than methadone.

- Buprenorphine formulations are available as sublingual tablets and film, buccal film, implants, and extended-release injection.
- Buprenorphine is contraindicated in patients who are allergic to buprenorphine. Patients with true allergic reactions to naloxone should not be treated with the combination buprenorphine/naloxone product. Allergies to naloxone are infrequent. Some patients may falsely or mistakenly claim an allergy to naloxone and request buprenorphine monoproduct. Health care professionals should carefully assess such claims and explain the differences between an allergic reaction and symptoms of opioid withdrawal precipitated by buprenorphine or naloxone; the monoproduct has more abuse potential than buprenorphine/ naloxone.
- Respiratory depression and overdoses are uncommon in adults (note: unintentional pediatric exposure can be life threatening or fatal).
- Evidence suggests that buprenorphine may lead to hepatitis and liver failure.
- Buprenorphine and naloxone are extensively metabolized by the liver. Moderate-to-severe impairment results in decreased clearance, increased overall exposure to both medications, and higher risk of buprenorphine toxicity and precipitated withdrawal from naloxone. The aforementioned effects have not been observed in patients with mild hepatic impairment.
- Potential for misuse and diversion exists. Individuals can misuse buprenorphine via intra-nasal or IV routes or divert it for others to misuse. Health care professionals should not give early or multiple refills without careful assessment and monitoring suited to the patient's level of stability.
- Patients will develop physical dependence on buprenorphine. Health care professionals should alert patients that they will experience opioid withdrawal if they stop buprenorphine.
- Buprenorphine may affect cognition and psychomotor performance and can have sedating effects in some people (particularly those who've lost tolerance after a period of abstinence from opioids). Concurrent use of illicit drugs, other prescribed medications, or medical or psychiatric comorbidity can affect cognition and psychomotor performance. Health care professionals should advise patients

to exercise caution in using heavy machinery and driving until they're sure that their abilities are not compromised.

- Buprenorphine can cause precipitated opioid withdrawal.
- Buprenorphine has fewer documented clinically significant drug interactions than methadone. Monitoring is still needed for patients who are starting or stopping medications that are CYP450 3A4 enzyme inhibitors or inducers or that compete with buprenorphine for this enzyme.
- Buprenorphine side effects, include: headache, dizziness, nausea, vomiting, sweating, constipation, and sexual dysfunction.
- Patients should begin buprenorphine when they are exhibiting clear signs of opioid withdrawal. Induction typically starts with a 2 mg to 4 mg dose of buprenorphine or a 2 mg/0.5 mg to 4 mg/1 mg dose of buprenorphine/naloxone. Depending on the formulation used and whether a given patient has a dry mouth, the dose can take between 3 and 10 minutes to dissolve fully. After approximately 2 hours, an additional 2 mg to 4 mg dose of buprenorphine/naloxone can be given if there is continued withdrawal and lack of sedation.
- Health care professionals should advise patients to abstain from tobacco before dosing.
- Before initiating buprenorphine, health care professionals should carefully taper methadone to lower the risk of return to illicit opioid use during transition.
- Health care professionals should not start buprenorphine until the patient manifests signs of opioid withdrawal.
- Health care professionals should monitor dose effectiveness during early stabilization.
- Health care professionals should decrease a buprenorphine dose when there is evidence of dose toxicity (e.g., sedation; clinically relevant increases in liver function tests); health care professionals should hold a buprenorphine dose when there is acute alcohol or benzodiazepine intoxication.
- Health care professionals should note the following: NAS may occur in newborns of pregnant individuals who take buprenorphine; individuals receiving opioid agonist therapy while pregnant should talk with a health professional about NAS;

not all babies born to individuals treated with opioid agonists require treatment for NAS; research indicates that the dose of opioid agonist medication is not reliably related to the severity of NAS; each individual should receive the dose of medication that best manages the given illness.

- When engaging patients in MAT, health care professionals should consider introducing a treatment agreement. A treatment agreement may refer to a written agreement that outlines the joint responsibilities of health care professionals and a patient. The purpose of a treatment agreement is to help a health care professional and a patient work together toward safe and effective health care. If a health care professional chooses to utilize a treatment agreement, he or she should instruct patients to read and sign the treatment agreement. Examples of the type of information that should be included in a MAT-related treatment agreement may be found below.
    - The risks and benefits of buprenorphine treatment have been explained to me.
    - The risks and benefits of other treatment for opioid use disorder (including methadone, naltrexone, and nonmedication treatments) have been explained to me.
    - I will keep my medication in a safe, secure place away from children (for example, in a lockbox).
    - I will take the medication exactly as my health care professional instructs me to. If I want to change my medication dose, I will speak to a health care professional first. Taking more medication than a health care professional prescribes or taking it more than once daily as a health care professional prescribes is medication misuse and may result in supervised dosing at a clinic. Taking the medication by snorting or by injection is also medication misuse and may result in supervised dosing at a clinic, referral to a higher level of care, or change in medication based on a health care professional's evaluation.
    - I will be on time to my appointments and respectful to health care professionals and other patients.
    - I will keep my health care professional informed of all my medications (including herbs and vitamins) and medical problems.

- I agree not to obtain or take prescription opioid medications prescribed by any other health care professionals.
- If I am going to have a medical procedure that will cause pain, I will let a health care professional know in advance so that my pain will be adequately treated.
- If I miss an appointment or lose my medication, I understand that I will not get more medication until my next appointment.
- If I come to the office intoxicated, I understand that a health care professional will not see me, and I will not receive more medication until the next appointment.
- I understand that it's illegal to give away or sell my medication; this is diversion.
- Violence, threatening language or behavior, or participation in any illegal activity in the health care facility may result in treatment termination.
- I understand that random urine drug testing is a treatment requirement. If I do not provide a urine sample, it will count as a positive drug test.
- I understand that I will be called at random times to bring my medication container into the health care facility for a pill or film count. Missing medication doses could result in supervised dosing or referral to a higher level of care at a clinic or potentially at another treatment provider based on my individual needs.
- I understand that initially I will have weekly appointments until I am stable. I will get a prescription for seven days of medication at each visit.
- I can be seen every two weeks starting the second month of treatment if I have two negative urine drug tests in a row. I will then get a prescription for 14 days of medication at each visit.
- I will go back to weekly visits if I have a positive drug test. I can go back to visits every two weeks when I have two negative drug tests in a row again.
- I may be seen less than every two weeks based on goals made by a health care professional and myself.

- I understand that people have died by mixing buprenorphine with alcohol and other drugs like benzodiazepines (drugs like Valium, Klonopin, and Xanax). I understand that treatment of opioid use disorder involves more than just taking medication. I agree to comply with health care professionals' recommendations for additional counseling and/or for help with other problems.
- I understand that there is no fixed time for being on MAT and that the goal of treatment is for me to
  stop using all illicit drugs and become successful in all aspects of my life.
- I understand that I may experience opioid withdrawal symptoms when I stop taking buprenorphine.
- I was educated about the other two FDA-approved medications used for opioid dependence treatment.
- I was educated about the increased chance of pregnancy when stopping illicit opioid use and starting buprenorphine treatment and I was informed about methods for preventing pregnancy.

Group Therapy

Pregnant individuals or individuals breastfeeding their children may be receiving or may require group therapy. Specific information regarding group therapy may be found below.

- Group therapy may refer to a therapy modality wherein individuals learn and practice recovery strategies, build interpersonal skills, and reinforce and develop social support networks.
- Group therapy typically involves a group of 6 to 12 individuals who meet on a regular basis with one or two group therapists.
- Group therapy has therapeutic advantages, such as the following: group therapy provides potential benefits in promoting social support; reducing isolation and stigma; developing effective communication and interpersonal skills; practicing recovery-oriented coping strategies with group members.
- Group therapy may be used in hospital-based units providing medically supervised withdrawal; outpatient and intensive outpatient programs;

nonhospital residential treatment centers; halfway houses; continuing care groups; and outpatient groups for those engaged in medication-assisted treatment.

- Groups differ in their overall purpose and goals. Some groups may address a specific point in recovery, such as early recovery and relapse prevention; other groups may provide psychoeducation on various topics, including the consequences of SUDs, family impact, and the use of support systems; other groups may focus on managing specific co-occurring health conditions (e.g., HIV/AIDS), psychological symptoms (e.g., anger management), and mental disorders (e.g., social anxiety, mood disorders); some groups may focus on populations (e.g., gender- and age-specific and criminal justice groups).
- Groups may use a combination of strategies, such as motivational interviewing, stages-of-change interventions, psychoeducation, supportive approaches, and skill development.
- Matching individuals with the appropriate group is vital to successful treatment. In addition to admission criteria and the group's purpose, an individual's needs, current goals, and ability to participate determine appropriateness (note: a pregnant or breastfeeding individual may benefit from a women-only group).
- Individuals who are not suited for group therapy should be reevaluated if conditions change.
- The following circumstances may justify ruling out group therapy at a particular point in time for a specific individual: an individual cannot attend group therapy regularly; an individual is currently misusing substances; an individual suffers from an intellectual disability or a neurocognitive disorder that prevents the individual from communicating with other group members, understanding or attending to the group process, or following through with group tasks; current psychosis, mania, or other symptoms that would hamper participation in a given group; inability to follow group rules established by the treatment program and group members.
- Group cohesion and therapeutic alliance improve outcomes for individuals who participate in group therapy for SUDs (note: group cohesion may refer to the quality of relationships among group members, and therapists/health care professionals; therapeutic alliance may refer to the development of a working relationship and bond between a group member and health care professional).

Favorable outcomes of group cohesion and therapeutic alliance include the following: treatment acceptance, engagement, and retention in group therapy, as well as enhanced abstinence rates or reduction in substance misuse frequency.

- Research indicates that group cohesion is associated with positive outcomes across treatment settings, theoretical approaches, and client populations.
- Health care professionals can improve group cohesion by utilizing the following strategies: ask members to share if they ever experienced a similar circumstance, feeling, or thought as expressed by a specific group member; ask the group members to provide feedback to a specific group member on what they see as working well and what is not working so well regarding self-care; brainstorm with the group about how to manage a specific high-risk situation using a concrete example from a group member; use role-play to practice coping or refusal skills, then reverse roles so that another member can experience and empathize with the group member's situation while learning recovery skills.
- Health care professionals can improve therapeutic alliance by utilizing the following strategies: walk through an example of a typical group session; talk about how group sessions begin and end; discuss normal experiences in group sessions, such as being anxious about giving feedback to another member or sharing an experience or emotions with the entire group, hearing a painful story from another participant, or learning about a member leaving the group; employ reflective listening (note: reflective listening may refer to a communication strategy in which an individual seeks to understand a speaker's idea, then communicates the idea back to the speaker, to confirm the idea is understood correctly; reflective listening can be used to show individuals one is listening and understands them).
- Health care professionals should encourage member - member interactions rather than conducting individual therapy in a group format, model how members can give balanced positive and negative feedback, and highlight commonalities and foster similar experiences among group members.
- Health care professionals should prepare individuals to join a group by explaining the group process, treatment expectations, and group rules prior to participation.
- Health care professionals should develop shared goals for group therapy.

- Health care professionals should be mindful that new clients are typically in unfamiliar territory, unacquainted with clinical and recovery language, group processes, and treatment procedures.
- Health care professionals should work to reduce the stigma of substance use/SUD treatment. The term stigma may refer to a process in which individuals are devalued, labeled, and excluded from society. Stigmas can be self-imposed or imposed by others, including other group members, family, staff, and society. Stigmas can foster health inequalities and are associated with negative outcomes for those with SUDs; stigmas are linked to premature discontinuation of treatment, increased risky behavior, and delayed recovery.
- Groups may be open or closed. Open groups accept group members on a rolling basis with no end date. Clients can enter groups at any time. Closed groups have a specific start and end date and typically accept clients only at the beginning of the process. Health care professionals should note the following: closed groups offer advantages in evaluating treatment effectiveness using a specific approach or strategy; closed groups are more likely to build group cohesiveness and support among members, resulting in less client turnover, which is associated with improved outcomes.
- To effectively facilitate a group, health care professionals should prepare and set an agenda for each session (note: after setting an agenda, health care professionals should remain flexible and open to changing the agenda as needed). Agendas should emphasize elements of the group that will be consistent across all sessions; agendas used in early sessions might also cover the reinforcement of group rules and how group members share or provide feedback; agendas can also cover session content, like planned exercises, educational material, and content to address individual and group-specific concerns and needs.
- Research suggests that group size should range from 6 to 12 individuals to effectively address individuals' needs and to enable all members to participate.
- Health care professionals should work to employ cultural awareness within groups. Cultural awareness may refer to the willingness and ability to recognize and self-reflect on the importance of race, ethnicity, and culture.
- Health care professionals should work to employ cultural knowledge within groups. Cultural knowledge may refer to a commitment to learning about other

cultures by researching, using a cultural guide or mentor from the group population, attending culturally specific events, and asking group members about their culture with a welcoming and inquisitive attitude.

- Health care professionals should avoid microaggression within groups. Microaggression may refer to derogatory comments, insults, or nonverbal behaviors, whether intentional or unintentional, that reflect prejudice, hostility, stereotypes, and generalizations toward an individual based solely on his or her membership in a marginalized group (e.g., gender identity, ethnicity, race, sexual orientation, socioeconomic status) Health care professionals should note that the effects of microaggression can be cumulative and affect mental and physical health.
- Group therapy should use support, psychoeducation, skill development, and interpersonal processes to assist individuals in addressing their emotions, thoughts, and behavior in recovery; most groups should use a combination of motivational interviewing, cognitive–behavioral, and stages-of-change strategies; early recovery groups should focus on psychoeducation, support, and skill development, while late recovery groups should emphasize relapse prevention, social skills, and relationship concerns.

Section 3 Summary

Pregnant individuals or individuals breastfeeding their children may be receiving or may require OUD/SUD treatment. Treatment options for OUD/SUD may include MAT and/or group therapy. Health care professionals should be familiar with MAT and group therapy to optimize patient care.

Section 3 Key Concepts

- Treatment options for OUD/SUD may include MAT and/or group therapy.

Section 3 Key Terms

Medication-assisted treatment (MAT) - a type of comprehensive substance use disorder (SUD) treatment that provides both maintenance pharmacotherapy - using an opioid agonist, a partial agonist, or an antagonist medication, usually provided in a certified, licensed opioid treatment program or a health care professional's office-based

treatment setting - and other treatment services, including medical and psychosocial support services such as employment assistance or family services

Methadone - a synthetic, long-acting, full mu opioid receptor agonist that can produce analgesia, sedation, euphoria and respiratory depression by binding to mu opioid receptors

QTc prolongation - an abnormally long time in electrocardiogram (ECG) tracing between the start of a Q wave and the end of a T wave

Buprenorphine - a synthetic mu opioid receptor partial agonist approved by the Food and Drug Administration (FDA) for use in maintenance treatment for opioid use disorder

Treatment agreement - a written agreement that outlines the joint responsibilities of health care professionals and a patient

Group therapy - a therapy modality wherein individuals learn and practice recovery strategies, build interpersonal skills, and reinforce and develop social support networks

Group cohesion - the quality of relationships among group members, and therapists/ health care professionals

Therapeutic alliance - the development of a working relationship and bond between a group member and health care professional

Reflective listening - a communication strategy in which an individual seeks to understand a speaker's idea, then communicates the idea back to the speaker, to confirm the idea is understood correctly

Stigma - a process in which individuals are devalued, labeled, and excluded from society

Cultural awareness - the willingness and ability to recognize and self-reflect on the importance of race, ethnicity, and culture

Cultural knowledge - a commitment to learning about other cultures by researching, using a cultural guide or mentor from the group population, attending culturally specific events, and asking group members about their culture with a welcoming and inquisitive attitude

Microaggression - derogatory comments, insults, or nonverbal behaviors, whether intentional or unintentional, that reflect prejudice, hostility, stereotypes, and

generalizations toward an individual based solely on his or her membership in a marginalized group

Section 3 Personal Reflection Question

How can MAT and group therapy impact the lives of new mothers and their children?

Conclusion

Substance use during pregnancy and while breastfeeding can dramatically impact the overall health, well-being, and quality of life of a child. Therefore, health care professionals should work to identify pregnant and breastfeeding individuals engaged in substance use. Finally, health care professionals should encourage those suffering from OUD/SUD to seek treatment, when applicable.

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