Substance Abuse and Pregnancy

Restriction on Disclosure and Use of Information: The information contained in this training shall be maintained as confidential and shall not be disclosed, duplicated, or used in whole or in part for any purpose other than to educate OBHG physicians and staff, without the written consent of OBHG.
Overview:

- According to the National Survey on Drug Use and Health, there is about a 4% prevalence of illicit drug use among pregnant women.¹

- A study found in the Journal of American Medical Association states that roughly 13,500 babies are born every year exhibiting symptoms of opiate withdrawal.²

- This same JAMA study cites that the number of pregnant women using opiates jumped fivefold from 2000-2009.³
Types of Drugs:

- Opiates
- Cocaine
- Designer Drugs
  - Methamphetamine
  - Synthetic Heroin – (MPPP, MPTP-containing powder)
  - Ecstasy (MDMA)
  - Bath Salts and Molly
Opiates
Types of Opioids:

- Heroin
- Codeine
- Fentanyl
- Morphine
- Opium
- Methadone
- Oxycodone

These products may be swallowed, injected, nasally inhaled, smoked, chewed, or used as suppositories.
**Signs and Symptoms of Overdose:**

- Coma
- Circulatory collapse
- Pinpoint pupils
- Bradycardia
- Hypothermia
- Severe respiratory depression

Opioids have a rapid transplacental passage (less than 60 minutes). Maternal and fetal withdrawal is likely to begin 6-48 hours after last usage. Maternal withdrawal symptoms tend to be flu-like in nature as well as anorexia.⁶
**Perinatal Complications associated with opiate use:**

- Spontaneous Abortions
- Chorioamnionitis
- Preterm Labor and delivery (~25-40%)\(^5\)
- Perinatal infections
- Perinatal asphyxia
- Placental Abruption
- Fetal Distress
- Intrauterine growth retardation
Opiate Treatment Options:

• Methadone has been used since the 1970’s for treatment of heroin addiction and is now also used for non-heroin addiction. The rationale for opioid-assisted therapy is to prevent narcotic withdrawal and encourage prenatal care.⁷

• Buprenorphine has emerged as an alternative treatment during pregnancy. There is a lower risk of overdose, fewer drug interactions, evidence of less severe neonatal abstinence syndrome, and does not require daily visits to a clinic.⁸

• Nalaxone (Narcan) should only be used in the case of maternal overdose to save the woman’s life because the induced withdrawal may precipitate preterm labor or fetal distress.⁹
Nasal Narcan

Overdose Rescue Kit
How to give nasal naloxone for suspected opioid overdose
Georgia could be next state to approve overdose antidote

By Sandra Parrish

Atlanta — When Attorney General Eric Holder made the call for more states to allow better access to a drug known to reverse the effects of drug overdoses, Georgia was already well on its way.

A bill is awaiting passage in the state Senate that would allow first responders, including police, as well as family members of drug addicts to have Naloxone readily available.

According to the Justice Department’s website, heroin deaths increased 45 percent between 2006 and 2010.
Intrapartum and PostPartum Management:

• Women receiving opioid-assisted therapy who are undergoing labor should receive pain relief as if they were not receiving therapy as the maintenance dose does not provide adequate analgesia.¹⁰

• Epidural or spinal anesthesia should be offered when appropriate.¹¹

• Narcotic agonist-antagonist drugs should be avoided because they may precipitate acute withdrawal.¹²

• In general, patients undergoing opioid maintenance therapy will require more analgesia postpartum than other patients.¹³
Prenatal Complications of Cocaine Use:

- Placental Abruption
- PROM
- Preterm Labor and Delivery
- Maternal Seizures
- Increased incidence of migraines
- Hyperthermia
- Maternal Delirium
- Jeopardized fetal-placental circulation
- Fetal death

Signs and Symptoms:

- Following cocaine use, there is a 2-hour “high” followed by a “crash.”
- Crash symptoms: irritability, discomfort, depression
- Dyspnea

Cocaine

Testing and Treatment:

• Cocaine has a short half-life of 30-45 minutes and most of it is excreted in the urine with 24 hours of ingestion for occasional use,¹⁴ or up to 10-22 days with heavy use.

• Cocaine withdrawal is not life-threatening for mother or fetus. The mood symptoms can be treated with benzodiazepines for the mother.

• Immediately before as well and during delivery and in the postpartum period, management of the mother is supportive, and additional monitoring with telemetry and arterial blood gases should be considered.

• Antipsychotics may be indicated for hallucinations or paranoid psychosis.
Designer Drugs

Analogs of known pharmacologic agents, synthesized by “underground” chemists, for sale on the street
Overview:

The concept of designer drugs is to change the chemical construction of a narcotic and create a new compound. The “underground chemist has two goals:

• To change the nature and duration of the “high”
• To create a new compound because there are no laws against newly formulated compounds, so legal ramifications are bypassed.²³
**Overview:**

- The use of methamphetamines is increasing in the United States. It ranks third in abuses substances in many Western and Midwestern states after alcohol and marijuana. Among pregnant women, admissions for treatment of meth abuse have increased from 8% in 1994 to 24% by 2006, with 73% of these admission occurring in Western states.¹⁵

- Street names for methamphetamine include: meth, speed, ice, crystal, chalk, glass, black beauties, and biker’s coffee.¹⁶

- The effects on pregnancy and the infant are less well known. In addition, women who use meth frequently use tobacco, alcohol, and other drugs. Other than the risk of small for gestational age and low birth weight, there does not appear to be solid evidence of other defects.¹⁷
Methamphetamine

**Signs of Methamphetamine Use**:²⁰

- Little or not prenatal care
- Poor weight gain
- Track marks
- Malnutrition
- Severe dental decay
- Skin abscesses

**Signs of Overdose**:²¹

- Confusion and restlessness
- Aggressive or paranoid behavior
- Sweating
- Spots in field of vision
- High fever
- Loss of muscle control
- Chest pain, heart arrhythmia, sudden elevation of BP, heart attack
- Convulsions, Seizures
- Coma
Methamphetamine

Diagnosis and Treatment:

- Urine toxicology
- No pharmacologic treatments have been shown to be effective
- Cognitive-Behavioral therapy
- Baseline and follow up U/S for fetal growth determination
- Discourage breastfeeding. The concentration of amphetamines found in breast milk is 2.8-7.5% higher than that found in maternal plasma.²²
“Synthetic Heroin”
(Meperidine Analogs)
**Overview:**

- Synthetic Heroin is “designer meperidine”. The primary street analog is MPPP.
- Improper synthesis of MPPP can produce MPTP, a known industrial toxin, the use of which can result in Parkinson’s-like symptoms, which can be permanent.
Synthetic Heroin

**Signs and Symptoms:**

- **MPPP:**
  - Similar to narcotics\(^2^4\)
  - Respiratory arrest and death with overdose
- **MPTP:**
  - Initially similar to narcotics
  - Toxicity: disorientation, hallucinations, blurred vision, nodding off, eventual progression of Parkinson’s-like symptoms\(^2^5\)

MPTP exposure is suspected if the patient answers “yes” to the following questions:

- Did the pure form of the drug resemble brown sugar?
- Was there a burning sensation on injection from site up through vein?
- Was the “high” more “spacey and giddy” than that of heroin?\(^2^5\)
Some cases of MPTP have been misdiagnosed as catatonic schizophrenia, so careful diagnostic evaluation is necessary.

Contact the hospital laboratory regarding toxicology evaluation if MPTP is suspected.

The toxic effects of acute MPTP poisoning can be mitigated by the administration of monoamine oxidase inhibitors (MAOIs) such as selegiline. MAOIs prevent the metabolism of MPTP to MPP+ by inhibiting the action of MAO-B, minimizing toxicity and preventing neural death.

Contact the CDC if MPTP-induced parkinsonism is suspected or if additional information is needed.

1600 Clifton Rd, Atlanta, GA 30333
(404) 639-3311
www.cdc.gov
Ecstasy

MDMA
Overview:

- Methamphetamine derivative
- Primarily in tablet form of various colors with distinctive markings such as:
  - A dove
  - E
  - Yin/yang symbol
  - Mitsubishi symbol
- Schedule 1 controlled substance; mild CNS stimulant and psychedelic effects
- Primarily taken orally, but can be dissolved and injected, or crushed and snorted
**Ecstasy**

** Signs and Symptoms: **²⁸

- Mild intoxication
- Relaxation, euphoria, calm or peace
- Increased physical and emotional energy
- Heightened sensitivity
- Dilated pupils, Light Sensitivity, Blurred or double vision
- Sweating
- Ataxia
- Dry mouth muscle tension
- Involuntary jaw clenching
- Agitation
- Severe anxiety and Panic attacks
- Illusory or hallucinatory experiences

Onset of effects is generally 20-30 minutes after oral administration and last for approximately 2-3 hours. Residual effects are generally gone within 24 hours, but confusion, anxiety and depression may last for several weeks.²⁹
Ecstasy and Pregnancy: ³⁰

- Most pronounced effects occur if used in the first trimester
- Produces as much as a 500 percent increase in neuron growth inside the fetal brain resulting in:
  - unease and discomfort in new surroundings,
  - learning deficits
  - hyperactivity
  - unusually high levels of anxiety
  - delay in motor function
Ecstasy

Overdose Symptoms: \[31\]
- Rapid heartbeat and HTN
- Seizures
- Hypothermia or hyperthermia
- Muscle breakdown
- Kidney and liver failure
- Death

Emergency Treatment: \[32\]
- Treatment of symptoms such as cooling blankets for hyperthermia (note: antipyretics are not useful), anti-seizure medications, etc.
“Bath Salts” and Molly
Overview: ³³

- “Bath Salts” actually have nothing to do with bath salts. They are hallucinogens legally sold as plant fertilizer, plant food, cell phone cleaner, pond cleaner, insect repellent, vacuum bag cleaner, and jewelry cleaner. The packages are labelled “not for human consumption,” so they can be legally sold.

- “Molly” is sold as pure Ecstasy, but is actually a “bath salt.” It is generally sold as a pink or blue pill.

- Bath Salts use has been on the rise since 2010.
**Signs and Symptoms:**

- Bath salts act as a stimulant and hallucinogen; however, unlike Ecstasy, the person is more likely to be agitated, violent and paranoid. Other symptoms include:
  - Rapid heart rate and hypertension
  - Chest pain
  - Suicidal thinking, self-mutilation
  - Delusions, anxiety, psychosis
  - Superhuman strength
- Standard urine tests do not detect bath salt ingredients. Specific test using gas chromatography-mass spectrometry are required.
**Effects on fetus:** ³⁵

- There is not definitive literature on the effects of bath salts on the fetus, but it’s structure is similar to that of amphetamines which can be associated with:
  - Increased risk of abruption
  - Premature birth
  - IUGR and low birth weight
  - Congenital anomalies
  - Increased incident of neonatal death

**Treatment:**

- Treat the physical manifestations
Clinical Screening

Non-emergent
Suggestions for Clinical Screening

Box 1. Clinical Screening Tools for Prenatal Substance Use and Abuse

4 P’s

Parents: Did any of your parents have a problem with alcohol or other drug use?

Partner: Does your partner have a problem with alcohol or drug use?

Past: In the past, have you had difficulties in your life because of alcohol or other drugs, including prescription medications?

Present: In the past month have you drunk any alcohol or used other drugs?

Scoring: Any “yes” should trigger further questions.

Ewing H. A practical guide to intervention in health and social services with pregnant and postpartum addicts and alcoholics: theoretical framework, brief screening tool, key interview questions, and strategies for referral to recovery resources. Martinez (CA): The Born Free Project, Contra Costa County Department of Health Services; 1990.

CRAFFT—Substance Abuse Screen for Adolescents and Young Adults

C Have you ever ridden in a CAR driven by someone (including yourself) who was high or had been using alcohol or drugs?

R Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?

A Do you ever use alcohol or drugs while you are by yourself or ALONE?

F Do you ever FORGET things you did while using alcohol or drugs?

F Do your FAMILY or friends ever tell you that you should cut down on your drinking or drug use?

T Have you ever gotten in TROUBLE while you were using alcohol or drugs?

Scoring: Two or more positive items indicate the need for further assessment.


ACOG: Committee Opinion Number 524; May 2012.
Red Flags for Screening

Red Flags – Who should receive toxicology screening?

- Chaotic life style
- Multiple admissions
- Psychiatric diagnoses
- Late or no prenatal care, missed appointments, “emergency” visits or calls

“In clinical settings where the patient’s level of arousal or behavioral activity is markedly aberrant, it is appropriate to collect urine for diagnostic purposes in order to assist in the differential diagnosis and in the development of the plan for indicated emergency medical care.”

Check your hospital’s policies regarding patient consent requirements.
Random Toxicology Screening may be applicable if the patient is being followed in an OB/GYN clinic or by MFM if they have the following diagnoses:

- Preterm labor
- Placental Abruption
- History of Substance Abuse
- Participation in a methadone maintenance program
- Preeclampsia/eclampsia
- Fetal demise in utero
- IUGR
- Multiple requests for pain medications
Questions?
References:

³ ibid
⁴ asam.org: “Drug Testing As A Component Of Addiction Treatment and Monitoring Programs and in Other Clinical Settings,” October 1, 2010
⁵ UCSF Children’s Hospital: Intensive Care Nursery House Staff Manual; “Perinatal Substance Abuse.”
⁷ ACOG: Committee Opinion 524; “Opioid Abuse, Dependence and Addiction in Pregnancy,” p. 3.
⁸ Ibid: p. 3-4.
⁹ Ibid: p. 3.
¹⁰-¹²Ibid: p. 4
¹³Ibid: p. 5
References – continued:

14 Emedicine.Medscape.com: “Cocaine Toxicology Workup;” by Lynn Barkley Burnett, MD, EdD, LLB(c)


16 Ibid; p. 1-2

17-20 Ibid; p. 3

21 Projectknow.com: “Crystal Meth Overdose Symptoms and Treatment”

22 ACOG: Committee Opinion Number 479, March 2011; “Methamphetamine Abuse in Women of Reproductive Age,” p. 3.


24 Ibid

25 Ibid


27 www.nhtsa.gov; Drugs and Human Performance Fact Sheets; p. 1.

28 Ibid; p. 2

29 Ibid; p. 3
References – continued

30 Designer Drugs; “Effects of MDMA (Ecstasy) Use During Pregnancy;” May 18, 2013; p. 2.

31 www.drug-overdose.com/ecstasy
32 emedicine.Medscape.com; “MDMA Toxicity Treatment and Management.”

33 Designer Drugs; “Bath Salt Drugs and Molly Addictions;” October 6, 2013; p. 1

34 Ibid; p. 3