

Prenatal Substance Abuse: Improving Outcomes

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Overview

- Discuss the Problems
 - Health, safety, cost
 - Common substances of abuse in pregnancy
- Discuss frameworks for intervention
 - Screening pregnant women for substance use
 - Identifying pregnancy in women with addiction
 - Referrals for medical care, treatment and needed support

Health

- Prenatal alcohol and drug exposure poses health risks for the developing fetus (Pediatrics, 2013)
- This exposure may put the exposed child at risk for physical and neurodevelopmental problems that persist through life

Safety

- Mothers who have substance abuse disorders are at risk for disrupted parenting
- Parental alcohol or drug abuse may be a factor in 50 to 79% of child welfare cases where children are taken into custody (Grant, etal 2014)

Cost

- Estimated \$605 million was associated with health care costs for drug-exposed newborns in the United States (ACOG, 2008)
- Incidence of Neonatal Abstinence Syndrome in the states increased almost 300 % between 1999 and 2013 (CDC, 2016)
- As of 2012, there was an average of one infant born with NAS every 25 minutes in the United States, accounting for an estimated \$1.5 billion in healthcare spending that year alone

Cost

- The CDC (2011) estimates a lifetime cost for an individual with Fetal Alcohol Syndrome of \$2 million dollars
- Child Welfare Costs
- Educational Costs

[http://www.ochealthinfo.com/phs/about/phn/specialized/psa](http://www.ochealthinfo.com/phs/about/phn/specialized/psa_si)
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What about Martha?

The Adverse Childhood Experiences Study (ACE)

- Examines the relationship between self reported ACEs and future adverse health and psychological issues
- ACEs include having substance abusing parents, incarcerated parents, and childhood maltreatment
- ACE studies show ACEs increase adult risk of alcoholism, drug abuse, depression, suicide attempts, smoking, sexual risk behavior and poor health

<http://www.cdc.gov/ace/index/htm>

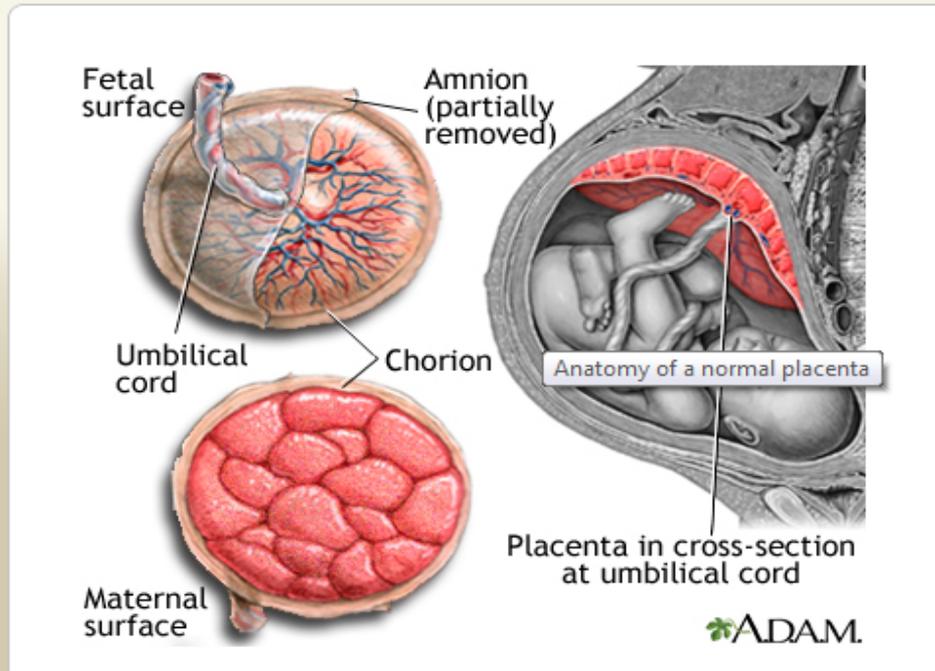
Most Common Drugs involved in Prenatal Exposure (Pediatrics, 2013)

- Nicotine
- Alcohol
- Marijuana
- Cocaine
- Methamphetamine
- Opiates -Heroin

Mechanism of Action of Drugs on the Fetus

- Direct Effects
 - Early in pregnancy - may cause physical defects
 - After the major development - abnormal growth and changes in brain organization
- Indirect Effects
 - Vasoconstriction restricts fetal oxygen supply
 - Maternal behavior - poor nutrition, non-compliance with prenatal care, and exposure to infections and violence

Anatomy of a normal placenta



The placenta provides the fetus with oxygen and nutrients and takes away waste such as carbon dioxide via the umbilical cord.

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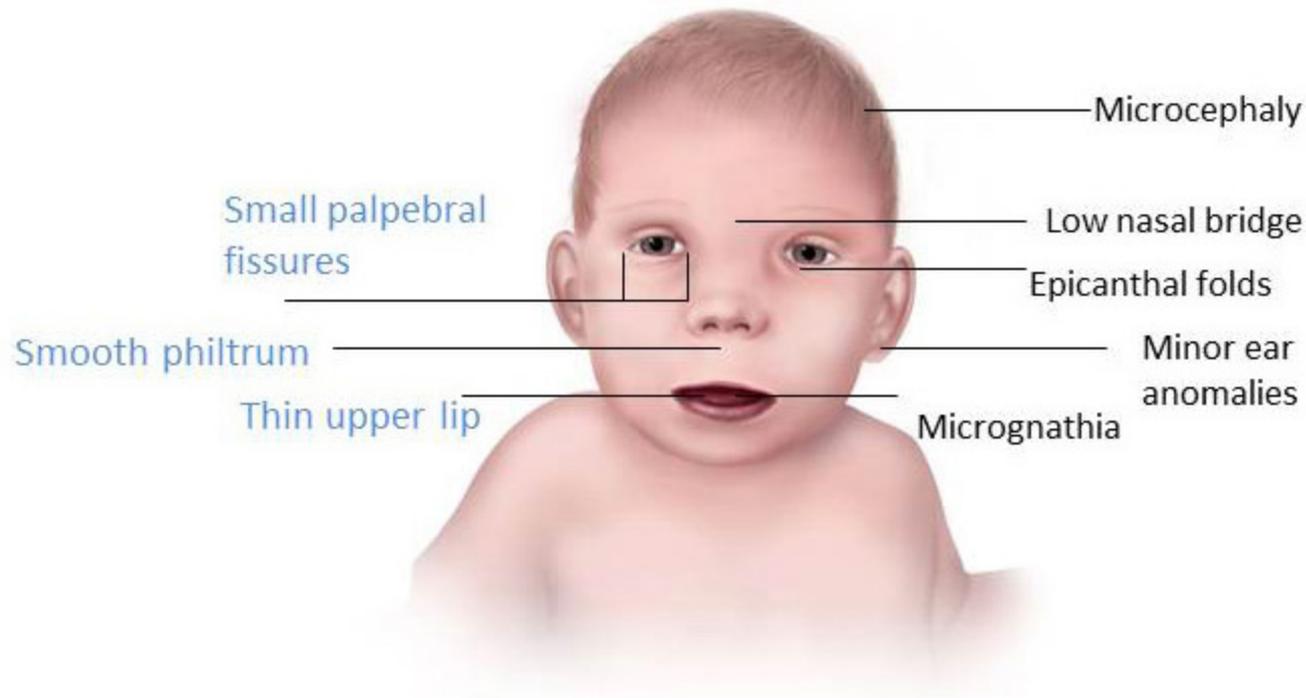
Nicotine

- Most commonly used drug during pregnancy
- Has a negative effect on infant neuro behavior and long-term behavior, cognition, language, and achievement
- Has been linked to low birth weight and pregnancy complications including prematurity, placental abruption and intrauterine death

Alcohol

- **Prenatal exposure to alcohol is a leading cause of birth defects and developmental disabilities**
- No safe amount of alcohol consumption during pregnancy
- Fetal alcohol spectrum disorder (FASD) includes the range of effects that can occur in children exposed to alcohol prenatally and includes physical, mental, behavioral and/or learning disabilities

Fetal Alcohol Syndrome is the most serious type of Fetal Alcohol Spectrum Disorder



Fetal Alcohol Syndrome

- a small head
- a smooth ridge between the upper lip and nose, small eyes, a very thin upper lip, or other abnormal facial features
- below-average height and weight
- hyperactivity
- lack of focus
- poor coordination
- delayed development and problems in thinking, speech, movement and social skills
- poor judgment
- problems seeing or hearing
- learning disabilities and cognitive delays
- heart problems
- Kidney defects and abnormalities
- deformed limbs or fingers
- mood swings

Marijuana

- 5 times the amount of carbon monoxide as cigarette smoking which may change fetal oxygenation
- May alter brain neurotransmitters and brain biochemistry and cause subtle abnormalities in infant's neurobehavior
- Associated with deficits in school achievement, problem solving and attention

Cocaine

- Addictive, stimulant that easily crosses the placenta and the blood-brain barrier and is a potent vasoconstrictor affecting growth of the fetus
- Increased risk of premature rupture of membranes and abruptio placenta
- Exposure during development of the nervous system may result in permanent changes in the brain causing changes in cognition, language and behavior

Methamphetamines

- Addictive central nervous system stimulant that crosses the placenta causing vasoconstriction which leads to negative effects on the mother and the fetus
- Fetal and newborn risks include abruption, preterm birth, intrauterine growth restriction, low birth weight, small head circumference and learning difficulties

Opiates

- In the United States, **heroin** and **methadone** are the most common opioids used during pregnancy
- Neonatal Abstinence Syndrome is the most significant effect of prenatal opiate exposure
- Long-term effects on behavior
- No consensus on the effects on cognition, language and achievement

Heroin

- Rapidly passes through the placenta and accumulates in the amniotic fluid
- Symptoms of withdrawal include restlessness, insomnia, bone pain, vomiting, stomach cramps and diarrhea
- Changes in the pregnant woman's daily heroin use can cause fetal abstinence syndrome increasing the risk of premature delivery and still birth

Heroin

- Chronic untreated heroin use in pregnancy is associated with:
 - poor fetal growth
 - premature rupture of membranes
 - preterm birth
 - still birth
 - Neonatal Abstinence Syndrome
 - Increased rates of infections such as HIV and Hepatitis

Summary of Effects of Prenatal Drug Exposure (Pediatrics, 2013)

	Nicotine	Alcohol	Marijuana	Opiates	Cocaine	Methamphetamine
Short-term/Birth outcome						
Fetal growth	Effect	Strong effect	No effect	Effect	Effect	Effect
Anomalies	No consensus	Strong effect	No effect	No effect	No effect	No effect
Withdrawal	No effect	No effect	No effect	Strong effect	No effect	Limited data
Neurobehavior	Effect	Effect	Effect	Effect	Effect	Effect
Long-term effects						
Growth	No consensus	Strong effect	No effect	No effect	No consensus	Limited data
Behavior	Effect	Strong effect	Effect	Effect	Effect	Limited data
Cognition	Effect	Strong effect	Effect	No consensus	Effect	Limited data
Language	Effect	Effect	No effect	Limited data	Effect	Limited data
Achievement	Effect	Strong effect	Effect	Limited data	No consensus	Limited data

48.981 ... abused unborn children

1. A person required to report under sub. (2) shall immediately **inform**, by telephone or personally, the county department or, in a county having a population of 750,000 or more, the department or a licensed **child welfare** agency under contract with the department or the sheriff or city, village, or town police department **of the facts and circumstances contributing to a suspicion of child abuse or neglect or of unborn child abuse** or to a belief that abuse or neglect will occur

UCHIPS: Unborn Child in Need of Protection or Services

- The court has exclusive original jurisdiction over an unborn child alleged to be in need of protection or services which can be ordered by the court whose expectant mother **habitually** lacks **self-control** in the use of alcohol beverages, controlled substances or controlled substance analogs, **exhibited to a severe degree**, to the extent that there is a **substantial risk** that the **physical health** of the unborn child, and of the child when born, will be seriously affected or endangered unless the expectant mother receives prompt and adequate treatment for that habitual lack of self-control. (Wis. Stat. § 48.133)

My response to Workers

Chronic untreated heroin use during pregnancy is associated with an increased risk of IUGR, fetal death, premature rupture of membranes, preterm labor and abruptio placentae. During pregnancy, perinatal transmission of Hepatitis and HIV can occur. Many of the adverse effects are due to poor health behaviors, as well as repeated episodes of in utero opioid withdrawal. Injection of opioids and other illicit substances carries the risk of cellulitis, endocarditis, osteomyelitis, hepatitis and HIV.

Medication Assisted Treatment including Methadone Maintenance Treatment (MMT) is a harm-reduction treatment model to reduce illicit drug use, withdrawal symptoms and cravings in opiate addicted individuals. It is used during pregnancy to decrease or prevent the use of other opiates and illicit drugs, improve prenatal care, improve nutrition and allow for an opportunity to provide education to the mother.

Opioid dependence during pregnancy often results in neonatal abstinence syndrome (NAS). Although most commonly associated with in-utero opioid exposure, other substances have been associated with NAS. NAS is a treatable disorder that may involve the central nervous system, gastrointestinal system, autonomic and respiratory system. The main goals of therapy are weight gain, adequate sleep and nutrition and allowing infant to communicate with caretakers and manage stimuli.

Recommendations:

1. It is critical for the health of the fetus that mother receive consistent prenatal care for ongoing fetal monitoring, as well as multidisciplinary teaming for drug rehabilitation .
2. For women on Medication Assisted Treatment for opiate addiction, it is likely that the newborn will experience NAS and require close monitoring in the hospital and home environment, as symptoms of NAS may present anytime in the first 2 weeks of life.
3. The infant will require follow-up pediatric care, developmental screening, as well as social services monitoring to ensure health and safety.

146.0255(2) Testing infants for controlled substances or controlled substance analogs.

- Physician may test infant or expectant mother to determine if positive test for controlled substances IF physician determines serious risk for a positive results due to use while pregnant
- If infant positive then **MUST** report to child welfare agency
- If mother positive then **MAY** report to child welfare agency
 - Cannot test mother under this section without informed consent

Tools Sign Comment



The American College of Obstetricians and Gynecologists
 Women's Health Care Physicians

COMMITTEE OPINION

Number 473 • January 2011

Committee on Health Care for Underserved Women

This information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Substance Abuse Reporting and Pregnancy: The Role of the Obstetrician–Gynecologist

Abstract: Drug enforcement policies that deter women from seeking prenatal care are contrary to the welfare of the mother and fetus. Incarceration and the threat of incarceration have proved to be ineffective in reducing the incidence of alcohol or drug abuse. Obstetrician–gynecologists should be aware of the reporting requirements related to alcohol and drug abuse within their states. They are encouraged to work with state legislators to retract legislation that punishes women for substance abuse during pregnancy.

A disturbing trend in legal actions and policies is the criminalization of substance abuse during pregnancy when it is believed to be associated with fetal harm or adverse perinatal outcomes. Although no state specifically criminalizes drug abuse during pregnancy, prosecutors have relied on a host of established criminal laws to punish a woman for prenatal substance abuse (1). As of September 1, 2010, fifteen states consider substance abuse during pregnancy to be child abuse under civil child-welfare statutes, and three consider it grounds for involuntary commitment to a mental health or substance abuse treatment facility (1). States vary in their requirements for the evidence of drug exposure to the fetus or newborn in order to report a case to the child welfare system. Examples of the differences include the following: South Carolina relies on a single positive drug test result, Florida mandates reporting newborns that are “demonstrably adversely affected” by prenatal drug exposure, and in Texas, an infant must be “addicted” to an illegal substance at birth. Most states focus only on the abuse of some illegal drugs as cause for legal action. For instance, in Maryland, the use of drugs such as methamphetamines or marijuana may not be cause for reporting the pregnant woman to authorities (2). Some states also include evidence of alcohol use by a pregnant woman in their definitions of child neglect.

Although legal action against women who abuse proved to be ineffective in reducing the incidence of alcohol or drug abuse (3–5). Legally mandated testing and reporting puts the therapeutic relationship between the obstetrician–gynecologist and the patient at risk, potentially placing the physician in an adversarial relationship with the patient (6, 7). In one study, women who abused drugs did not trust health care providers to protect them from the social and legal consequences of identification and avoided or emotionally disengaged from prenatal care (8). Studies indicate that prenatal care greatly reduces the negative effects of substance abuse during pregnancy, including decreased risks of low birth weight and prematurity (9). Drug enforcement policies that deter women from seeking prenatal care are contrary to the welfare of the mother and fetus.

Seeking obstetric–gynecologic care should not expose a woman to criminal or civil penalties, such as incarceration, involuntary commitment, loss of custody of her children, or loss of housing (6). These approaches treat addiction as a moral failing. Addiction is a chronic, relapsing biological and behavioral disorder with genetic components. The disease of substance addiction is subject to medical and behavioral management in the same fashion as hypertension and diabetes. Substance abuse reporting during pregnancy may dissuade women from seeking prenatal care and may unjustly single out the most vulnerable, particularly women with low incomes

- Health care providers have the opportunity to screen pregnant women for substance use as part of routine prenatal care and to make referrals that facilitate access to treatment and related services for the women who need these services
- ACOG's 2015 legislative priorities include promoting public health efforts to reduce maternal opioid dependence and NAS as well as opposing punitive legislation against women with opioid dependence whose babies are born with NAS

Screening for Drug Use During Pregnancy

- Self report
 - Inexpensive
 - May be issues with accurate history and recall
- Biological specimens –no biological specimen when obtained randomly identifies prenatal drug use with 100% accuracy
 - Most common specimens to establish drug use during pregnancy
 - Urine- identifies recent drug use (longer with marijuana)
 - Hair – can reflect drug use over a long period of time, controversial
 - Meconium – reflects exposure during the second and third trimester

Screening for Drug Use During Pregnancy

- The American College of Obstetricians and Gynecologists (ACOG) recommend screening all pregnant women for alcohol and illicit drug use as part of routine obstetrical care
- Screening should be repeated periodically during pregnancy
- Denial, fear and guilt are barriers to self report
- Use of a validated screening tool is recommend

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?

Comprehensive Framework for Intervention

- “..establish mechanisms for working together across systems, agencies and providers to develop a coordinated and cohesive approach. Such an approach has the highest likelihood of achieving successful outcomes related to maternal and child health, newborn care, mother-infant attachment, positive parenting practices, child safety and family well-being.”
 - Include Child Welfare and Healthcare (Obstetrics, Pediatrics, Substance Abuse Treatment and Mental Health)

The Importance of Prenatal Care

- Prenatal care improves the health of the substance abusing woman and unborn child even if the mother continues to use
- Screening women for substance abuse can lead to interventions that encourage and educate women, improving outcomes including health and safety

Treatment of Opioid Dependence During Pregnancy – Medication Assisted Treatment (MAT)

- Methadone is currently the treatment of choice for opioid-dependent pregnant women
- Studies suggest that buprenorphine (subutex) is safe and has been shown to decrease hospital stays and the length of treatment for NAS as compared to methadone
- Maternal outcomes, pain management considerations and breastfeeding recommendations are similar

Medication Assisted Treatment

- Can stabilize patients who are spending most of their time trying to obtain heroin or prescription narcotics and is more effective for long term success
- Heroin-addicted women using MAT including methadone have infants with higher birth weights and lower rates of intrauterine growth retardation

Interventions for Pregnant and Parenting Mothers with Addiction Issues

- The Substance Abuse and Mental Health Service Administration recommends a model for treating substance abusing women and their newborns that includes health, mental health and social services
- Family treatment drug courts for families affected by substance abuse have been more effective in assisting substance abusing women reunify with their children (NPC Research, 2007)

Wisconsin Association for Perinatal Care – Perinatal Substance Abuse

- WAPC - where individuals and organizations come together to improve perinatal care and outcomes

www.perinatalweb.org

Go to Major Initiatives: Perinatal Substance Use and Abuse:
Resources: Assessment and Intervention in the Home and
Newborn Withdrawal Project

Considerations

- What services can be provided to pregnant women?
 - Unborn child abuse reporting challenges and response
- Labor and Delivery
 - What are the protocols for responding to referrals made by hospitals on substance exposed infants?
- Postpartum
 - How are cases screened by Child Protection?
 - How is progress in treatment monitored?
 - How are decisions on reunification or case closure made?

The Parent-Child Assistance Program (PCAP) WA State

- Evidenced based case management model
- Based on a framework of relational theory, motivational interviewing and harm reduction
- Trained case managers provide home visitation and intervention for 3 years
- Goals
 - Achieve and maintain recovery and healthy lives
 - Assure that children are in safe and stable homes
 - Prevent future births of alcohol and drug exposed infants

References

- ACOG Committee on Health Care for Underserved Women, American Society of Addiction Medicine, (2012). ACOG Committee Opinion No. 524: Opioid abuse, dependence, and addiction in pregnancy. *Obstetrics and Gynecology* 119:1070.
- American Academy of Pediatrics Committee on Substance Abuse, and Committee on Fetus and Newborn. Behnke, M. & Smith, V.C. (2013). Technical Report: Prenatal Substance Abuse: Short – and Long-term Effects on the Exposed Fetus, *Pediatrics*, 131(3): 1009-1024.
- Jones, H.E., Johnson, R.E., Jasinski, D.R. et al. (2005). Buprenorphine versus methadone in the treatment of pregnant opioid-dependent patients: effects on the neonatal abstinence syndrome. *Drug and Alcohol Dependence* 79:1.
- Kakko, H., Heli, M., Sarman, I. (2008). Buprenorphine and methadone treatment of opiate dependence during pregnancy: comparison of fetal growth and neonatal outcomes in two consecutive case series. *Drug and Alcohol Dependence* 96:69.
- Kuczkowski, K.M. (2007). The Effects of Drug Abuse on Pregnancy. *Current Opinion Obstetrical Gynecology*, 19: 578-585.
- Ladhani, N.N., Shah, P.S., Murphy, K.E. (2011). Knowledge Synthesis Group on Determinants of Preterm/LBW Births. Prenatal amphetamine exposure and birth outcomes: a systematic review and metaanalysis. *American Journal of Obstetrics and Gynecology*, 205 (219): e1.
- Lindsay, M.K., Burnett, E. (2013). The Use of Narcotics and Street Drugs During Pregnancy. *Clinical Obstetrics and Gynecology*, 56 (1): 133-141.

References

- Logan, B.A., Brown, M.S., Hayes, M.J. (2013). Neonatal Abstinence Syndrome: Treatment and Pediatric Outcomes. *Clinical Obstetrics and Gynecology*, 56 (1): 186-192.
- Manchikati, L., Helm, S. 2nd, Fellows, B. et al. (2012). Opioid epidemic in the United States. *Pain Physician* 15:ES9.
- Minnes, S., Lang, A. (2011). Prenatal Tobacco, Marijuana, Stimulant, and Opiate Exposure: Outcomes and Practical Implication. *Addiction Science Clinical Practice*, 6 (1): 57-70.
- Sachs, H.C., Committee on Drugs, (2008). The transfer of drugs and therapeutics into human breast milk: an update on selected topics. *Pediatrics* 132: e796.
- Substance Abuse and Mental Health Services Administration. (2010). *Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings. NSDUH Series H-41, HHS Publication No. (SMA) 11-4658. Rockville, MD: SAMHSA; 2011. Available at <http://www.oas.samhsa.gov/NSDUH/2k10NSDUH/2k>*
- Substance Abuse and Mental Health Services Administration. (2010). *Substance use treatment need and receipt among people living in poverty. Retrieved from <http://www.oas.samhsa.gov/2k10/173/173Poverty.htm>*

Thank-you!

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Kids deserve the best.