HANDOUT #1: UNDERSTANDING COMPLICATED CHILDREN

The Impact of Prenatal Exposure by Julia Bledsoe, MD

Introduction: Special, Complicated Children

As parents who are fostering or adopting, or caring for relatives, we open our hearts and homes to children who are in need. The care of children who are exposed to drugs and alcohol in the womb requires special knowledge on our part, and special care. Children exposed to alcohol and drugs in the womb are first and foremost children who have the typical needs of all children – a safe, healthy, loving and supportive home. However, they are also children who are at increased risk of short and long-term problems with their health, learning, and behavior. Knowledge about the effects of prenatal alcohol and drug exposure can help us prepare to care for this unique group of children.

How big of a problem is prenatal exposure to alcohol and drugs?

Unfortunately, despite efforts of prevention and education programs to help prevent alcohol and drug abuse, this problem is on the rise for children not only in foster care, but also for those placed through intercountry and domestic adoption. Studies estimate that between 70 to 80 percent of children available for adoption in foster care were removed from their families because of parental alcohol abuse. From 2000 to 2016, parental use of alcohol or other substances as the contributing reason children entered into foster care increased from 18% to 35% [1]. Much of this increase is felt to be driven by the opiate epidemic, although methamphetamine and marijuana use have also been on the rise.

Studies also report that of the children available for adoption through private agencies, 50 percent of them were exposed to alcohol during the pregnancy [2]. Further, the number of children available for intercountry adoption who were exposed to alcohol before birth is also extremely high, particularly from Russia, eastern European countries, South Korea and South Africa. Therefore, it is important for parents who are fostering or adopting, or caring for relatives to have a thorough understanding of the impact alcohol and other substances can have on the developing fetus and the long-term impact for children who have been exposed.

How big of a problem is substance use in pregnancy?

Substances used during pregnancy can be divided into Illicit, or illegal drugs, and legal ones. The most common illegal drugs that babies are exposed to include marijuana (legal in some states) and cocaine (including crack), and heroin. The most recent data we have from 2013 suggests that illegal drug use among pregnant women aged 15–44, has remained constant for decades at about 6 percent, despite efforts of prevention and education programs [3]. However, we believe that the current rate of illegal drug use among women of child-bearing age has grown even more in the past 6 years due to the opioid and methamphetamine epidemic. The use of two legal substances, nicotine and alcohol also remains a significant problem. Approximately 12 percent of pregnant women smoke cigarettes during pregnancy. This doesn't include the number of pregnant women who are vaping nicotine – we don't know these

numbers for sure because vaping is a relatively new phenomenon. Approximately 10 percent of pregnant women use alcohol at some point in their pregnancy. As described below, just because a drug is legal, doesn't make it safe to use during pregnancy.

SUBSTANCE USE IN PREGNANCY

Although alcohol, tobacco, and other drugs have been used for many decades, scientists and doctors are just starting to get good information about the safety of these substances during pregnancy. Many years ago, it was believed that the placenta (the part of the womb that nourishes the baby) protected the baby from harmful substances. We now know that alcohol and many other drugs pass easily through the placenta to the baby and can cause a variety of medical and developmental problems. Despite some good science over the last 40 years, there is still some debate and misinformation in the media and general public about how damaging alcohol and drugs can be to the developing baby.

This is what we know for sure:

- **Legal is not better.** In general, it is the legal substances that we worry most about. More kids are exposed prenatally to alcohol and nicotine than to other drugs and they tend to cause the most damage to the developing baby – alcohol in particular. This is not to say that the illegal drugs don't cause harm, but alcohol and nicotine products have been shown to cause the most severe short and long-term effects on a child.

- **Drugs and alcohol use during pregnancy causes a wide range of problems.** Babies exposed to substances in the womb can have degrees of severity of problems; some mild, some more severe;

- **Even with heavy exposure, some children seem unaffected.** Although some babies prenatally exposed to alcohol and substances can show short and/or long- term effects of this exposure, many are born healthy without any identifiable problems;

- **There are individual factors of mother and baby that influence outcome**. The metabolism of drugs and alcohol of both the baby and the birth mother can influence the severity of problems from exposure to substances in the womb;

- **Nature AND nurture are important.** Research shows that both nature (the baby's genetic or biological make-up) and nurture (the environment in which a baby lives and grows) are important influences on childhood health and development;

- **Problems can be due to something other than alcohol and drug exposure**. Baby and childhood developmental behaviors and problems that cause concern for caregivers may or may not be related to substance exposure;

- **The need for lifelong support from a team.** Children who are exposed to alcohol and drugs in the womb benefit from early identification and care over time from a coordinated group of parents/caregivers, families, teachers, and medical professionals.

With this information in mind, let's look at the short and long-term effects of specific substances.

The Legal Substances – Tobacco and Nicotine Products and Alcohol

Tobacco and Nicotine

Tobacco has been around for many years so we have a good body of scientific study on how these products affect the developing fetus. Prenatal exposure to nicotine is associated with short and long-term physical, learning and behavior problems. In the short term, babies exposed to nicotine prenatally tend to grow poorly in the womb. Many are born with low birth weight. Infants who were exposed to tobacco products are also at increased risk for Sudden Infant Death Syndrome so families do need to be extra careful to follow safe sleep recommendations for these babies. Long term studies show that prenatal tobacco exposure is associated with some learning disabilities – for example, language and reading problems. In terms of behavior, children who have been exposed to tobacco have higher rates of impulsivity, hyperactivity and attention problems. There are a number of studies that show that, even accounting for other factors, adolescents exposed to tobacco prenatally have higher rates of "acting out" behaviors such as delinquency, criminal behavior and substance abuse.

Alcohol

Alcohol use during pregnancy does the *most* damage to the developing baby. Why is alcohol so risky? It is a known "teratogen," which is a medical term for a substance that causes birth defects. Alcohol use during pregnancy can cause birth defects such as cleft lip and palate, as well as heart defects. Most importantly, alcohol damages the brain and nerves of the developing fetus. The risk of brain damage from alcohol use is greatest early in pregnancy, even before a woman may realize that she is pregnant.

The brain damage caused by prenatal alcohol exposure can really vary depending on how much alcohol was used, the pattern of alcohol use (steady use or binge drinking), the timing during pregnancy, and individual factors of the mother and baby. Some babies exposed to alcohol have severe problems, some have mild to moderate problems.

Alcohol use during pregnancy can lead to a number of diagnoses under the "umbrella term" Fetal Alcohol Spectrum Disorders, or FASD. The most notorious of these diagnoses is Fetal Alcohol Syndrome. (FAS). FAS involves poor growth of the child, a specific set of facial features, as well as brain damage. Most children prenatally exposed to alcohol don't have all of the features of full blown FAS but still can have problems related to alcohol exposure in the womb.
The common outcomes seen in children exposed to alcohol prenatally include problems with learning as well as behavior. Alcohol exposed children can have lower IQ, Attention Deficit and Hyperactivity Disorder (ADHD), language and learning difficulties, memory issues and motor and coordination challenges. Behavior problems common in children exposed to alcohol prenatally include difficulties with judgment and impulse control, as well as social difficulties. Many children on the Fetal Alcohol Spectrum have trouble with "executive function" skills. Executive functions are the higher-level brain skills that develop later in life and help us with using different brain areas together to solve problems and make good choices.

Illegal Drug Exposure: Cocaine, Methamphetamine and Opiates

Cocaine

Despite the dire predictions about damage to "crack babies" in the 1980s, the long-term research on cocaine actually ended up not showing as many impacts as were initially feared. There are reports of some challenging behaviors, language delays and other aspects of development. However, the

research does not show any effect on IQ or school readiness in children who were exposed to cocaine in the womb.

Methamphetamine

The trouble with research about prenatal methamphetamine exposure is that the studies are only about 8 – 10 years old. Research is behind given the size of the recent problems with meth addiction. The research does suggest some withdrawal symptoms for exposed infants after birth as well as some tendency to lower birth weight. However, to date there are no studies that show a link between prenatal methamphetamine exposure and long- term behavioral problems. There is one study that does show some math learning challenges in school age children who were exposed to methamphetamine in the womb.

Opioids (Heroin, prescription narcotics)

The major issue for opiate exposed babies is newborn withdrawal symptoms, or Neonatal Abstinence Syndrome. Withdrawal can happen with heroin exposure, or if the birth mother has been on medication like Methadone or Suboxone (used to ease the withdrawal from heroin). Withdrawal symptoms usually show up in the first few days after birth and include tremors, fussiness, diarrhea, difficulty feeding, and in severe cases, breathing problems and seizures. If a baby experiences withdrawal from opiates they need special nursing care and medication to help them. Withdrawal in infants can last for days to weeks.

Other short-term effects of opiate exposure include smaller birth weight as well as increased fussy behavior in infancy. The long-term studies do not have a great deal of information about the impact of opiates on learning and behavior. There may be some evidence of learning and attention challenges in school age children. There are also a couple of studies that suggest a risk of lower intelligence quotient (IQ), especially in boys who were prenatally exposed to opiates. However, a very recent review of many studies about prenatal opiate exposure and learning outcomes in children emphasizes the need for more and better research on this topic.

It is also important for parents who are fostering, adopting or caring for relatives to know that use of intravenous (IV) drugs by the birth mother – either heroin or other substances, can put the baby at risk for diseases that come from shared needle use. These diseases include HIV, as well as hepatitis B and C. An exposed baby may need follow up testing after birth and later in infancy to make sure that they do not have these diseases, or if they do, they can get appropriate care and medications.

Marijuana

Marijuana use in pregnancy does not appear to affect a baby's growth and does not cause withdrawal symptoms. The longer-term studies do show an increase in learning problems for prenatally exposed children. These learning problems include increased rates of attention problems, visual spatial learning and problem-solving difficulties. It is worth noting that most of these studies have been done when the marijuana used was much less potent than it is today so babies exposed now could have even higher rates of learning difficulties.

Risk of Addiction

Are children who were exposed to substances in the womb more likely to develop addiction problems as teens or adults? We know for sure that prenatal alcohol exposure increases the risk of alcohol abuse in later life. There is some evidence that prenatal nicotine and marijuana exposure may increase the risk for early experimentation and use of these substances as well. There is simply not enough information yet about the effect of prenatal opiate or cocaine exposure on risk of addiction later in life. However, given that there can be a genetic component to addiction, we recommend that parents who are fostering, adopting or caring for relatives educate the children in their care from a young age about addiction. Children, especially teens, whose birth parents struggle with addiction, or who were exposed to alcohol and drugs in the womb, need to hear the message that they are at increased risk for their own challenges with addiction as adults and that they may respond differently to drugs and alcohol than their peers.

So How Can We Best Support Prenatally Exposed Children?

First and foremost, what prenatally exposed children need are stable, structured nurturing homes that are free of addiction. We also know that early identification of these children is important. Knowledge about what substances they were exposed to can help guide you and your team of doctors, teachers and other professionals about what to look for as the child in your care learns and grows. While there are some common short and long-term outcomes in children exposed to alcohol and drugs, each child will be affected individually, so will need a tailored approach to their care. Here is a guide to help know what to look for at each age and what services are commonly needed for foster children with prenatal exposure to alcohol and drugs.

Babies with Prenatal Exposures to Drugs and Alcohol

Infants with prenatal exposures to drugs and alcohol may need more than just routine well baby care. Some babies may have birth defects or other medical issues such as poor weight gain. It will be important for you to work closely with your doctor to make sure that all of the medical needs of the child in your care are met. Sometimes it is necessary to see specialists other than your regular doctor. For babies with prenatal alcohol exposure, referral to a Fetal Alcohol Syndrome specialist may be helpful.

Even if the infant child in your care has not experienced drug withdrawal after birth, he or she can still have difficulties with “self-regulation” and the basic baby skills of eating, sleeping, and calming. Babies exposed to alcohol and drugs can have difficulty with feeding and may need extra time or an environment free of stimulating light and noise. If there are significant feeding issues, an occupational therapist can help. Sleeping can be even more of a challenge for alcohol and drug exposed infants and they may need more swaddling or attention to a strict sleep routine than other babies. These infants may also have difficulty calming, so working to keep the environment free of overstimulation may be important.

Since babies with prenatal exposure to drug and alcohol are “at risk” for developmental delays, it is important to ask for a referral to “Early Intervention” or “Birth-to-Three" services. These are developmental specialists who can often come to your home to monitor the baby’s development and make recommendations and provide speech therapy, physical therapy, or occupational therapy if it is needed to support the development of the child in your care.

Toddlers with Prenatal Exposure to Alcohol and Drugs

Toddlers with prenatal exposures continue to be at risk for challenges with learning and behavior. If they are developmentally behind, they will continue to benefit from Early Intervention services or even a developmental preschool. Typical behavior can include increased hyperactivity and distractibility, difficulty with transitions and prolonged tantrums. Some specialized behavior management programs, such "Parent Child Intervention Training (PCIT)," "Triple P," or "Incredible Years" are shown to be very effective in helping parents with challenging toddler behaviors. Your pediatrician can help you find these programs in your area. Toddlers with prenatal exposures to drugs and alcohol may also be at higher risk for poor sleep and may need a referral to a sleep specialist.

School Age Children with Prenatal Exposure to Alcohol and Drugs

Prenatal alcohol and drug exposure often damage the part of the brain that is involved with learning, problem solving and attention, so many of these issues show up as a child enters school. It is especially important to closely monitor learning in school and if there are any concerns, referral to a school or private psychologist for evaluation for learning disabilities is recommended. These are professionals who can do tests for IQ, memory, and specific language and math learning disabilities. These tests can help guide whether a child needs special accommodations for school, such as an Individualized Education Plan (IEP) or 504 plan.

School aged children with prenatal exposures are at higher than average risk for inattention and hyperactivity. If these behavior problems are concerning, seeing a pediatrician or psychiatrist to evaluate and treat Attention Deficit and Hyperactivity Disorder (ADHD) can be helpful. Other behavioral concerns, such as mood regulation and impulsivity, can continue into school age for children with prenatal exposures. Parent behavior management classes and psychological support can give families and children tools to help cope with challenging behavior.

Adolescents with Prenatal Exposure to Alcohol and Drugs

Drug and alcohol exposed children can enter a very vulnerable time in their teen years. Teens are also coping with the hormones of puberty but this is also a time when many of the mental health genes (anxiety, depression, mood disorders) can express themselves. These are teens that continue to need careful monitoring and support. Adolescents with prenatal drug and alcohol exposure often continue to need school accommodations for learning disabilities and medication management for issues such as ADHD. If there is a family history of addiction or mental health issues, they may need evaluation for these conditions and support by a psychiatrist or mental health counselor. Teens in general, but particularly teens with prenatal exposures, may have risk taking behaviors that require unique parenting strategies and counseling support. These are also adolescents who are more severely disabled by alcohol and drug exposure that may require different expectations – they may need longer in school or transition planning around support for future employment, living, and finances.

Conclusion: Muddy Water: Other Problems that go with Prenatal Alcohol and Drug Exposure

In addition to prenatal alcohol and drug exposure, these children are often born to women and men who are struggling with addiction. These birth parents are almost always struggling with other problems as well - poverty, exposure to traumatic events, physical and mental health problems. Birth mothers who use alcohol and drugs during pregnancy are more likely to get poor prenatal care and have complications during pregnancy. This can also have an impact on pregnancy and the developing baby.

For children who do not come into our care at birth, addiction can also take a toll on early childhood. Parents' substance use may affect their ability to consistently provide for a child's basic physical and emotional needs. These children may experience neglect and abuse. They may experience homelessness and poverty. They may have not received care from a doctor or dentist. In addition, parents who are caught in the cycle of addiction may not be able to foster normal attachment and emotional development. These "adverse childhood experiences" can also contribute to short and long-term problems with health and development. If children have been to exposed to alcohol and drugs prenatally, and also have had adverse child experiences, they are even more vulnerable to challenges with learning and behavior.

As you can imagine, it is very difficult, if not impossible, for scientists and doctors to figure out what problems are caused by exposure to substances in the womb and what problems are caused by adverse childhood experiences. Since many birth mothers use multiple substances at once, it can also be difficult to tease out what substance caused what problem. One of the foster mothers I work with calls the children in her care her "onions" – "they have so many layers to them!" All these "layers" are important: exposure to alcohol and drugs in the womb, bad early child experiences, genetic risk of addiction and mental health issues. Each child will have his or her own unique layers that requires special care. Your knowledge about the common problems that can be caused by each exposure, coupled with close attention to a child's individual development can help you and your team provide the best care possible to the children in your care.

Citations

[1] National Center for Substance Abuse and Child Welfare website *https://ncsacw.samhsa.gov/resources/child-welfare-and-treatment-statistics.aspx*

[**2]** Excerpted from The Mystery of Risk by Ira Chasnoff, available at www.ntiupstream.com/mysteryofrisk.

[3] Smith VC, Wilson CR, AAP Committee On Substance Use and Prevention. Families Affected by Parental Substance Use. Pediatrics. 2016;138(2):e20161575