**FETAL ALCOHOL SPECTRUM DISORDERS:**
**Causes, Diagnosis and Symptoms**

Clinicians may be familiar with the diagnosis of Fetal Alcohol "Syndrome" (FAS), but there is now research to support a continuum of symptomology, related to complications in the development of a fetus, caused by a woman's use of alcohol during her pregnancy. Fetal Alcohol Spectrum Disorders (FASDs) is the term used to describe the range of effects that occur in an individual whose mother drank alcohol during pregnancy. An individual may be diagnosed with one of the following: Fetal Alcohol Syndrome (FAS), Partial Fetal Alcohol Syndrome (pFAS), Neurobehavioral Disorder Associated with Prenatal Alcohol Exposure (ND-PAE) or Alcohol Related Birth Defects (ARBD). At this time, Neurobehavioral Disorder Associated with Prenatal Alcohol Exposure (ND-PAE) is in the DSM 5 Appendix.

Fetal Alcohol Syndrome is a medical diagnosis with a defined criteria which involves more than identifying the specific facial features (small eye opening, smooth filtrum (area above the lip), and thin upper lip). Individuals who have an FASD may not have all or any of the facial features, but all may have some form of brain damage.

FASDs are the leading known cause of **preventable** intellectual disabilities. The sole cause of FASDs is the fetus' exposure to alcohol during pregnancy. FAS is the most severe presentation of this disorder, but there are many points along the continuum for which criteria of FAS are not met, but in which there is a history of prenatal alcohol exposure resulting in CNS abnormalities, some facial abnormalities, neurocognitive disabilities, behavior and learning problems, and in some cases, structural defects (e.g. heart and kidneys). All points result in lifelong implications. Many individuals who present on the spectrum are often misdiagnosed or never identified with an FASD. Early identification and protective factors, which include interventions, are crucial in helping an individual with an FASD reach their potential and have the most productive life possible.

## ASK YOURSELF?

IS IT SAFE TO DRINK A GLASS OF WINE DURING PREGNANCY?
(There is **NO SAFE TYPE** OF ALCOHOL, **NO SAFE AMOUNT** AND **NO SAFE TIME** TO DRINK)

ARE MEN RESPONSIBLE FOR FETAL ALCOHOL SPECTRUM DISORDERS?
(No. Alcohol must be consumed by the woman and delivered to the developing embryo or fetus to cause an FASD)

## THE FACTS ABOUT FASDs

- It is estimated that Fetal Alcohol Syndrome affects 1-3 per 1,000 live births in the general population in the US. Some studies suggest that cases of Fetal Alcohol Syndrome can be as high as 10 – 15 cases per 1000 births in high risk populations, such as those in foster care.

- Prevalence of the full spectrum of FASDs in the general US population is estimated at 9.1 per 1,000 live births.
- However, school screeningS and diagnostic studies suggest that the national rate could be closer to 50 per 1,000 (5%).

## THE BIRTH OF FASDs

FASDs are not caused intentionally by the mother. Some women simply may not know they are pregnant or may not be aware of the harm that alcohol consumption during pregnancy can cause. Others may struggle with addiction, and don't know how to stop, or where to get help. When it comes to women, one binge drinking session can cause FASD! A binge session is defined as 4 alcoholic servings per two hours. Servings are classified as **12 oz.** of beer, **5 oz.** of wine and **1.5 oz.** of liquor. Given this, many seemingly benign social gatherings unknowingly involve a binge drinking session.

FASDs begin with the consumption of alcohol, a **Teratogen,** defined as *"any agent, substance or occurrence which can induce abnormalities of development in the developing embryo or fetus"*. When a pregnant woman ingests alcohol, it can affect the developing brain of the embryo/fetus, before the woman even realizes she is pregnant. The brain is one of the first organs to develop and alcohol can kill the developing cells of the brain, causing the brain of the fetus to develop incorrectly. As the pregnancy progresses, alcohol is absorbed into the blood vascular system, and distributed to all tissues of the mother's body, which includes absorption by the placenta. The placenta does NOT stop the transfer of alcohol to the fetus. As alcohol crosses the placenta and is delivered to the fetus through the umbilical cord, it is sent through the body of the fetus, especially the brain and liver. The developing fetus does not have the ability to metabolize the alcohol like the mother, resulting in damage to the brain and other organs on a cellular level. Unfortunately, in a study by NC PRAMS, 2011, 62.3% of the women surveyed didn't know they were pregnant until 5 weeks or beyond, which means many women may be causing damage to the developing fetus prior to this knowledge. The development of the fetal brain occurs throughout the entire pregnancy, making the entire pregnancy vulnerable to the teratogenic effects of alcohol. The same PRAMS data reflects that 13.1% of the pregnant women in NC did not change their drinking pattern during pregnancy, continuing the exposure. As stated earlier in this article, during pregnancy there is **NO SAFE TYPE** OF ALCOHOL, **NO SAFE AMOUNT** AND **NO SAFE TIME** TO DRINK!

## DIAGNOSIS

Accurate clinical assessment of FASDs should be an integrated process that involves a team of professionals. Primary components are as follows:

- A comprehensive history including medical record review and interview with family prior to appointment.
- Standardized testing and consultations administered by an Occupational Therapist, Speech/Language therapist, Neuropsychologist and Genetic Counselors.

- Genetic testing is especially important to rule out other genetic syndromes that mimic FAS. For example Williams Syndrome has similar facial features as FAS.
- Physical Examination administered by the geneticist.
- Behavioral Observations.

## ALCOHOL EFFECTS THROUGH THE LIFESPAN

PRENATAL EFFECTS:

- Cell death and cell migration failure
- The brain is often smaller than average or may have missing or underdeveloped portions, such as the frontal lobe, corpus callosum, cerebellum and amygdala.
- Nerve formation is interrupted
- Molecule adhesion is hampered

INFANCY TO PRESCHOOL:

- Small in height and weight
- Poor feeding
- Bonding problems
- Temper tantrums
- Shuts down easily
- Poor sleep patterns
- Difficult to soothe
- Stranger anxiety
- Trouble learning rules
- Overly sensitive or under responsive to stimulation

SCHOOL AGE AND ADOLESCENCE:

- Memory problems
- Delays in social emotional development
- Impulsivity
- Lower IQ
- Trouble processing information
- Executive functioning deficits
- Difficulty with abstract concepts
- Behavior Problems
- **Many parents of children with FASDs say they have to be their child's "external brain"**

ADOLESCENCE INTO ADULTHOOD:

- Less obvious facial features (In puberty, both the facial abnormalities and the growth deficit tend to disappear), make detection challenging
- Poor judgment and impulsivity
- Defiant and uncooperative
- Can't predict consequences
- No "stranger danger"; making them more susceptible to be taken advantage of
- Alcohol and drug use
- Difficulty telling time, & keeping appointments
- "Talk the talk, but not walk the walk"; can say what to do but can't do it.
- Likelihood of co-occurring mental health disorders such as ADHD, Schizophrenia, Depression, Bipolar disorder, Substance use disorder
- Likelihood of secondary disabilities such as disrupted school experience, trouble with the law and time spent in jail or treatment facilities, inability to live independently, and struggles to maintain employment.

## THE CLEAR MESSAGE

Given the scope of FASDs, it is clear that an "ounce of prevention is worth a pound of cure" (Ben Franklin). Therefore the importance of alcohol education for all is vital to prevention, and women need

education, motivational counseling, support and perhaps treatment. The message is alcohol can harm a fetus for life and early identification and diagnosis allows for early implementation of support.

**FASDs are 100% PREVENTABLE!**

**RESOURCES:**

www.fasdinnc.org
www.nofas.org/
www.cdc.gov/ncbddd/fasd/index.htm
http://www.womenandalcohol.org/
www.fasdcenter.samhsa.gov/
www.fascets.org/
www.aap.org/en-us/advocacy-and-policy/aap-health initiatives/fetal-alcohol-spectrum-disorders
toolkit/Pages/The-Toolkit.aspx
http://www.everywomansoutheast.org/partners/north-carolina
http://www.marchofdimes.org/northcarolina/
http://www.reddit.com

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