Fetal Alcohol Spectrum Disorders (FASD)

What is Fetal Alcohol Spectrum Disorder?
Fetal Alcohol Spectrum Disorder (FASD) is the umbrella term describing the complex range of effects that can occur in a child exposed to alcohol before birth. These life-long effects range from severe to mild and include physical birth defects; growth deficiencies; intellectual, learning, and behavioral disabilities. Depending on the amount and the timing of alcohol exposure, some individuals develop a characteristic pattern of facial features and some will have growth or neurologic deficiencies. However, all those with FASD will have some degree of learning and behavioral dysfunction as a result of damage to the developing brain.

Prevalence
The prevalence of Fetal Alcohol Syndrome (FAS) is 6 to 9 per 1000 live births (0.6-0.9%). FAS is just the tip of the iceberg; the full range of Fetal Alcohol Spectrum Disorders may occur as often as 24 to 48 per 1000 live births (2.4-4.8%), which is considerably more than Autism and other birth defects.

Contributing Factors
Alcohol is legal, socially acceptable and readily available. 45% of pregnancies in the U.S. are unplanned and often times women are unaware they are pregnant until 8 or more weeks. Therefore a woman who uses alcohol, socially or dependently, may unintentionally expose the fetus. There is often a lack of awareness of the risks of drinking alcohol while pregnant. Some women may not think of beer or wine as harmful, or if they are using other substances may not think of alcohol as “a substance”. Some women may not be aware, or may be in denial, of how much alcohol they actually drink. Over 50% of U.S. women age 18 to 44 use alcohol and nearly 33% binge drink. Binge drinking is as damaging to the fetus as heavy drinking; possibly more. An episode of binge drinking for a woman is defined as more than 3 standard drinks on a single occasion. Heavy drinking for women is defined as 8 or more standard drinks per week.

A standard drink is determined by the amount of absolute alcohol (0.6 oz) contained in the drink, not the amount of liquid, as is illustrated here:

<table>
<thead>
<tr>
<th>12 oz. of beer or cooler</th>
<th>8-9 oz. of malt liquor</th>
<th>5 oz. of table wine</th>
<th>3-4 oz. of fortified wine</th>
<th>2-3 oz. of cordial, liqueur, or aperitif</th>
<th>1.5 oz. of brandy (a single jigger)</th>
<th>1.5 oz. of spirits (a single jigger of 80 proof gin, vodka, whiskey, etc.)</th>
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<tbody>
<tr>
<td>1.2 oz.</td>
<td>8.5 oz.</td>
<td>5 oz.</td>
<td>3.5 oz.</td>
<td>2.5 oz.</td>
<td>1.5 oz.</td>
<td>1.5 oz.</td>
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Impact of Alcohol on the Fetus

Alcohol crosses the placenta within minutes resulting in essentially the same blood concentration in the fetus as in the mother. Alcohol is a teratogen, a substance that is toxic to the developing brain as well as to other organ systems. The parts of the brain affected depend on which areas are developing at the time of the alcohol exposure. Because the brain develops and grows throughout the entire pregnancy, it is always vulnerable to alcohol exposure. Not everyone is affected by alcohol the same way. The absorption, distribution, and metabolism of alcohol are highly variable among individuals. Maternal age, nutrition, and vitamin status can also influence the effect of alcohol on the fetus.

The Spectrum

FASD is a spectrum, with a range of effects from severe to mild. Confirmation of prenatal alcohol exposure is required to determine all types of FASD except for the Fetal Alcohol Syndrome (FAS).

FAS is a medical diagnosis characterized by 3 specific facial malformations, growth deficits, and central nervous system damage. Facial malformations: small palpebral fissures (eye openings); smooth philtrum (space between the nose and upper lip), and a smooth, thin vermillion (upper lip) are the 3 cardinal signs of FAS.

Growth deficits: confirmed prenatal or postnatal height and/or weight at or below the 10th percentile; remain small in stature or weight into adulthood.

Central nervous system abnormalities: smaller overall brain size and/or abnormalities in specific structures of the brain; neurological, intellectual and functional deficits.

Individuals with full FAS represent only a small portion of the spectrum and are generally recognized early on due to the facial features and severity of symptoms. However, the majority of individuals affected by fetal alcohol exposure do not meet all of the above diagnostic criteria. They may have none of the physical features but may still show substantial cognitive-behavioral deficits. Terms given to these conditions include:

- Partial Fetal Alcohol Syndrome (pFAS): does not meet the full diagnostic criteria for FAS but has a history of prenatal alcohol exposure and most, but not all of the growth deficiency and/or facial features and central nervous system damage typical of FAS.

- Alcohol Related Birth Defects (ARBD): Alcohol primarily affects the central nervous system, but it affects other organ systems as well. Those with ARBD may have problems with the heart, kidneys, bones, hearing, vision, or they may have any mix of these.

- Alcohol Related Neurodevelopmental Disorder (ARND): does not have the physical characteristics, but does have problems with neurocognitive development, adaptive functioning and behavior regulation which can be as severe as those with full FAS. The current Diagnostic and Statistical Manual of Mental Disorders (DSM 5) uses the term Neurodevelopmental Disorder associated with prenatal alcohol exposure (ND-PAE) to describe these effects.

Alcohol, including wine and beer, causes far more damage to the developing baby than any other drug. The Institute of Medicine says, “Of all the substances of abuse (including cocaine, heroin, and marijuana), alcohol produces by far the most serious neurobehavioral effects in the fetus.”
FASD Affects Many Areas of Functioning

**Self Regulation**
This includes sensory and motor integration, stress reactivity, and the ability to cope with overstimulation. Routines and a simple environment can support regulation, so can doing "one thing at a time".

**Learning**
Whether or not a person with FASD has general intellectual disabilities, specific areas of learning (often math) can be affected. Memory and attention can be particularly weak. People with FASD benefit from extra repetition and reminders, more time to process information, and may need tasks broken down into simpler parts. Remember this phrase: "He's a 30-second kid in a 5-second world."

**Executive Function**
Planning, organization, abstract reasoning, generalizing learning from one situation to another. These executive functions may be slower to develop—or never fully develop. Understand that people with FASD may always need an "external brain", may be impulsive, and may not learn from past mistakes. Make things concrete, and understand that they may need help to learn things other people seem to understand without being taught.

**Communication**
A person with FASD may be able to "talk the talk", but their speech does not reflect true understanding. This is especially true for abstract language. Be concrete and clear. A person with FASD may confabulate (tell stories or say what s/he wishes was true). This behavior is often a result of less mature reasoning and a desire to please other people.

**Social Interactions**
Being overly-friendly with strangers, not understanding social cues and lack of social problem-solving skills are all typical of individuals with FASD. This may lead to problems with making and keeping friends, isolation, and problems with inappropriate behavior. Social skills training and appropriate supervision are key supports for individuals with FASD.

**Adaptive Living Skills**
People with FASD often have problems telling time, keeping appointments and managing their money. They may have trouble remembering to do basic hygiene tasks, and might not be aware of dangers that affect personal safety. A person with FASD may or may not be able to live independently as an adult.

**Many Strengths**
Descriptions of FASD tend to focus on deficits. It is important to remember that each individual with FASD has strengths as well. People with FASD can be friendly and outgoing. They are often described as hard workers. People with FASD may be talented artists or musicians. Individuals with FASD have become strong self-advocates and work to raise awareness and create support for others living with FASD.

**Secondary Effects**
Individuals affected by FASD may struggle with alcohol or drug use, have mental health problems, experience school or work failure, or get into trouble with the law. These preventable secondary effects often result from a lack of diagnosis or misunderstanding of the needs of a person affected by prenatal alcohol exposure.

We cannot cure FASD, but we can work to prevent secondary effects by:

- Correctly identifying FASD as early as possible
- Providing interventions for primary effects of FASD, such as self-regulation and social skills training,
- Creating protective factors, including a stable home environment (with support for families) and educational support, and
- Maintaining supports and services into adulthood.

**Strategies for Supporting Individuals Living with FASD**
- Be concrete
- Be consistent
- Use repetition
- Create routines
- Keep things simple
- Be specific
- Provide structure
- Maintain supervision

These "Eight Magic Keys" were developed by Deb Evensen and Jan Lutke (Project FACTS: Fetal Alcohol Consultation and Training Services, 1997) and later included in a brochure by the Fetal Alcohol Spectrum Disorders Center for Excellence (http://www.fasdcenter.samhsa.gov/documents/eightmagickeys.pdf)

**Think CAN’T, not WON’T**
FASD results from prenatal exposure to alcohol and can cause damage to many areas of the brain. Individuals with FASD often function developmentally at a level about half their chronological age.
**Prevention**

All women should be given information about the health effects related to alcohol use as part of a general health assessment. Because alcohol is teratogenic to the fetus, women of childbearing age need information about the risks to the fetus, and information about effective contraception if they are sexually active and do not plan to become pregnant or to stop drinking. One of the strongest predictors of substance use during pregnancy is substance use before pregnancy so it is important to identify substance use in the preconception period.

Alcohol can be a sensitive subject to talk about. Evidence based brief methods of screening and intervening have been developed and are recommended for use for women of reproductive age. (See Alcohol Diagnosis/FASD is often referred to as the "invisible disorder". Diagnosing FASDs can be difficult because there is no specific biologic medical test, and a broad range of signs and symptoms are included under the FASD umbrella. While the cardinal facial features and growth deficits can be used to make a medical diagnosis of the Fetal Alcohol Syndrome, it can be difficult to identify the behaviors and neuro-cognitive problems associated with all FASDs. A thorough history of prenatal exposures is essential to this process. Greater awareness and consistent screening are needed to effectively identify and diagnose FASDs.

**FASDs are completely preventable if a woman does not drink alcohol during pregnancy.**

**Resources for Additional Information**

Southern California Affiliate of NOFAS
Local resources, including diagnostic and support services and monthly parent/caregiver support group meetings.
- [http://socalnofas.org](http://socalnofas.org)

Centers for Disease Control and Prevention: FASD Information and Resources

FASD Center for Excellence: Substance Abuse and Mental Health Services Administration

American Academy of Pediatrics
FASD Toolkit to promote awareness and help educate health care providers and families about FASD.

SBI or the CDC FASD Competency Based Curriculum Guide and Project
CHOICES: [http://www.cdc.gov/ncbddd/fasd/research-preventing.html](http://www.cdc.gov/ncbddd/fasd/research-preventing.html)