

Fetal Alcohol Spectrum Disorders

handbook



UNIVERSITY OF
SOUTH DAKOTA
SANFORD SCHOOL OF MEDICINE



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Welcome

The Center for Disabilities, Department of Pediatrics, Sanford School of Medicine at the University of South Dakota provides this handbook to serve as an overview of Fetal Alcohol Spectrum Disorders (FASD).

The Center for Disabilities...

- › works with others to create opportunities that enhance the lives of people with disabilities and their families through training, services, information, research and community education.
- › delivers activities across the lifespan from a community-based, family-centered and culturally-competent perspective,
- › is South Dakota's University Center for Excellence in Developmental Disabilities Education, Research and Service (UCEDD),
- › is a member of the Association on University Centers on Disabilities (AUCD), and
- › is grant funded with core funding coming from the Administration on Intellectual and Developmental Disabilities (AIDD) with is housed in the United States Department of Health and Human Services (HHS).

In addition, the Center for Disabilities is an affiliate of NOFAS (National Organization on Fetal Alcohol Syndrome) which provides education and advocacy on FASD issues and resources for people affected by FASD. The message of NOFAS is "No safe time. No safe amount. No safe alcohol. Period." All activities at the Center for Disabilities related to FASD are housed under our NOFAS affiliate called NOFAS-South Dakota (NOFAS-SD).

NOFAS-SD provides ...

- › diagnostic clinics,
- › consultation services,
- › a variety of trainings (inservices, community education, professional development),

- › technical assistance, and
- › resources (listserv, publications and through the Wegner Health Science Information Center).

Fetal Alcohol Spectrum Disorders (FASD) is an umbrella term that covers a variety of disorders. All FASD are caused by prenatal exposure to alcohol through maternal alcohol consumption. The range and severity of characteristics, developmental difficulties, emotional difficulties, and behaviors seen across the spectrum is vast. It would be nearly impossible for this publication to detail every potential effect of FASD. This handbook is not meant to act as a diagnostic tool, instead this handbook is designed to provide an overview of FASD.

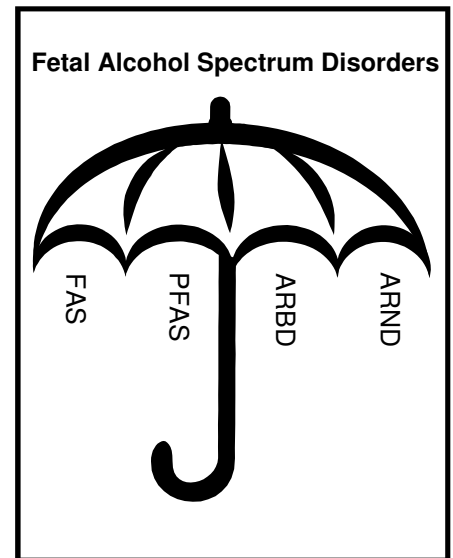
In this handbook the reader will find:

- › A Historical Overview of FASD,
- › Characteristics of FASD,
- › Diagnostic Criteria for FASD,
- › A Discussion of Executive Skills - their function and signs of their dysfunction,
- › Secondary Concerns for Individuals with an FASD,
- › FASD Prevention Information,
- › Strategies for Individuals with FASD at Home,
- › Educational Strategies for Individuals with FASD,
- › And Much More.

FASD FAQs

What are Fetal Alcohol Spectrum Disorders (FASD)?

Fetal Alcohol Spectrum Disorders (FASD) is an umbrella term used to encompass several clinical diagnoses all of which are the result of prenatal alcohol exposure. The term Fetal Alcohol Spectrum Disorders covers Fetal Alcohol Syndrome (FAS), Partial Fetal Alcohol Syndrome (PFAS), Alcohol Related Birth Defects (ARBD) and Alcohol Related Neurodevelopmental Disorders (ARND). FASD include the wide variety of physical, intellectual, behavioral and developmental effects seen in people who were exposed to alcohol before they were born. In other words, prenatal exposure to alcohol can cause a spectrum of disabilities from very mild to very severe. Whether the effects of prenatal alcohol exposure are mild or severe they are all covered by the term Fetal Alcohol Spectrum Disorders.



How many people are effected by Fetal Alcohol Spectrum Disorders?

It can be difficult to find a statistic which fully shows the number of people who have an FASD. There are several factors which can affect the statistics used to determine the number of FASD cases. These factors include: the type of study used to generate the number; the under diagnosis of FASD; the lack of a national registry; the stigma of identifying children as having an FASD; and the under-reporting of alcohol use during pregnancy.

The National Organization on Fetal Alcohol Syndrome (NOFAS) states that 1 in 100 infants born each year are affected by an FASD. However, studies of students already in school, estimates the number of students with FASD to be 50 per 1,000 students.

What is the cost of Fetal Alcohol Spectrum Disorders?

When discussing the costs associated with FASD, it is important to remember that no dollar amount can begin to express the costs to the individuals with an FASD. The

costs (emotionally, physically, socially, etc.) of a disability on the life of a person and their family is immeasurable.

The estimates for the monetary cost of FASD vary and increase over time. In 2009, the annual cost of Fetal Alcohol Syndrome alone was estimated at \$3.6 billion in the United States. A study in Canada placed the cost of FASD at \$5.3 billion in that country. The National Organization on Fetal Alcohol Syndrome (NOFAS) estimates that the cost of FASD in the United States is \$6 billion annually. NOFAS estimates the cost of treatment for one person with Fetal Alcohol Syndrome to be \$1.4 million across their lifetime. “Based simply on cost, it is clear that FASD is a major public health problem” (Riley, 76-77).

Is there a cure for Fetal Alcohol Spectrum Disorders?

No. The effects of prenatal alcohol exposure are irreversible. Individuals with an FASD and their families deal with the effects of the disorder by managing the behaviors it causes and addressing the medical implications of the disorder. An individual born with an FASD will always have the disorder.

Do all people with a Fetal Alcohol Spectrum Disorder have an intellectual disability?

No. While FASD are the leading known preventable cause of intellectual disabilities, not all people with an FASD have intellectual disabilities. The IQ of individuals with an FASD can range from 29 to 140. However, IQ is not an indicator of how well a person can perform daily life skills. FASD are a leading cause of learning disabilities which may or may not occur with an intellectual disability.

Do Fetal Alcohol Spectrum Disorders affect only certain racial or economic groups?

No. FASD are caused by maternal alcohol consumption. FASD affect every segment of the population. All racial/ethnic groups, economic classes, and social strata are affected by FASD. While studies indicate higher rates of FASD in certain groups, it is not due solely to any specific racial or social difference.

Is it ever safe to drink alcohol during pregnancy?

No. There is no time during pregnancy and no amount of alcohol consumption that is known to be safe. It is even recommended that women stop drinking when they plan to become pregnant. The effects of maternal alcohol consumption on the embryo can occur in even the earliest days and weeks of pregnancy.

Can a father’s drinking cause Fetal Alcohol Spectrum Disorders?

There have been no studies that show a physical link between a father’s drinking

alcohol and FASD. However, a mother's drinking behaviors can be influenced by the drinking behaviors of those around her including her partner. A partner can have a positive or negative effect on a mother's drinking behaviors during her pregnancy. A supporting non-drinking environment can be a great help to a pregnant woman who is avoiding alcohol during pregnancy.

If a person with a Fetal Alcohol Spectrum Disorder has children, will their children have a Fetal Alcohol Spectrum Disorder?

No. FASD are not genetic disorders. FASD only occur when an embryo or fetus is exposed to maternal alcohol consumption during pregnancy. Women with an FASD can have children without FASD by not consuming alcohol during their pregnancy.

What are the most important things to remember about Fetal Alcohol Spectrum Disorders?

- › FASD are a wide spectrum of disabilities caused by prenatal exposure to alcohol.
- › FASD are the leading known preventable cause of birth defects and intellectual disabilities.
- › FASD affect more children than Autism, Down Syndrome, cerebral palsy, cystic fibrosis, spina bifida, and sudden infant death syndrome **combined**.
- › FASD can affect anyone.
- › FASD are not genetic disorders.
- › There is no time during pregnancy when drinking alcohol is safe.
- › There is no safe amount of alcohol to drink during pregnancy.
- › FASD are 100% preventable.

Historical Overview of Fetal Alcohol Spectrum Disorders

Please remember when reading the following that the language used in the past may seem harsh or judgmental but reflects the time period in which it was produced.

The history of the recognition of the link between maternal alcohol consumption and disabilities in children seems to stretch back into history. One of the most often quoted historical references is in the book of Judges in the Old Testament which states, in part, “Behold, thou shalt conceive, and bear a son: and now drink no wine or strong drink” (Judges 13:7). Another is from the Greek philosopher Aristotle who wrote, “Foolish, drunken and harebrained women, most often bring forth children like unto themselves, morose and languid” (Streissguth, page 35). While these historical references may indicate a knowledge of the dangers of maternal alcohol consumption, it is impossible to know if the ancients recognized a causal relationship between maternal alcohol consumption and difficulties experienced by children. In fact, many experts believe that references such as these might in fact refer to the postnatal effect of maternal alcohol consumption as it relates to the child’s environment.

The medical profession began to comment on the effects of maternal alcohol consumption as early as the 1700s. During the 1700s in England gin was very inexpensive and resulted in what is known as the “gin epidemic.” In 1725, the College of Physicians drafted a letter to Parliament detailing their concerns about the rampant consumption of gin. The letter read, in part, that the physicians had observed

“the fatal effects of the frequent use of several sorts of distilled spirituous liquors upon great numbers of both sexes rendering them diseased, not fit for business, poor, a burthen to themselves and neighbors and *too often the cause of weak, feeble, and distempered children* [italics Abel’s].” (Abel, page 4)

By the 1800s, more specific scientific inquiry into the effects of maternal alcohol consumption was undertaken. In 1865, French physician Dr. E. Lanceraux may have even described some of the most noticeable features of Fetal Alcohol Syndrome (FAS).

“As an infant he dies of convulsions or other nervous disorders; if he lives, he becomes an imbecile, and in adult life bears the special characteristics: the head is small [tendency to microcephalism], his physiognomy vacant [peculiar

facial features], a nervous susceptibility more or less accentuated, a state of nervousness bordering on hysteria, convulsions, epilepsy . . . Are the sorrowful inheritance, which unfortunately, a great number of individuals given to drink bequeath their children.” (Abel, page 6)

Dr. William Sullivan, a prison physician in Liverpool, England, published in 1899 the results of his study of children born to 120 female prisoners who were alcoholics.

“Women were screened to exclude those who had histories of syphilis, tuberculosis, and other diseases. Sullivan then compared these alcoholics with 28 of their blood relatives who were married to sober husbands and had also given birth to children. Of the 600 children born to alcoholic women, only 44% lived longer than 2 years of age. The other 56% were either stillborn or died prior to 2 years. Compared to the 44% mortality rate among the alcoholic population, the mortality rate among children born to these nonalcoholic blood relatives was 24%. Not only did Sullivan find a stillbirth and infant mortality rate 212 times higher among alcoholic women compared to controls, he also found that women who entered prison early in their pregnancies gave birth to children who were healthier than women who entered prison late in their pregnancies.” (Abel 6-7)

Despite all the historical references to what could be Fetal Alcohol Spectrum Disorders, it wasn't until late in the last century that scientific study into prenatal alcohol exposure was conducted. Some of the earliest studies were conducted in France. In 1957, a group lead by Dr. H. Heuyer reported that “children born to alcoholic parents had a higher than expected incidence of delayed growth and development of neurological disorders.” (Abel, 8) Eleven years later Dr. P. Lemoine and his colleagues published a benchmark study of 127 children from 69 families in which alcohol consumption was a significant problem.

“In 29 of these families both parents were alcoholic; in 25 only the mother was alcoholic; in the other 15, only the father was alcoholic. The researchers found that 25 of the 127 children had four distinctive features: a) unusual facial features including deformed ears, a short, upturned nose with a sunken nasal bridge, and a bulging forehead; b) prematurity and low birth weight, even after correction for prematurity, and postnatal growth retardation; c) malformations, especially those involving the heart and limbs, and cleft palate; and d) delayed psychomotor development and language abilities, hyper-activity, and subnormal intelligence with average I.Q.s of 70.” (Abel, 9)

Dr. Lemoine and his colleagues had essentially described Fetal Alcohol Syndrome for

the first time in scientific literature. However, since the article was written in French it was not well read in the United States.

In 1973, Dr. C Ulleland a resident at Harborview Hospital in Seattle, Washington noted that six infants in his care with failure to thrive were born to mothers who were alcoholics. Dr. Ulleland brought these six cases, along with others he identified, to Drs. Ken Jones and David Smith who at the time were practicing pediatric dysmorphology at Harborview Hospital. Drs. Jones and Smith recognized in these children a characteristic pattern of facial features that were unlike those of any other condition. At this point, Dr. Ann Streissguth, a child psychologist, was asked to examine the children and found that each had some degree of developmental delay or disability.

Drs. Jones, Smith, Streissguth and Ulleland published “Pattern of Malformation in Offspring of Chronic Alcoholic Mothers” in the journal *Lancet*. It was in this article that the term Fetal Alcohol Syndrome (FAS) was first used. In the years since the 1973 publication of this article, it has been recognized that FAS is only one part of a spectrum of disorders related to prenatal alcohol exposure due to maternal alcohol consumption. In 1986, the United States Institutes of Medicine, Division of Biobehavioral Sciences and Mental Disorders created a Committee to Study Fetal Alcohol Syndrome. The culmination of the Committee’s work was the publication of Fetal Alcohol Syndrome: Diagnosis, Epidemiology, Prevention and Treatment. It was this book that divided the disorders caused by prenatal alcohol exposure into four diagnostic groups:

- › Fetal Alcohol Syndrome (FAS) [with or without confirmed maternal alcohol exposure],
- › Partial Fetal Alcohol Syndrome (PFAS) [with or without confirmed maternal alcohol exposure],
- › Alcohol Related Birth Defects (ARBD) [requires confirmed maternal alcohol exposure], and
- › Alcohol Related Neurodevelopmental Disorders (ARND) [requires confirmed maternal alcohol exposure].

In 2004, a group of national experts representing the Centers for Disease Control (CDC), the National Institute on Alcohol Abuse and Alcoholism (NIAAA), the Substance Abuse and Mental Health Service Administration (SAMHSA), Health Canada and professionals in the fields of research, psychiatry and justice attended a meeting facilitated by the National Organization on Fetal Alcohol Syndrome (NOFAS). At this meeting, the term Fetal Alcohol Spectrum Disorders (FASD) was coined.

FASD is an umbrella term describing the range of effects that can occur in individuals exposed to alcohol before birth through maternal alcohol consumption. These effects may include physical, mental, behavioral or learning disabilities with possible lifelong implications.

Since the description of Fetal Alcohol Syndrome in 1973, professionals in a variety of fields have continued to study the effect of maternal alcohol consumption during pregnancy. They have also worked steadily to better understand the difficulties children who were exposed to alcohol prenatally will face throughout their lives. It is now known with certainty that there is no safe amount of alcohol that can be consumed by a woman during pregnancy and that there is no safe time during prenatal development when the child can be exposed to alcohol without it having an effect.

Characteristics of Fetal Alcohol Spectrum Disorders

There are three main categories into which the characteristics of Fetal Alcohol Spectrum Disorders (FASD) fall - Growth Deficiency, Facial Characteristics and Central Nervous System Dysfunction. It is important to remember that each of the characteristics listed below can be present in any particular individual to varying degrees. Depending on the FASD with which the individual has been diagnosed the following characteristics may not be present. It is not necessary for all of the following characteristics to be present for a diagnosis of an FASD to be made.

Growth Deficiency

- › In Height
- › In Weight
- › In Both Height and Weight
- › Occurring either before (prenatal) or after (postnatal) birth

Facial Characteristics (Most Notable in Fetal Alcohol Syndrome)

- › Smooth Philtrum (The philtrum are the ridges between the nose and mouth.)
- › Short Palpebral Fissures (Palpebral fissures are the openings for the eye between the eyelids.)
- › Thin Vermillion Border (May be referred to as thin upper lip.)
- › Minor Facial Characteristics
 - › Flat Midface
 - › Short Uprturned Nose
 - › Underdevelopment of the Upper Ear (May be referred to as “railroad track” ears.)

Central Nervous System Dysfunction

- › Microcephaly (Small Brain Size)
- › Tremors

- › Seizures
- › Hyperactivity
- › Attention Deficits
- › Gross Motor Difficulties
- › Fine Motor Difficulties
- › Learning Disabilities
- › Developmental Delays
- › Intellectual Disabilities
- › Sensory Integration Difficulties
- › Memory Difficulties
- › Difficulty Processing Information
- › Impulsivity
- › Distractibility
- › Difficulty with Abstraction
- › Difficulty Understanding Consequences

Fetal Alcohol Spectrum Disorders, especially where there is no confirmed history of prenatal alcohol exposure, are often diagnosed based on the complete set of characteristics in an individual. The effects of FASD can vary in their presentation over the course of an individual's lifespan. The following lists characteristics that may be seen in individuals with FASD at different developmental stages. Again, it is important to remember that not every individual will exhibit all of the following characteristics and that the presence of all these characteristics need not be present for the diagnosis of an FASD to be made.

Characteristics in Newborns or Infants

- › Difficulty Sleeping (Unpredictable sleep/wake cycle.)
- › Electroencephalogram (EEG) Abnormalities
- › Failure to Thrive
- › Feeding Difficulties including Weak Sucking Reflex
- › Heart Defects

- › Kidney Problems
- › Skeletal Anomalies
- › Easily Overstimulated (Increased sensitivity to light and sound.)
- › Neurological Dysfunctions
- › Fine Motor Control Difficulties
- › Gross Motor Control Difficulties
- › Tremors
- › Seizures
- › Small Physical Size
- › Increased Susceptibility to Infections

Characteristics in Preschool Aged Children

- › Emotional Overreaction (Tantrums)
- › Hyperactivity
- › Impulsivity
- › Intellectual Disabilities
- › Eye-Hand Coordination Difficulties
- › Physical Coordination Difficulties
- › Poor Judgment (May be expressed as a difficulty recognizing danger including not fearing strangers. May seem overly friendly.)
- › Small Size
- › Speech Delays (May include articulation difficulties, slow vocabulary or grammar development or perseverative speech. Perseverative speech is speech in which a word, phrase or sentence is repeated insistently.)

Characteristics in Elementary School Aged Children

- › Attention Deficits
- › Hyperactivity
- › Language Difficulties (Delayed development of language or difficulties with expressive and/or receptive language.)

- › Learning Disabilities
- › Intellectual Disabilities
- › Memory Difficulties
- › Impulsivity (May be seen as lying, stealing or defiant acts).
- › Poor Judgment
- › Small Size
- › Social Difficulties (May include immaturity, difficulty making choices, being overly friendly and/or being easily influenced.)

Characteristics in Adolescents and Young Adults

- › Difficulties with Abstractions
- › Difficulty Understanding or Anticipating Consequences
- › Low Academic Achievement
- › Low Self-Esteem
- › Memory Difficulties
- › More Pronounced Impulsivity (Often seen as lying, stealing or defiant acts.)
- › Poor Judgment
- › Social Difficulties (May include immaturity, difficulty making choices, being overly friendly and/or being easily influenced.)

The characteristics of Fetal Alcohol Spectrum Disorders (FASD) are not only difficulties or deficits. Individuals with FASD often have strengths which can help them overcome their challenges. As before, it is important to remember that not every individual with an FASD will exhibit the strengths listed below.

Strengths of Individuals with FASD

- | | |
|-----------------|----------------|
| › Highly Verbal | › Generous |
| › Artistic | › Outgoing |
| › Musical | › Affectionate |
| › Mechanical | › Determined |
| › Athletic | › Willing |
| › Friendly | › Helpful |

Diagnostic Criteria for Fetal Alcohol Spectrum Disorders

The Institutes of Medicine published Fetal Alcohol Syndrome: Diagnosis, Epidemiology, Prevention and Treatment in 1996. This book provided a diagnostic criteria for all the disorders on the Fetal Alcohol Spectrum. In 2005, the diagnostic criteria was updated with the publication of “Practical Clinic Approach to Diagnosis of Fetal Alcohol Spectrum Disorders: Clarification of the 1996 Institute of Medicine Criteria” in the journal Pediatrics. This update was written by a group of professionals working in the field of Fetal Alcohol Spectrum Disorders. The following diagnostic criteria is taken from this article. Please consult the article for more detailed information.

Fetal Alcohol Syndrome (FAS) with Confirmed Maternal Alcohol Exposure

(This diagnosis requires the presence of all features A-D listed below.)

- A. Confirmed maternal alcohol exposure
- B. Evidence of characteristic pattern of minor facial anomalies, including at least two of the following
 1. Short palpebral fissures
 2. Thin vermilion border of the upper lip
 3. Smooth philtrum
- C. Evidence of prenatal and/or postnatal growth retardation
 1. Height or weight \leq 10th percentile, corrected for racial norms (if possible)
- D. Evidence of deficient brain growth or abnormal morphogenesis, including at least one of the follow
 1. Structural brain abnormalities
 2. Head circumference \leq 10th percentile

Fetal Alcohol Syndrome (FAS) without Confirmed Maternal Alcohol Exposure

(This diagnosis requires the presence of all features A-C listed below.)

- A. Evidence of a characteristic of minor facial anomalies, including at least two of the following
 - 1. Short palpebral fissures
 - 2. Thin vermilion border of the upper lip
 - 3. Smooth philtrum
- B. Evidence of prenatal and/or postnatal growth retardation
 - 1. Height or weight \leq 10th percentile, corrected for racial norms (if possible)
- C. Evidence of deficient brain growth or abnormal morphogenesis, including at least one of the following
 - 1. Structural brain abnormalities
 - 2. Head circumference \leq 10th percentile

Partial Fetal Alcohol Syndrome (PFAS) with Confirmed Maternal Alcohol Exposure

(This diagnosis requires the presence of all features A-C listed below.)

- A. Confirmed maternal alcohol exposure
- B. Evidence of a characteristic pattern of minor facial anomalies, including at least two of the following
 - 1. Short palpebral fissures
 - 2. Thin vermilion border of the upper lip
 - 3. Smooth philtrum
- C. One of the following other characteristics
 - 1. Evidence of prenatal and/or postnatal growth retardation
 - a. Height or weight \leq 10th percentile corrected for racial norms (if possible)
 - 2. Evidence of deficient brain growth or abnormal morphogenesis, including at least one of the following
 - a. Structural brain abnormalities
 - b. Head circumference \leq 10th percentile

3. Evidence of a complex pattern of behavioral or cognitive abnormalities inconsistent with developmental level that cannot be explained by genetic predisposition, family background or environment alone
 - a. This pattern includes marked impairment in the performance of complex tasks (complex problem solving, planning, judgment, abstraction, metacognition, and arithmetic tasks): higher-level receptive and expressive language deficits; and disordered behavior (difficulties in personal manner, emotional lability, motor dysfunction, poor academic performance, and deficient social interaction.)

Partial Fetal Alcohol Syndrome (PFAS) without Confirmed Maternal Alcohol Exposure

(This diagnosis requires the presence of both features A and B listed below.)

- A. Evidence of a characteristic pattern of minor facial anomalies, including at least two of the following
 1. Short palpebral fissures
 2. Thin vermillion border of the upper lip
 3. Smooth philtrum
- B. One of the following other characteristics
 1. Evidence of prenatal and/or postnatal growth retardation
 - a. Height or weight \leq 10th percentile corrected for racial norms (if possible)
 2. Evidence of deficient brain growth or abnormal morphogenesis, including at least one of the following
 - a. Structural brain abnormalities
 - b. Head circumference \leq 10th percentile
 3. Evidence of a complex pattern of behavioral or cognitive abnormalities inconsistent with developmental level that cannot be explained by genetic predisposition, family background or environment alone
 - a. This pattern includes marked impairment in the performance of complex tasks (complex problem solving, planning, judgment, abstraction, metacognition, and arithmetic tasks): higher-level receptive and expressive language deficits; and disordered behavior

(difficulties in personal manner, emotional lability, motor dysfunction, poor academic performance, and deficient social interaction.

Alcohol Related Birth Defects (ARBD)

(This diagnosis requires all features A-C listed below.)

- A. Confirmed maternal alcohol exposure
- B. Evidence of a characteristic pattern of minor facial anomalies, including at least two of the following
 - 1. Short palpebral fissures
 - 2. Thin vermilion border of the upper lip
 - 3. Smooth philtrum
- C. Congenital structural defects in at least one of the following categories, including malformations and dysplasias (if the patient displays minor anomalies, at least two must be present)
 - 1. Cardiac: atrial septal defects, aberrant great vessels, ventricular septal defects, conotruncal heart defects
 - 2. Skeletal: radioulnar synostosis, vertebral segmentation defects, large joint contractures, scoliosis
 - 3. Renal: aplastic/hypoplastic/dysplastic kidneys, “horseshoe” kidneys/ ureteral duplications
 - 4. Eye: strabismus, ptosis, retinal vascular anomalies, optic nerve hypoplasia
 - 5. Ears: conductive hearing loss, neurosensory hearing loss
 - 6. Minor Abnormalities: hypoplastic nails, short fifth digits, clinodactyly of fifth fingers, pectus carinatum/excavatum, campodactyly, “hockey stick” palmar creases, refractive errors, “railroad track” ears

Alcohol Related Neurodevelopmental Disorders (ARND)

(This diagnosis requires both features A and B listed below.)

- A. Confirmed maternal alcohol exposure
- B. At least one of the following
 - 1. Evidence of deficient brain growth or abnormal morphogenesis including at least one of the following

- a. Structural brain abnormalities
 - b. Head circumference \leq 10th percentile
2. Evidence of a complex pattern of behavioral or cognitive abnormalities inconsistent with developmental level that cannot be explained by genetic predisposition, family background or environment alone.
- A. This pattern includes marked impairment in the performance of complex tasks (complex problem solving, planning, judgment, abstraction, metacognition, and arithmetic tasks); higher level receptive and expressive language deficits; and disordered behavior (difficulties in personal manner, emotional lability, motor dysfunction, poor academic performance, and deficient social interaction)



Women and Alcohol Use

Any woman is at risk for having a child with a Fetal Alcohol Spectrum Disorder (FASD) when they consume alcohol during pregnancy. There is no safe amount of alcohol that can be consumed during pregnancy and no safe time to consume alcohol during pregnancy. The damage that results from prenatal alcohol exposure can occur when the developing child is either an embryo or a fetus.

Many women may consume alcohol in the earliest weeks of their pregnancy - even before they know they are pregnant. About 40% of women at 4 weeks gestation do not realize they are pregnant. This is a critical time for organ development in the embryo and any amount of maternal alcohol consumption can affect the development of the child. In the United States about half of all pregnancies are unplanned and women who are not planning to become pregnant may not realize they are pregnant in the earliest weeks. Therefore it is important for women who are planning to become pregnant or are not using effective birth control to abstain from alcohol use.

In a survey conducted between 1991 and 2005 by the Centers for Disease Control, 12.2% (or 1 in 8) of pregnant women reported consuming at least one alcoholic drink in the previous 30 days. This rate remained constant across the entire 15 years of the survey. The pregnant women most likely to report alcohol use were between 35 and 44 years of age (17.7%), were college graduates (14.4%), were employed (13.7%) and were unmarried (13.4%). It is important to remember that this survey asked women to report their alcohol use and that alcohol use may be underreported.

Mothers who are older (30 years old or older) are more likely to drink throughout their pregnancy. Younger women (24 years old or younger) are more likely to binge drink early in their pregnancy sometimes before they even know they are pregnant. Binge drinking is defined as having 4 or more drinks in a period of 2 hours. A drink is 12 ounces of beer, 5 ounces of wine, or 1 ounce of liquor. The maternal use of alcohol in any amount - whether the use is sustained or binge drinking - can affect the development of the unborn child which can result in FASD.

It is especially important for women who are sexually active and of child-bearing age to consider the possibility of becoming pregnant and the effect their alcohol consumption could have on their future children.

Prenatal Alcohol Exposure and Brain Development

Alcohol is a teratogen meaning that it is a substance which causes the malformation of cells in the developing embryo or fetus. Alcohol consumed by a woman when she is pregnant passes into the blood stream of the developing baby. The alcohol causes developing cells to be malformed. This malformation of cells affects the brain and its function but also results in the characteristic facial features associated with Fetal Alcohol Spectrum Disorders.

Prenatal alcohol exposure can affect both the formation and movement of developing cells.

“Exposure to prenatal alcohol can disrupt the normal proliferation and migration of brain cells, which produces structural deviations in brain development. Prenatal alcohol exposure can also disrupt the electrophysiology and neurochemical balance of the brain, so that messages are not transmitted as effectively or as accurately as they should be.” (Streissguth, 97)

The growth of an embryo and/or fetus progresses in an orderly process with development of the central nervous system occurring throughout. Given the vast variety of characteristics exhibited by individuals with a Fetal Alcohol Spectrum Disorder, it stands to reason that the effect of prenatal alcohol exposure on brain development can be influenced by several different variables.

“Dose, timing and pattern of exposure modify the prenatal effects of alcohol. Animal research has demonstrated that the teratogenic effects of alcohol are not limited to heavy chronic exposure. Moderate alcohol and episodic exposure also produce deleterious effects on offspring, as do exposure both early and late in gestation. . . .

Individual differences in the mother and the child modify the effect of prenatal exposure in the individual animal, in terms of both the severity and the type of offspring effect. . . . The fact that some offspring appear unaffected by prenatal alcohol at any point in time does *not* mean that alcohol is not teratogenic or that an individual who is free of alcohol-caused disabilities at one age will necessarily be free of them at another. . . .

Brain damage from prenatal alcohol exposure can occur without accompanying

physical manifestations and from lower doses and frequency of exposure.” (Streissguth, 66-67)

There are several ways in which researchers study the brains of individuals affected by prenatal alcohol exposure. Autopsies and magnetic resonance imaging (MRI) are used to study damage caused to the structure of the brain. To study the function of various parts of the brain researchers use electroencephalograms (EEGs), positron emission tomography (PET), and functional magnetic resonance imaging (fMRI).

The five areas of the brain most frequently referred to when discussing the effects of prenatal alcohol exposure are the basal ganglia, cerebellum, corpus callosum, frontal lobes and hippocampus. Neuroimaging studies have shown that all five of these brain regions are decreased in size in the brains of individuals who were exposed to alcohol prenatally. In the worst cases, the corpus callosum may be absent.

The impact of damage to the various brain regions is most readily seen by the functions that each of these regions controls. It follows that damage to each of these regions would adversely affect the function for which it is responsible.

- › Basal Ganglia - Memory, time perception, problem solving, time perception and predicting outcomes.
- › Cerebellum - Coordination, balance, movement, behavior, memory and attention.
- › Corpus Callosum - Connects the two halves of the brain.
- › Frontal Lobes - Executive functions, impulse control and judgment.
- › Hippocampus - Learning and memory.

When any of these regions - the basal ganglia, cerebellum, corpus callosum, frontal lobes or hippocampus - is damaged by prenatal alcohol exposure it can have devastating effects. Each unique area of the brain, by itself and in connection with the rest of the brain, controls important functions. The greater the damage to the brain, the greater the consequences. It is important to remember that brain damage caused by prenatal alcohol exposure can be present even in the absence of the classic facial characteristics. It is also important to remember that the effects of prenatal alcohol exposure are irreversible but are 100% preventable.



Executive Skills

Executive skills (sometimes referred to as executive functions) are those processes which allow an individual to manage themselves and their resources in order to achieve a goal. These are high level cognitive functions which allow individuals to organize their behavior through planning and organizing, sustaining attention, persisting to complete a task, managing emotions, and monitoring thoughts to work more efficiently. Executive skills have been defined as the directive capacities of the mind which cue the use of other mental abilities. These skills are controlled by the frontal lobes of the brain. The brain damage caused by prenatal alcohol exposure can affect the frontal lobes of the brain which in turn causes executive dysfunction.

Inhibition

Inhibition is the ability to stop yourself from responding to distractions and to think before acting. The ability to resist the urge to say something. The ability to delay gratification now for more important, long-term goals.

Possible Signs of Dysfunction of the Executive Skill of Inhibition

- > Easily Distracted
- > Impulsive
- > Interrupts
- > Chooses smaller, immediate reward over a larger, delayed reward.
- > Gives up quickly on difficult or challenging tasks.
- > Begins task without having listened to or read all the instructions.
- > Answers questions quickly and then changes their answer.
- > Talks back.
- > Difficulty waiting for their turn.

Flexibility

Flexibility has two components. The first is the ability to move from one situation or task to another without difficulty. The second is the ability to respond appropriately to the new situation or task.

Possible Signs of Dysfunction of the Executive Skill of Flexibility

- > Persists in one approach to a situation/problem.

- › Unable to explore multiple approaches to a problem or task.
- › Difficulty with open-ended questions or tasks.
- › Becomes easily frustrated with changes in plans, routines or situations. (Younger children may exhibit temper tantrums when faced with a change of situation or task.)
- › Difficulty adjusting when directions for a task change during the task.

Emotional Control

Emotional control refers to the individual's ability to manage their emotions. It is important to be able to control emotions so that rational thoughts and actions can be used to approach situations and tasks.

Possible Signs of the Dysfunction of the Executive Skill of Emotional Control

- › Exhibits inappropriate reactions to situations/tasks.
- › Over-reacts to situations/tasks.
- › Easily frustrated when tasks become challenging.
- › Displays emotions that may be inappropriate for the situation.
- › Makes negative statements about the situation/task.
- › Anxious at a level inconsistent with the situation/task.
- › Slow to recover from disappointments.
- › May exhibit tantrums, mood changes or outbursts of temper.

Initiation

Initiation is an individual's ability to begin a task or activity independently. Initiation also involves the ability to generate ideas, responses or problem-solving strategies.

Possible Signs of the Dysfunction of the Executive Skill of Initiation

- › Difficulty getting started with tasks.
- › Needs reminders to get started on tasks.
- › Slow to move from completed task/activity to the next task/activity.
- › May need to be reminded of schedule, even if the schedule has been in place for some time.
- › Waits for another member of a group to initiate group activities.

Working Memory

Working memory is necessary for an individual to hold information in their memory while completing a task or activity.

Possible Signs of the Dysfunction of the Executive Skill of Working Memory

- › Unable to follow directions.

- › May forget the process for completing a task.
- › Difficulty remembering to perform tasks that they are responsible for completing on a regular basis.
- › Forgets to turn in school assignments or to complete assigned tasks.
- › Difficulty remembering instructions given verbally.
- › Asks to have instructions repeated.
- › Stops while performing a task and must be prompted to resume work.
- › Loses or misplaces items.

Planning

Planning refers to the ability to determine the steps which must be completed in order to accomplish a task. Planning also refers to the ability to place the steps needed to complete a task in the correct order.

Possible Signs of the Dysfunction of the Executive Skill of Planning

- › May start a task without the necessary materials.
- › Skips steps while completing a multi-step task.
- › Difficulty relating stories sequentially/chronologically.
- › May not leave enough time to complete a task or may create an unrealistic timeline.
- › Difficulty completing long-term tasks.
- › May be unable to effectively organize group activities.
- › Difficulty focusing on the most important information necessary to complete a task.

Organization

Organization is the ability to obtain and maintain necessary materials to complete a task.

Possible Signs of the Dysfunction of the Executive Skill of Organization

- › Loses objects important for the completion of a task.
- › May fail to complete assigned tasks.
- › Difficulty maintaining a neat workspace (messy).
- › May have difficulty writing in an structured manner.

Time Management

Time management refers to an individual's ability to estimate lengths of time, allocate time effectively, stay within timelines and meet deadlines.

Possible Signs of the Dysfunction of the Executive Skill of Time Management

- › Difficulty completing tasks to meet a deadline.
- › May focus on small tasks instead of completing steps toward completion of larger long term tasks.
- › Difficulty adjusting schedule to allow for new tasks or unexpected events.
- › May be able to complete consistent routines on time once the routine has been learned.
- › Difficulty determining the priority of smaller tasks or the steps needed to complete larger long term tasks.

Metacognition

Metacognition is the ability to take an overall view of yourself in a given situation (the ability to take a “bird’s eye” look at a situation and your place in it). Metacognition also enables an individual to observe and then think about the solution to a given task, problem or situation.

Possible Signs of the Dysfunction of the Executive Skill of Metacognition

- › May make careless mistakes or fail to check work.
- › Difficulty recognizing there is a problem.
- › Failing to ask for help when there is a problem.
- › Finds it difficult to evaluate their own performance.
- › May be unable to recognize how their behavior affects the situation, others or themselves.
- › Asks for help with a task rather than problem solving on their own.
- › Unable to understand that a task or problem may have more than one solution.
- › May avoid tasks or activities that involve problem solving.

Goal Directed Persistence

Goal directed persistence refers to an individual’s ability to complete goals that they set for themselves or that are set for them by others (parents, teachers, etc.).

Possible Signs of the Dysfunction of the Executive Skill of Goal Directed Persistence

- › Starts tasks but does not follow through and finish.
- › May not continue with tasks/situations that are challenging.
- › Difficulty sustaining attention to completing tasks.
- › May not return to a task if interrupted before completing the task.

Secondary Concerns

When discussing Fetal Alcohol Spectrum Disorders (FASD), primary disabilities are those caused by brain damage both structural and functional. Secondary concerns are those difficulties that an individual is not born with but which may result from having an FASD. Not every individual born with an FASD will have a secondary concern. In fact, there are several protective factors which can help prevent secondary concerns. It is important to note that not everyone diagnosed with FASD will be affected by any of the secondary concerns discussed here. However, it is possible that an individual with an FASD will have more than one secondary concern. The statistics used in this article were the result of a study by Dr. Ann Streissguth and her colleagues published in 1996 and contained the book The Challenge of Fetal Alcohol Syndrome: Overcoming Secondary Disabilities.

Mental Health Problems

Affected more than 90% of the individuals in Streissguth's study and more than 80% had received treatment for mental health problems. The study found no difference in the prevalence of mental health problems in children, adolescents and adults.

Commonly diagnosed mental health problems in individuals with an FASD include

- > Anxiety Disorders,
- > Attention Deficit Disorder (ADD),
- > Attention Deficit Hyperactivity Disorder (ADHD),
- > Conduct Disorder,
- > Depression,
- > Psychosis, and
- > Suicide Threats or Attempts.

Disrupted Schooling

Of the adolescents and adults in Streissguth's study, more than 60% had a history of a disrupted school experience. 14% of the children in the study had their schooling disrupted. The most frequent disruption to school experience was suspension. The most common causes of disrupted schooling are

- > Suspensions,

- › Expulsions, and
- › Dropping Out.

There are certain behaviors associated with FASD which may result in school disruptions. These behaviors include

- › Disrupting Class,
- › Disobedience,
- › Disrespect - toward teachers or others in positions of authority,
- › Learning Difficulties - especially when they are not properly diagnosed or addressed,
- › Social Difficulties - especially relating to peers, and
- › Truancy.

Alcohol or Drug Use

In general, alcohol and drug use are not a secondary concern for children. Up to 35% of individuals with an FASD will struggle with alcohol or drug use at some point in their life. More than half of those will require inpatient treatment.

Legal Difficulties

60% of adolescents and adults with an FASD have legal difficulties which place them in the judicial system. Surprisingly, 14% of children with an FASD also have legal difficulties. Individuals who do not have disrupted school experiences are 40% less likely to have legal difficulties. The most frequent legal issues individuals with an FASD encounter are

- › Assault,
- › Crimes against Persons,
- › Crimes against Property,
- › Domestic Violence,
- › Running Away, and
- › Shoplifting.

Confinement

Of adolescents and adults with an FASD, 50% have experienced some form of confinement. Only 10% of children with an FASD have faced confinement.

Adolescents and adults are more likely to have been incarcerated than to have been confined in another environment. The types of confinement being discussed here are

- › Incarceration,
- › In-Patient Alcohol Treatment,

- › In-Patient Drug Treatment, and
- › In-Patient Mental Health Treatment.

Inappropriate Sexual Behavior

Inappropriate sexual behavior is exhibited by 49% of adolescents and adults with an FASD and 39% of children with an FASD. Types of inappropriate sexual behavior displayed include

- › Compulsions,
- › Inappropriate Sexual Advances,
- › Inappropriate Sexual Touching,
- › Obscene Telephone Calls,
- › Promiscuity, and
- › Voyeurism.

Dependent Living

Independent living is the goal for most individuals. However, 80% of adults with an FASD are living dependently. Dependent living may mean living with family members or in a setting such as a group home.

Difficulty with Employment

About 80% of adults with an FASD have difficulty with employment. This difficulty may be in getting a job or in keeping a job.

None of these secondary concerns exist in a vacuum. Disrupted school experiences can result from learning disabilities, impulse control or a mental health disorder. Inappropriate sexual behavior may result from the poor judgment and lack of impulse control associated with FASD. Individuals with an FASD tend to be more easily persuaded or manipulated which may lead them into alcohol and drug use. Legal problems can stem from alcohol and drug use. Not every individual with an FASD will experience these secondary concerns. However, it may be possible for several of these secondary concerns to affect the life of a person with an FASD.

While it may seem that these secondary concerns would be difficult to prevent, there are several protective factors which can lead to lower rates of secondary concerns.

Early Diagnosis

The earlier a child is diagnosed with an FASD, the earlier interventions can begin.

Involvement in Special Education and Social Services

Special education can address the unique needs of children with an FASD. The brain damage caused by prenatal alcohol exposure can lead to learning difficulties and

challenging behaviors which special educators are trained to address. Early involvement with special education can help prevent the secondary concern of disrupted school experiences.

Families of children with an FASD who access social services tend to have more positive outcomes. Social services that may be helpful include counseling - family, individual, stress management, etc. - and respite care.

Loving, Nurturing and Stable Caretaking Environment

All children benefit from a loving and nurturing environment. However, children with an FASD may enjoy more benefits from such an environment. Individuals with an FASD may be more sensitive to disruptions to their normal routine, transient living situations and harmful relationships. Living in a stable, loving environment may help individuals with an FASD avoid secondary concerns.

Absence of Violence

This protective factor relates closely to a loving, nurturing and stable caretaking environment. Individuals with an FASD who live in an environment without violence are less likely to become involved in violent activities.

Secondary concerns can pose serious difficulties for individuals with an FASD and their families. It is important to remember that not every person with an FASD will be affected by any of these secondary concerns. The protective factors can help eliminate the presence and severity of secondary concerns.



Prevention

Fetal Alcohol Spectrum Disorders (FASD) are 100% preventable. Prevention of FASD happens when women abstain from alcohol use during pregnancy and when planning to become pregnant. Any discussion of women's health issues should include a discussion of the prevention of FASD. Researchers, physicians and public health officials must balance the dangers of alcohol use during pregnancy with the fact that alcohol is a legal drug. Anyone, including women, who are legally of age are allowed to consume alcohol. Prevention programs that focus not only on the woman who is or may become pregnant but also on her family, physician, community and society will have the best chance of reducing the number of children born with an FASD.

There are many different models of FASD prevention. Ann Streissguth, Ph.D., a noted researcher in the area of FASD, developed one of the more popular models - the "Five P's of Prevention." Streissguth's model focuses not only on women but also on professionals, public policy makers, and service providers.

Five P's of Prevention

1. Public Education focuses on educating the public at large and women in particular about the dangers of drinking during and even before pregnancy. Public education can take many forms including posters, lectures, brochures, media coverage, etc.
2. Professional Training focuses on teaching healthcare and social service professionals about FASD. Even beyond that, teaching them to discuss with women the effects drinking can have on an unborn child. Professionals should be given concrete suggestions for introducing the topic of drinking during pregnancy and should be familiarized with ways to help women stop drinking.
3. Public Policy focuses on the way government at every level deals with the issue of drinking during pregnancy. An example of public policy is the United State's Surgeon General's warning urging women to stop drinking while they are pregnant or are planning to become pregnant.

4. Programs and Services focuses on programs which intervene - even briefly - with women who are drinking during pregnancy and services which support women during and after their pregnancy.
5. Parent and Citizen Activism focuses on grassroots activism in the prevention of FASD.

This is only one of many models of FASD prevention. Any model of prevention should focus on the facts about FASD.

- › Fetal Alcohol Spectrum Disorders are 100% preventable.
- › Women should abstain from consuming alcohol during pregnancy and when planning to become pregnant.
- › The effects of prenatal alcohol exposure can have devastating, lifelong and irreversible effects.



Strategies for the Home

The following strategies may be helpful to parents, guardians or caregivers of individuals with Fetal Alcohol Spectrum Disorders (FASD). It is important to remember that each individual with an FASD is a unique person with likes and dislikes, strengths and weaknesses, personality traits, and everything else that makes each of us ourselves.

- › It is important to make sure that an individual with an suspected history of prenatal alcohol exposure receives a differential diagnosis so that appropriate interventions can be put in place.
- › Sometimes it is not what the individual with an FASD “won’t” do, but rather what they “can’t” do as a result of the damage to their brain caused by prenatal exposure to alcohol.
- › Understand the individual’s developmental age (the age equivalent to the individual’s developmental stage) when choosing activities and intervention strategies.
- › When creating or choosing strategies to use with the individual with an FASD, -
 - > Remain calm.
 - > Focus on teachable moments.
 - > Avoid punishment.
 - > Try to find/understand the individual’s reasoning for behaving in a certain way.
- › Utilize the “Eight Magic Keys” which are key words that can apply to any strategy.
 - > Concrete
 - > Consistency
 - > Repetition
 - > Routine
 - > Simplicity

- > Specific
- > Structure
- > Supervision
- › No matter what discipline method you choose (time outs, losing privileges, etc.), stick with it and be consistent.
- › To have/create effective strategies it is important to focus on behaviors caused by brain dysfunction especially executive skills dysfunction. The following list includes behaviors that may result from brain dysfunction followed by possible strategies.
 - > Hyperactivity and Attention Deficits
 - › Allow the individual with an FASD to take a break.
 - › Encourage exercise and movement.
 - > Impulsivity
 - › Role-play what the individual should do when they are out of their routine. If possible, designate a person that the individual with FASD can check-in with to find out what they should do.
 - > Literal Thinking
 - › Create a book of commonly misunderstood phrases to help the individual with an FASD work on issues related to literal thinking.
 - > Poor Social Skills
 - › Role-play with the individual in order to show them the appropriate reactions to social situations.
 - › Be a good role model.
 - › Facilitate social situations with age appropriate peers.
 - > Difficulty Making Transitions
 - › Give the individual with an FASD as much advance notice of upcoming changes as possible.
 - › Provide support during the transition.
 - › If possible, give the individual with an FASD a chance to make decisions about upcoming activities.

- > Poor Memory
 - › Establish routines and stick to them whenever possible.
 - › Teach organizational skills.
 - › Discuss past events to compare memories.
- › Keep routines simple and instruction short.
- › Focus on developing daily living skills.
- › Praise positive/appropriate behavior.
- › Make rules/set limits and stick to them.
- › Be patient.
- › Repeat, repeat, repeat.
- › Focus on the strengths and talents of the individual with an FASD.
- › Strategies for Mealtime
 - > Never use food as a reward or punishment.
 - > Try to have meals at the same time every day, even on weekends.
 - > Assign specific seats for mealtimes and try not to change them.
 - > Avoid long mealtimes.
 - > Use simple rules at mealtimes. For example - eat with your utensils, keep your hands to yourself, chew with your mouth closed, etc.
 - > If the individual has difficulty sitting for long periods of time, let them stand at the table.
 - > If necessary, remind the individual of the need to swallow.
- › Tools for Parents, Guardians and Caregivers
 - > Have a support network of family, friends and professionals.
 - > Be informed and share information with others in the individual with an FASD's life.
 - > Take care of your own health - physical, mental, spiritual, etc.
 - > Try to find humor in everyday life.

Introduction to Educational Strategies

Each individual with a Fetal Alcohol Spectrum Disorder (FASD) is unique in their needs and their talents. This is especially important in the classroom. As was discussed in “Secondary Concerns,” disrupted schooling is one of the most common issues facing individuals with an FASD. Disrupted schooling can contribute to other secondary concerns such as legal problems and alcohol or drug use. Teachers, paraeducators, counselors, and parents working together can give children with an FASD a good schooling experience. A successful schooling experience can help lay a strong foundation that will help the individual with an FASD build a successful lifetime.

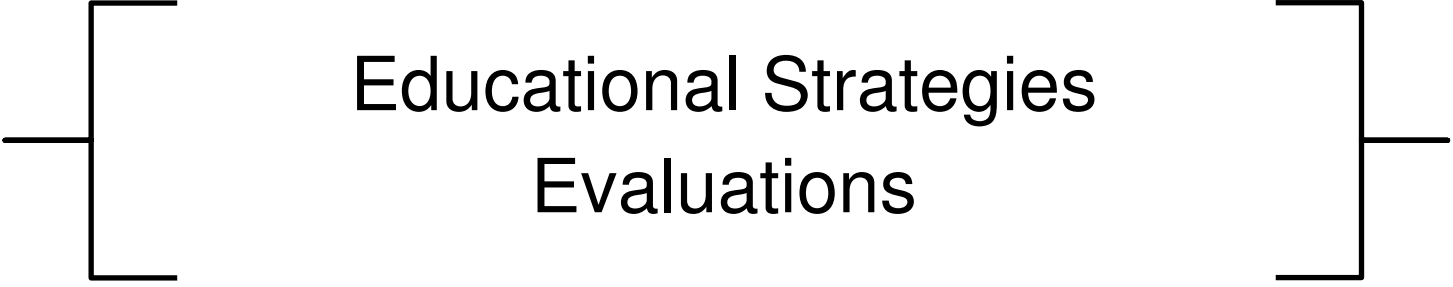
Students with an FASD have some amount of brain damage caused by prenatal alcohol exposure. This damage can effect many different areas of the brain and may be seen in a variety of difficulties or behaviors in the schoolroom. Just as not every student with an FASD will encounter the same difficulties or exhibit the same behaviors, not all the following strategies will work for every student with an FASD. These strategies are suggestions that may help teachers give students with an FASD a schooling experience which is successful for that student.

No matter the age of the student, there are five words teachers should remember when teaching a student with an FASD.

- > Structure
- > Consistency
- > Brevity
- > Variety
- > Persistence

The following strategies are applicable for all students from preschool through secondary school unless labeled as either specifically for preschool students, specifically for elementary students, or specifically for secondary students.

Additional strategies can be found in “Fetal Alcohol Spectrum Disorder Education Strategies Handbook” which is a publication of the Center for Disabilities. To download a free copy or to find out how to purchase hard copies, visit the Center for Disabilities online at <http://www.usd.edu/cd>.

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Educational Strategies Evaluations

The following types of evaluations may be helpful in learning more about the development of the student with a Fetal Alcohol Spectrum Disorder. The results of the evaluations may assist the teacher in planning classroom activities and their approach to the student.

- › Academic
- › Adaptive Behavior
- › Functional Assessment
- › Motor Skills
- › Occupational Therapy
- › Physical Therapy
- › Psychological
- › Speech and Language
- › Interest Inventories for Secondary Students



Education Strategies

Teaching the Alphabet

The following strategies are appropriate for Preschool students but could also be used with younger Elementary students.

- › Have the student make letters with paper and glue objects whose names begin with that letter to the pattern letter.
- › Allow the student to match letters.
- › Allow the student to match words.
- › Use the sounds of letters repeatedly. For example - “J” - juice, jump, jacket, etc.
- › Teachers can cut letters out of fine sandpaper and have the child trace the sandpaper letter with their finger.
- › Have the student trace letters either on the blackboard or on paper.
- › Make dots on a paper in the shape of the letter and have the student connect the dots to make the letter. Gradually decrease the number of dots used to make the letter.
- › It may be easier for a student to use all capital letters in the beginning.
- › Teach sign language to designate each letter of the alphabet.

Educational Strategies

Eye-Hand Coordination Activities

The following strategies are appropriate for Preschool and younger Elementary students.

- › Use puzzles with large pieces and knobs on the pieces.
- › Use lace cards.
 - > Teachers may need to make larger lace cards than are commercially available for the youngest students.
 - > Teachers should ensure that the end of the laces are covered (for example with masking tape) to make it easier for the child to lace the card.
- › Have the student squeeze clothespins open and closed.
- › Have the student put pegs in a peg board.
- › Have the student pound pegs into a peg board.
- › The teacher may need to show the student how to do the activity, then guide the student through the activity and finally encourage the student as they do the activity on their own.
- › Elementary Students - Allow the student to help with tasks that require sorting, stapling, putting things in place, etc.

Education Strategies

Language Development

The following strategies are appropriate for Preschool, Elementary and Secondary students. Level specific samples will be noted in the text.

- › Speak to the student at the student's level. Increase the complexity of your sentences as the student's language develops.
- › The teacher should strive to use proper pronunciation. A good role model is important.
- › Sign Language
 - > Sign language may be helpful to teach children with Fetal Alcohol Spectrum Disorders even if they do not have a hearing loss.
 - > Sign language is concrete and visible and can be used along with verbal language to reinforce what the teacher is saying.
- › Students who are not yet talking (generally applies to Preschool students).
 - > Begin with simple story books.
 - > The teacher can touch an object and then name the object. For example - The teacher touches the table and says to the student "table."
 - > Use real objects the student can see and touch when naming objects.
- › Student who are using single words (generally applies to Preschool Students).
 - > Encourage and stimulate the student to use more vocabulary. For example - If the student says "drink," say to the student "more drink."
 - > Expand the student's vocabulary slowly. When the student starts using two words, encourage and stimulate the student to use three words. For example - If the student says "more drink," say to the student "want more drink."
- › Students with poor articulation. The following examples are primarily geared toward Preschool and younger Elementary students.
 - > Go around the classroom, touch objects and name the objects. Have the student do the same.
 - > At mealtime, have the student say what they want rather than giving the student what you think they might want.

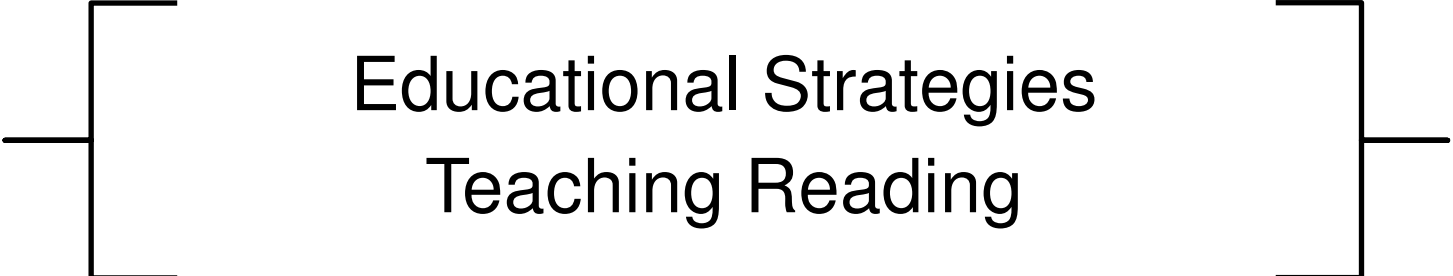
- > Music activities can help students with vocabulary.
 - > For example - good morning song, name songs, circle game songs etc.
- > Quantity versus Quality of Speech
 - > Students with a Fetal Alcohol Spectrum Disorder often use a large quantity of speech. Be aware that quantity does not indicate quality.
 - > Listen for the number of words per sentence.
 - > Listen for the number of new words that the student uses.
 - > Stress concept development through concrete examples encouraging the student to demonstrate understanding. For example - When discussing the temperature, the student should know what to wear on a hot day as opposed to what to wear on a cold day.
- > Recognize that students with a Fetal Alcohol Spectrum Disorder may have delayed language development.
- > It is necessary to focus on how the teacher gives instructions to the student with a Fetal Alcohol Spectrum Disorder.
 - > Use concrete basic language when giving instructions.
 - > Use simple sentences.
 - > Avoid giving more than one instruction per sentence.
 - > Check with the student to ensure they understand the given directions.



Education Strategies Teaching Math

The following strategies are appropriate for Preschool, Elementary and Secondary students. Level specific samples will be noted in the text.

- › Math may be a difficult subject for students with a Fetal Alcohol Spectrum Disorder.
- › Memorized counting from one to ten does not mean that the student understands what each number means.
- › Teach the student what the number “one” means before any more numbers are taught to the student.
 - > Preschool or younger Elementary example - Ask the student to hand you one crayon or draw one circle.
- › Cut the numbers out of paper, glue oatmeal, rice, glitter, etc. to the number. The child can then see, hear and feel the number. This technique is appropriate for Preschool and younger Elementary students.
- › Touch and count objects to reinforce learning in Preschool and Elementary students.
- › Teach functional math. For example - money, time, addition and subtraction.
- › Teach strategies for problem solving versus the memorization of facts.
- › Preschool and younger Elementary students may benefit from using the student’s fingers or counting tools to assist with addition or subtraction.
 - > Using finger or counting tools should not be the first choice. However, they should not be ruled out if they can benefit the student’s ability to learn math.
- › Older Elementary and Secondary students may benefit from the use of a calculator.
- › Multiplication, memorizing the multiplication tables and division may be difficult for students with a Fetal Alcohol Spectrum Disorder.
 - > A calculator may be necessary for the student to do multiplication and division.



Educational Strategies Teaching Reading

The following strategies are appropriate for Elementary and Secondary students. Level specific samples will be noted in the text.

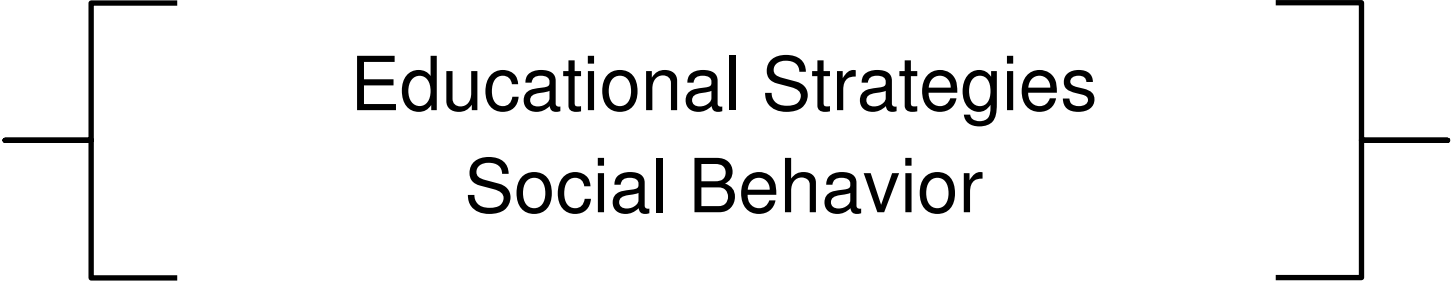
- › Some students may have difficulty focusing their eyes on the left side of the page and moving their eyes to the right.
 - > Allow the student to use a piece of paper or ruler under the line they are reading to help them follow the line across the page.
 - > Use a green marker at the left side, changing to a red marker at the right side for written work.
 - > Use colored arrows to signal starting points and directions from left to right.
- › Use books with simple, plain pictures. Small detailed marks in a picture can distract the student.
- › If possible, give the student access to audio recordings of books they are reading.
- › Provide the student with books that correspond to the student's interest area and independent reading levels. Independent reading level means the student can read 90% of the words in the book.
- › Read aloud to students daily.
- › Provide daily uninterrupted silent reading periods.
- › Before the student begins a reading assignment, ask questions about the material for the student to think about while they are reading.
- › Encourage reading for enjoyment and developing independence.
 - > Incorporate popular magazines, newspapers, school paper, etc. into the student's reading program.
 - > Emphasize reading as a means to communications. For example - note writing, letter writing, memos, posters, etc.

Educational Strategies

Short Attention Span

The following strategies are appropriate for Preschool, Elementary and Secondary students. Level specific samples will be noted in the text.

- › Determine how long the student usually works on an activity. Try to increase the length of time a student works on each activity gradually.
- › Ask the student to do “one more.”
 - > Preschool or younger Elementary example - If the student is drawing circles and the student stops, ask the student to draw “one more” circle.
 - > The teacher should never ask the student to do “one more” more than one time per each activity.
 - > This approach should help to increase the student’s attention span over time.
- › Determine what activity the student can attend to for the longest period of time.
 - > Determine what it is about the activity that allows the student to attend.
 - > Try to generalize those features to other activities.
- › Use color to highlight important information.
- › Check on the student at the beginning, middle and end of assignments to ensure the student is understanding and following directions.
- › Use visual cues to signal start and stop.
- › Vary presentation style.
 - > The teacher should vary the inflection, quality, volume and tempo of their speech.
- › Use cognitive cues. For example - Say “Now this is important” or “Point to the number two with your finger.”
- › Use the student’s interests to pique their interest.
 - > Start lessons by activating prior knowledge and experiences.
 - > Use novelty items such as pictures, objects, costumes, etc.
- › Use non-invasive prompts. For example - eye contact, tap on desk or book, touch the student, etc.
- › Give students with a Fetal Alcohol Spectrum Disorder an outline of the lesson to increase listening and comprehension.



Educational Strategies

Social Behavior

The following strategies are appropriate for Preschool, Elementary and Secondary students. Level specific samples will be noted in the text.

- › Teach Preschool and Elementary students how to share toys or playground equipment.
 - > Use a timer to share the most popular toys.
- › Teach the student how to be a friend.
 - > Pair students for a week so students can work/play with a variety of other students.
 - > Emphasize the feelings of others.
 - > Practice using manners, consideration statements and apologies.
- › Teach the student how to properly join a group.
- › Emphasize interaction, sharing, courtesy, etc.
- › Use peer tutoring for older Elementary and Secondary students.
 - > Pair students for a week so that they can learn from each other.
 - > Allow students with a Fetal Alcohol Spectrum Disorder to help other students.
 - > Capitalize on the academic strengths of the student with a Fetal Alcohol Spectrum Disorder.
- › Teachers should consult with the school counselor to determine the best way to handle social behavior difficulties.
- › Help students use their personal strengths in order to develop positive recognition and a sense of their value to their school and home communities.
- › Be emphatic, firm and realistic about expectations and performance from students.
- › All students see teachers and other school personnel as role models and will follow the examples they set.
- › Teach social skills directly through demonstration, role play and practice in real life situations.

Education Strategies

Managing Hyperactivity

The following strategies are appropriate for Preschool, Elementary and Secondary students. Level specific samples will be noted in the text.

- > Keep the environment structured.
- > Provide a predictable routine.
- > Rules
 - > Never make a rule you do not plan to enforce.
 - > Avoid threats.
 - > Make the rules specific. For example - “no hitting,” “no kicking,” or “raise your hand and wait to be called on.”
 - > Rules should be enforced in the same way every time.
 - > Rules should be applied to all students equally.
 - > Use the same language when enforcing the rules.
- > Make a picture calendar.
 - > Laminate pictures of the student’s activities for the whole day.
 - > For example - Begin with a picture of the student placing their backpack in the appropriate place. Next have a picture of the student sitting at their desk. Next have a picture of the student at recess on the playground. Continue in this fashion for the entire day.
 - > As the student completes each activity during the day, the corresponding photo is turned over. The student knows that they have completed an activity when the picture has been turned over.
- > Limit the choices of Preschool and younger Elementary students to one or two options (for example - which toy to play with or what to eat for lunch).
 - > Give the student plenty of time to make a choice.
 - > If the student seems to be having difficulty making a choice, watch the student to see if they look longer at a particular object or make a movement toward one of the two choices.
- > Use two baskets to structure activities.
 - > Have the activity in the “start” basket.

- > The student removes the materials necessary for the activity from the “start” basket.
- > Once the student has completed the activity, materials used for the activity can be put into the “finished” basket.
- > Keep materials necessary for various activities in designated places within the classroom.
 - > The student will know where to locate the proper materials for each activity.
 - > The student will know where to return the materials when the activity is completed.
- > Students with hyperactivity may be better served by sitting on a chair instead of the floor.
 - > The student may need to be shown to sit in the chair properly.
 - > Feet flat on the floor.
 - > Sitting up straight.
 - > Hands to the side or held quietly on their lap.
 - > Sitting in the chair may keep the child from leaning backward, forward and sideways.
 - > Sitting in the chair helps keep the child in a specific space.
- > Have activities ready at the table for when the student is sitting properly. A student with hyperactivity may have difficulty sitting still waiting for materials to be brought to them.
- > If possible, structure the day alternating quiet time, active time, quiet time, etc.
- > If possible, limit time frames for one activity to no more than 20 minutes for Preschool and younger Elementary students or no more than 30 minutes for older Elementary and Secondary students.
- > Preschool and younger Elementary students who do not need sleep or rest at nap/ rest time, may benefit from having active activities like riding a tricycle in the hallway.
- > Shelves and bookcases should be enclosed if possible to eliminate visual distractions.
- > Use vivid colors to emphasize important concepts.
- > Emphasize with sound and movement the factors that complement learning objects.
- > During organized activities, students with hyperactivity may need additional structure.

- > Students with a Fetal Alcohol Spectrum Disorder may need a sequence of activities.
- > Students need to know what behaviors will be acceptable.
 - > For example - “During this activity we will stay in our chairs,” “There will not be any talking,” “Keep your eyes on your own paper,” or “If you need help, raise your hand and I will come to you.”
 - > Expect all students to follow directions together.
 - > Teachers should wait for every student to follow the first direction before giving further directions.
 - > Preschool and Elementary example - “Point to the picture of the dog (the first math problem, the beginning of the story, etc.) on your worksheet, so we are all looking at the same time.”
 - > Wait for everyone to follow the direction before moving forward.
- > Loosely structured activities must be balanced with highly structured activities to give the student an opportunity to move about, visit, relax, etc.
- > Older Elementary and Secondary students should be allowed to sit in their chairs as comfortably as possible. Rapidly growing students are unable to maintain strict posture and enforcing it can be frustrating for both teachers and students.
- > For older Elementary and Secondary students, make lists for the student to follow during the day.
 - > For example - “Read the story which starts on page 30 in the Reading Book,” “Do worksheet on page 10 in the Reading Workbook,” “Read about rocks starting on page 15 in the Science Book.”
 - > Student may need to have the list taped to their desk.
 - > Some students with a Fetal Alcohol Spectrum Disorder may have difficulty relating instructions written on the white board to their own behavior.

Education Strategies

Managing Behavior

The following strategies are appropriate for Preschool, Elementary and Secondary students. Level specific samples will be noted in the text.

- › Tantrums - in Preschool and younger Elementary students.
 - > If possible, take the student to a different room. Soft, calming music playing in the room may help calm the student.
 - > If it seems to help the student, hold the student.
 - > Remain calm and quiet. The teacher's body language should not get the student excited. Talk in a calm voice and walk slowly. If the teacher is relaxed, this will help the child relax.
 - > Determine what happened before the tantrum occurred.
 - › Look for antecedents to the tantrum behavior.
 - › Antecedents are the events/things that happen which causes the student to lose their temper.
 - > Teach the student new ways of dealing with their stress in order to reduce the likelihood of tantrums. For example - teach the student to say, "I'm mad."
- › Tantrums or Acting Out - in older Elementary or Secondary students.
 - > Remain calm and quiet. The teacher's body language should not get the student excited. Talk in a calm voice and walk slowly. If the teacher is relaxed, this will help the student relax.
 - > Teach the student a protocol for loss of control.
 - › Taking the student's hand and holding it for a short time will give the student a signal that the teacher thinks the student is losing control.
 - › If restraint is necessary, the teacher needs to exercise care and control.
 - › Talk to the student, tell them that you are helping them control their behavior.
 - > If possible, take the student to a different room.
 - › Soft music or soft colors in the room may help calm the student.
 - › Talk to the student in a calm, soft voice.

- › Ask the student to let you know when they are ready to return to the classroom.
 - > Determine what happened before the tantrum or acting out occurred.
 - › Look for antecedents to the behavior.
 - › Antecedents are the events/things that happen which causes the student to lose their temper.
- › The student's diet could be a contributing factor for certain behaviors.
- › Observe the child for any health problems.
 - > For example - a young student may pull at their ears when they have an earache.
 - > Ask younger students to "show me where you hurt."
 - > Watch for behaviors which may signify visual problems such as abnormal head posturing, holding paper close to face, or making obvious errors when working from the white board.
- › Ignore negative behavior whenever possible.
- › Avoid overreacting to negative behavior.
- › Build a positive reinforcement system.
 - > For example - as the student finishes each activity on the picture calendar, verbally praise the student.
 - > When the student does a good job on an activity or behaves well during the day, let the student know they will receive a positive reinforcement such as a "well done."
- › Look at different ways to eliminate the chances of the student losing control.
 - > For example - If the student has an extremely difficult time with loud noises and lots of activity, the student should be taught in a relatively quiet and calm area.

Educational Strategies

Concrete Teaching Methods

The following strategies are appropriate for Preschool, Elementary and Secondary students. Level specific samples will be noted in the text.

- › Use as much sensory stimulation as possible to teach each concept.
 - › Preschool and younger Elementary example - teaching the color “orange.”
 - › Wear orange clothing.
 - › Have the student paint with orange paint.
 - › Use orange construction paper for projects.
 - › Serve oranges as a snack.
- › Use objects as much as possible to teach concepts.
- › Teaching activities must be concrete.
 - › Preschool and early Elementary example - teaching the student to stay in a specified area of the yard.
 - › Use four large orange cones to designate an area.
 - › Tell the student to stay inside the cones.
 - › When the student has learned to stay inside the cones, gradually expand the area the student is allowed to stay in.
- › Avoid abstract questions.
 - › The question “what do you want?” is very abstract.
 - › Give the student choices. It is helpful if the student can see, feel, touch or hear the choices.
- › Provide hands-on materials whenever possible.

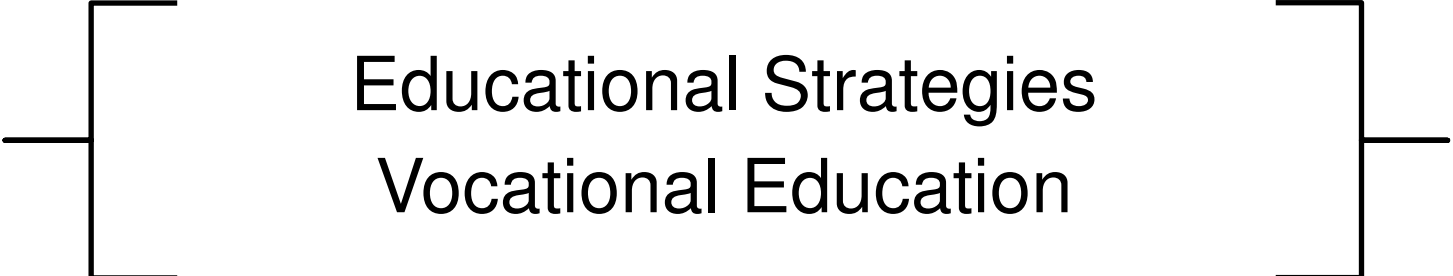
Educational Strategies Classroom Environment

The following strategies are appropriate for Preschool, Elementary and Secondary students. Level specific samples will be noted in the text.

- › Students with a Fetal Alcohol Spectrum Disorder may need more one-on-one teaching.
- › Calm and Quiet
 - > Soft music may be calming. Either played throughout the classroom or into earphones as appropriate/available.
 - > Classroom should not be overly stimulating.
 - > Keep a minimal number of objects hanging from the ceiling or on the walls.
 - > Reduce classroom clutter.
 - > Have well-defined areas within the classroom for specific activities.
 - > If possible, having a respite area/activity for when the student gets overstimulated.
 - > If using bulletin boards as teaching tools, choose soft colors. If possible, cover the bulletin board when they are not in use.
 - > Students with an FASD may not always be able to block out extra noises. For example - The ticking of a clock or the teacher talking with other students may distract students with an FASD. Consider the use of noise blocking headphones when the student needs to concentrate on their work and are not required to be listening to the teacher.
- › Structure
 - > Never make a rule you do not plan to enforce.
 - > Avoid threats.
 - > Make the rules specific. For example - “no hitting,” “no kicking,” or “raise your hand and wait to be called on.”
 - > Rules should be enforced in the same way every time.
 - > Rules should be applied to all students equally.
 - > Use the same language when enforcing the rules.

- › Transitioning from One Activity to Another
 - > Strive for routines/schedules that are fairly consistent from day to day.
 - > Teach transition routines.
 - > Keep the class schedule posted and refer to it before each transition.
 - > Alert students to upcoming changes in routines/schedules as soon as possible. Remind the student of the change in routine/schedule as it approaches.
 - > Remind the student often of what they will be doing next. Reminders can be verbal, physical or both.
 - › Preschool Example - Say “We will finish painting and then we will eat lunch.” Give the child their lunchbox when it is time to eat lunch.
 - › Elementary and Secondary Examples - Touch the student on their shoulder or arm five minutes before they will need to transition to a new activity. At the same time say “You need to finish up, we will be going to lunch in five minutes.”
 - > Use music to signal an approaching transition.
 - › Begin by playing music for five minutes before the transition. Then gradually decrease the length of time the music is played.
 - › When the music stops, the student knows it is time to transition to the next activity.
 - › This strategy might work best for elementary and secondary students.
 - > Use visual timers to show when the transition will occur.
 - › Preschool Example - Use an egg timer or kitchen timer during the last several minutes before a transition occurs.
 - › Elementary and Secondary Example - Use a kitchen timer during the last several minutes before a transition occurs. Draw the student’s attention to the clock along with a reminder of the time when the current activity will be finished and the transition to the next activity will happen.
 - > Notebooks with their classroom schedule in written form might benefit elementary and secondary students.
 - › This gives the student a concrete item with which to structure their day.
 - › If possible, class periods should not exceed 20 minutes for preschool and elementary students and 30 minutes for secondary students.
 - > Students with a Fetal Alcohol Spectrum Disorder may need several breaks during the day.
 - › Students may need rest (Preschool and Elementary Students may

- require sleep) periods during the day.
- › Students may need to get up and move around more frequently than other students.
- › Plan activities to facilitate movement and creativity between seat work assignments.
- › Students may need food snacks during the day.
- > Alert students to upcoming changes in routines/schedules as soon as possible. Remind the student of the change in routine/schedule as it approaches.



Educational Strategies Vocational Education

The following strategies are appropriate for Secondary students.

- › Help the student to set appropriate expectations for post-secondary education, work and living independently.
- › Continue practicing the basic skills necessary to live independently as adults.
- › Basic skills should be generalized to a variety of settings.
 - > Use a variety of stimulus to elicit behavior.
 - > Use a variety of settings.
 - > Use a variety of personnel.
- › Curriculum should focus on assisting students to function as social human beings.
 - > Understanding rules of social interaction.
 - > Taking on responsibilities.
 - > Making decisions and realizing their consequences.
- › Curriculum should focus on assisting students to function in the world of work.
 - > Identify individual interests and aptitudes.
 - > Develop self-scheduling skills and community mobility skills.
 - > Develop and practice job related skills.
- › Develop and practice independent living skills within a group setting - getting along with others in the same living space, sharing responsibilities, cooking, personal hygiene, etc.
- › Job coaching should focus on teaching routines and educating employers about the student's characteristics and necessary modifications.



On-Line Resources

Adopting a Substance-Exposed Child

<http://www.adopting.org/adoptions/adopting-a-substance-exposed-child.html>

Al-Anon/Family Groups

<http://www.al-anonfamilygroups.org>

Alcoholics Anonymous

<http://www.aa.org>

American Association on Intellectual and Developmental Disabilities (AAIDD)

<http://www.aaid.org>

The Arc

<http://www.thearc.org>

The Arium Foundation

<http://www.arium.org>

Better Endings, New Beginnings

<http://www.betterendings.org>

Brain Connection

<http://www.brainconnection.com>

Canadian Centre on Substance Abuse

<http://www.ccsa.ca>

Center for Disabilities

<http://www.usd.edu/cd>

Center for Disabilities - Fetal Alcohol Spectrum Disorders Education Strategies Handbook

<http://www.usd.edu/medical-school/center-for-disabilities/fetal-alcohol-spectrum-disorders-education-strategies-handbook.cfm>

Center for Disabilities - Resources Guide for Individuals with Disabilities

<http://www.usd.edu/medical-school/center-for-disabilities/resource-guide.cfm>

Center for Disabilities - Roadmap to Services in South Dakota for People with Developmental Disabilities

<http://www.usd.edu/medical-school/center-for-disabilities/roadmap-to-services-in-south-dakota-for-people-with-developmental-disabilities.cfm>

Center for Substance Abuse Prevention (CSAP) at the Substance Abuse and Mental Health Services Administration (SAMHSA)

<http://www.samhsa.gov/about/csap.aspx>

Centers for Disease Control and Prevention (CDC)

<http://www.cdc.gov>

Family Village

<http://www.familyvillage.wisc.edu>

FAS Alaska

<http://www.fasalaska.com>

FAS World

<http://www.fasworld.com>

Fetal Alcohol Spectrum Disorders (FASD) Center for Excellence from the Substance Abuse and Mental Health Services Administration

<http://www.fasdcenter.samhsa.gov>

Fetal Alcohol Spectrum Disorders Publications from the Substance Abuse and Mental Health Services Administration

<http://store.samhsa.gov/facet/Issues-Conditions-Disorders/term/Fetal-Alcohol-Spectrum-Disorders>

Fetal Alcohol Syndrome Community Resource Center

<http://www.come-over.to/FASCRC>

Fetal Alcohol Syndrome Diagnostic & Prevention Network

<http://depts.washington.edu/fasdnpn>

Fetal Alcohol Syndrome Family Resource Institute

<http://www.fetalalcoholsyndrome.org>

Gentle Teaching

<http://www.gentleteaching.nl>

Join Together

<http://www.drugfree.org/join-together>

March of Dimes

<http://www.modimes.org>

Medline Plus from the National Library of Medicine - Fetal Alcohol Spectrum Disorders

<http://www.nlm.nih.gov/medlineplus/fetalalcoholspectrumdisorders.html>

Minnesota Organization on Fetal Alcohol Syndrome (MOFAS)

<http://www.mofas.org>

National Center on Birth Defects and Developmental Disabilities (NCBDDD) at the Centers for Disease Control and Prevention (CDC)

<http://www.cdc.gov/ncbddd>

National Center on Birth Defects and Developmental Disabilities (NCBDDD) - Fetal Alcohol Spectrum Disorders

<http://www.cdc.gov/ncbddd/fasd/index.html>

National Center for Education in Maternal and Child Health at Georgetown University

<http://www.ncemch.org>

National Institute on Alcohol Abuse and Alcoholism (NIAAA) of the National Institutes of Health (NIH)

<http://www.niaaa.nih.gov>

National Institute on Drug Abuse (NIDA) of the National Institutes of Health (NIH)

<http://www.drugabuse.gov>

National Institutes of Health

<http://www.nih.gov>

National Organization on Fetal Alcohol Syndrome (NOFAS)

<http://www.nofas.org>

National Organization on Fetal Alcohol Syndrome - South Dakota (NOFAS-SD)

<http://www.usd.edu/medical-school/center-for-disabilities/nofas-south-dakota.cfm>

National Women's Health Information Center from the United States Department of Health and Human Services

<http://womenshealth.gov>

PACER Center

<http://www.pacer.org>

Society for Neuroscience

<http://www.sfn.org>

South Dakota Advocacy Services

<http://www.sdadvocacy.com>

South Dakota Council on Developmental Disabilities

<http://dhs.sd.gov/ddc>

South Dakota Division of Developmental Disabilities

<http://dhs.sd.gov/dd>

South Dakota Special Education Programs in the South Dakota Department of Education

<http://doe.sd.gov/oess/sped.asp>

Substance Abuse and Mental Health Services Administration in the United States
Department of Health and Human Services

<http://www.samhsa.gov>

Teaching Students with Fetal Alcohol Syndrome/Effects: A Resource Guide for Teachers

<http://www.bced.gov.bc.ca/specialed/fas>

Wisconsin Fetal Alcohol Spectrum Disorders Treatment Outreach Project/Family Empowerment Network

<http://www.pregnancyandalcohol.org>

Zero to Three - National Center for Infants, Toddlers and Families

<http://www.zerotothree.org>

Inclusion of websites in the *Fetal Alcohol Spectrum Disorders Handbook* does not imply endorsement by the Center for Disabilities, the Department of Pediatrics, the Sanford School of Medicine of the University of South Dakota. Content of the websites listed in the *Fetal Alcohol Spectrum Disorders Handbook* is the sole responsibility of the authors of each website.

Resources in the Wegner Health Science Information Center

The following resources are available from the Wegner Health Science Information Center (Wegner Center). The Center for Disabilities is a partner in the Wegner Center. For information or to borrow these resources, contact the Center for Disabilities at (605) 357-1439 or 1-800-658-3080. Contact the Wegner Center directly by phone at 1-800-521-2987, on-line at <http://www.usd.edu/library/wegner.cfm>, or in person by stopping by in Sioux Falls at 1400 West 22nd Street - on the south side of the Sanford Health campus. You may also contact your local library for help accessing these resources.

Books

ADHD and Fetal Alcohol Spectrum Disorders (FASD) edited by Kieran D. O'Malley - 2007

Beyond Consequences, Logic and Control: A Love-Based Approach to Helping Children with Severe Behaviors by Heather T. Forbes and B. Bryan Post - 2010

Braided Cord: Tough Times In and Out by Liz Kulp - 2010

"Cheers! Here's to the baby!" A Birth Mother's Discovery of Fetal Alcohol Syndrome by Linda Belle LaFever - 2000

Children, Families, and Substance Abuse: Challenges for Changing Educational and Social Outcomes by G. Harold Smith, et al - 1995

Damaged Angels: An Adoptive Mother Discovers the Tragic Toll of Alcohol in Pregnancy by Bonnie Buxton - 2005

Drawing Hope by Brandon Mitchell and members of the Whitecrow Village Community - 2011

Fantastic Antone Grows Up: Adolescents and Adults with Fetal Alcohol Syndrome edited by Judith Kleinfeld with Barbara Morse and Siobhan Westcott - 2000

Fantastic Antone Succeeds! Experiences in Educating Children with Fetal Alcohol Syndrome edited by Judith Kleinfeld and Siobhan Westcott - 1993

Fetal Alcohol Syndrome: A Guide for Families and Communities by Ann Streissguth - 1997

Fetal Alcohol Syndrome: A Training Manual to Aid in Vocational Rehabilitation and Other Non-Medical Services by Robin A. LaDue, et al - 1999

Fetal Alcohol Syndrome: Diagnosis, Epidemiology, Prevention, and Treatment by Kathleen Stratton, Cynthia How, and Frederic Battaglia, editors, National Institute of Health - 1996

Finding Perspective: Raising Successful Children Affected by Fetal Alcohol Disorder by Liz Lawryk and Parents Everywhere with contributions from Ray Campbell, et al - 2005

Forgetful Frankie: The World's Greatest Rock Skipper by Jill Bobula and Katherine Bobula with illustrations by Rob Hall - 2009

Hard to Place: A Crime of Alcohol by Katherine Norgard with forward by Sister Helen Prejean - 2006

Heart's Open & Hands On: An Interactive Learning Tool for Educators, Parents, Caregivers & Others Supporting an Adolescent Diagnosed with Fetal Alcohol Syndrome. Fetal Alcohol Effects by Minnesota Department of Children and Families - 2000

I Would be Loved by Linda J. Falkner - 2002

Identification and Care of Fetal Alcohol-Exposed Children: A Guide for Primary-Care Providers by the National Institute on Alcohol Abuse and Alcoholism and the Office of Research on Minority Health - 1999

Identification of At-Risk Drinking and Intervention with Women of Childbearing Age: A Guide to Primary-Care Providers by Michael Flemming with Dorothea de Zafra and others - 1999

Kids Explore the Gifts of Children with Special Needs by the Westridge Young Writers Workshop - 1994

My Invisible World: Life with My Brother, His Disability and His Service Dog by Morasha R. Winokur - 2009

Our FAScinating Journey: The Best We Can Be: Keys to Brain Potential Along the Path of Prenatal Brain Injury by Jodee Kulp - 2002

Personal Steps to a Healthy Choice: A Woman's Guide by the National Institute on Alcohol Abuse and Alcoholism and the Office of Research on Minority Health - 2000

Speaking and Learning the FASD Way: A Teacher's Journey into the World of Fetal Alcohol Spectrum Disorder by Carol McAndrew - 2006

Teaching for the Prevention of Fetal Alcohol Spectrum Disorders (FASD), Grade 1-12: A Resource for Teachers of Health and Life Skills and Career and Life Management by Patricia Shields - 2002

Teaching Students with Fetal Alcohol Spectrum Disorder by the Ministry of Education in the Canadian Province of Alberta - 2004

The Best I Can Be: Living with Fetal Alcohol Syndrome/Effects by Liz Kulp and Jodee Kulp - 2000

The Blood Runs Like a River Through My Dreams: A Memoir by Nasdijj - 2000

The Broken Cord by Michael Dorris - 1989

The Challenge of Fetal Alcohol Syndrome: Overcoming Secondary Disabilities edited by Ann Streissguth and Jonathan Kanter - 1997

The Long Way to Simple: 50 Years of Ideas to Live, Love and Laugh as a Person with FASD by Stephen James Neafcy - 2008

The Source for Syndromes by Gail J. Richard and Debra Reichert Hoge - 1999

Tools for Success Curriculum: Working with Youth with Fetal Alcohol Spectrum Disorders (FASD) in the Juvenile Justice System by the United States Department of Health and Human Services - 2007

Trying Differently Rather than Harder: Fetal Alcohol Spectrum Disorders by Diane Malbin - 2002

Understanding Fetal Alcohol Syndrome edited by Barbara J. Seitz de Martinez - 1995

Electronic Resources

F.A.S. Series: The Early Years produced by HMS Productions - 1997

Faces Yet to Come produced by the American Indian Institute at the University of Oklahoma 1997

Fetal Alcohol and Other Drug Effects: A Four-Part Training Series for Parents and Professionals produced by Fetal Alcohol Syndrome Consultation, Education and Training, Inc. - 2003

Fetal Alcohol Syndrome: Multimedia Guide produced by Academic Edge, Inc. - 2005

Fetal Alcohol Syndrome: Prevention, Diagnosis, Treatment: A Clinical Guide for Obstetric and Pediatric Providers produced by Vide Health Communications - 2000

No Safe Amount: Women, Alcohol and Fetal Alcohol Syndrome produced by Human Relations Media - 2008

Painting a Future: A Young Adult Succeeding with FAE produced by Creative Video, Judith Kleinfeld and Scott Dewitz - 1999

Recovering Hope: Mothers Speak Out About Fetal Alcohol Spectrum Disorders produced by the Center for Substance Abuse Prevention - 2004

Students Like Me: Teaching Children with FAS produced by Vida Health Communication and Betsy Anderson - 2000

The Broken Cord: Louise Erdrich and Michael Dorris produced by WNE/New York, WW/Chicago, WVX/Detroit, Public Affairs Television and Catherine Tatge - 1994

Bibliography

FASD FAQs

Fetal Alcohol Spectrum Disorders Center for Excellence (The FASD Center).

“Welcome - Prevalence: How Many Cases of FASD Are There?”. April 9, 2013. <<http://www.fasdcenter.samhsa.gov/index.aspx>>.

National Organization on Fetal Alcohol Syndrome (NOFAS). “FASD: What School Systems Should Know About Affected Students.” April 9, 2013. <<http://www.nofas.org/wp-content/uploads/2012/05/students-school.pdf>>.

National Organization on Fetal Alcohol Syndrome (NOFAS). “What are the facts about FASD?”. April 9, 2013. <<http://www.nofas.org/faqs/what-are-the-facts-about-fasd/>>.

National Organization on Fetal Alcohol Syndrome (NOFAS). “What is the cost to Society of FASD?” April 9, 2013. <<http://www.nofas.org/faqs/what-is-the-cost-to-society-of-fasd/>>.

Riley, Edward P., Infante, M. Alejandra, and Warren, Kenneth R. “Fetal Alcohol Spectrum Disorders: An Overview.” Neuropsychology Review 21 (2011) 73-80.

Historical Overview of Fetal Alcohol Spectrum Disorders

Abel, Ernest L. Fetal Alcohol Syndrome. Oradell, New Jersey. 1990

Streissguth, Ann. Fetal Alcohol Syndrome: A Guide for Families and Communities. Baltimore. 1997.

Characteristics of Fetal Alcohol Spectrum Disorders

Centers for Disease Control and Prevention (CDC). “Facts about FASDs.” April 15, 2013. <<http://www.cdc.gov/ncbddd/fasd/facts.html>>.

FASCETS. “Understanding FASD (Fetal Alcohol Spectrum Disorders).” April 15, 2013. <<http://www.fascets.org/info.html>>.

NOFAS Colorado. “Fetal Alcohol Spectrum Disorders FAQ.” April 15, 2013. <<http://nofascolorado.org/fasdfa.htm>>.

Wattendorf, Daniel J. and Muenke, Maximilian. “Fetal Alcohol Spectrum Disorders.” American Family Physician 72 (2005) 279-258.

Diagnostic Criteria for Fetal Alcohol Spectrum Disorders

Hoyme, H. Eugene, May, Philip A., Kalberg, Wendy O., Kodituwakku, Piyadasa, Gossage, J. Phillip, Trujillo, Phyllis M., Buckley, David G., Miller, Joseph H., Aragon, Alfredo S., Khaole, Nathaniel, Viljoen, Denis L., Jones, Kenneth Lyons, Robinson, Luther K., "A Practical Clinical Approach to Diagnosis of Fetal Alcohol Spectrum Disorders: Clarification of the 1996 Institute of Medicine Criteria." Pediatrics 115. (2005): 39-47.

Institute of Medicine (U.S) Division of Biobehavioral Sciences and Mental Disorders, Committee to Study Fetal Alcohol Syndrome. Fetal Alcohol Syndrome: Diagnosis, Epidemiology, Prevention and treatment. Washington, D.C. 1996.

Prenatal Alcohol Exposure and Brain Development

Mattson, Sarah N., Schoenfeld, Amy M., and Riley, Edward P. "Teratogenic Effects of Alcohol on Brain and Behavior." Alcohol Research & Health. 25.3 (2001): 185-191

Streissguth, Ann. Fetal Alcohol Syndrome: A Guide for Families and Communities. Baltimore. 1997.

Secondary Concerns

Centers for Disease Control. "Secondary Conditions." May 8, 2013. <<http://www.cdc.gov/ncbddd/fasd/treatments.html>>.

Centers for Disease control and Prevention. "FASD Treatments." May 8, 2013. <<http://www.cdc.gov/ncbddd/fasd/treatments.html>>.

Streissguth, Ann and Kanter, Jonathan, eds. The Challenge of Fetal Alcohol Syndrome: Overcoming Secondary Disabilities. Seattle. 1997.

Executive Skills

Cooper-Kahn, Joyce and Dietzel, Laurie. Late, Lost, and Unprepared: A Parents' Guide to Helping Children with Executive Functioning. Bethesda. 2008.

Dawson, Peg and Guare, Richard. Executive Skills in Children and Adolescents: A Practical Guide to Assessment and Intervention Second Edition. New York. 2010.

National Center for Learning Disabilities. "Executive Skills and Your Child with Learning Disabilities." April 17, 2013. <<http://www.ncl.org/types-learning-disabilities/executive-functin-disorders/executive-skills-your-child-with-learning-disabilities>>.

Women and Alcohol Use

Centers for Disease Control and Prevention. "FASD, Data & Statistics." May 13, 2013. <<http://www.cdc.gov/ncbddd/fasd/data.html>>.

Centers for Disease Control and Prevention. "Reducing Alcohol Exposed Pregnancies." May 13, 2013. <<http://www.cdc.gov/ncbddd/aboutus/birthdefects-fasd.html>>

National Organization on Fetal Alcohol Syndrome (NOFAS). "Expectant Mothers." May 6, 2013. <<http://www.nofas.org/expectant-mother>>.

Prevention

Streissguth, Ann. Fetal Alcohol Syndrome: A Guide for Families and Communities. Baltimore. 1997.