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# Fetal Alcohol Syndrome (FAS)

## DEFINITION OF THE PROBLEM

Fetal alcohol syndrome (FAS) was first identified in French medical journals in 1968, and then the English-language medical journals five years later. The syndrome is characterized by growth retardation, central nervous system (CNS) dysfunction, and a pattern of specific anomalies, particularly distortions of the form and structure of the face (facial dysmorphology). New findings suggest that FAS has specific structural brain abnormalities detected by magnetic resonance imaging (MRI), affecting preferentially the midline structures, basal ganglia, cerebellar vermis, and corpus callosum. However, diagnosis continues to be made solely on the clinical judgment of a physician. FAS is a clinical condition that occurs as a direct result of the mother's alcohol consumption during pregnancy. The Institute of Medicine suggested that alcohol exceeds all other substances of abuse in its deleterious effects on the fetus. As a result of maternal drinking, children with FAS and alcohol-related neurodevelopmental disorders (ARND), face a host of primary and secondary disabilities. Primary disabilities are those inherent in the diagnosis of FAS/ARND as a result of CNS dysfunction. Secondary disabilities are those that a person is not born with (e.g., school disruption, mental health difficulties, social skills problems, etc.) that could, in principle, be ameliorated through improved understanding and appropriate interventions. Drinking at any point during pregnancy can cause problems in the developing fetus. As a result, the

American Medical Association and the American Academy of Pediatrics have stated that abstinence throughout pregnancy is the only safe practice.

## PREVALENCE

The prevalence of FAS is uncertain. The March of Dimes estimates that FAS occurs in 1 out of 750 births. Others estimate the average birth prevalence of FAS in the United States to range from 0.33–3.7 per 1,000 live births. In Native Americans, the risk is even greater with Southwestern tribes ranging from 3.9–33.3 per 1,000 women of childbearing age. It has been suggested that the variability and inconsistency across studies are due primarily to difficulties with definitions, diagnostic criteria, and methods of assessment. However counted, FAS is now the leading known cause of mental retardation in the United States, a staggering rate for a condition that, in theory, is totally preventable. The estimated cost for rearing a child with FAS is close to \$600,000. The emotional cost to the child and caregivers and the child's lost potential is immeasurable.

Studies looking only at those children who meet full criteria for FAS will underestimate the number of children who have significant difficulties that can be directly attributed to maternal alcohol use. The terms ARND and Alcohol Related Birth Defects (ARBD) are used to describe children with impairments as a result of alcohol exposure during pregnancy, but without the full spectrum of FAS; these terms replaced the term Fetal Alcohol Effects (FAE). Approximately 50,000 babies are born with ARND each year in the United States.

**PSYCHOSOCIAL CORRELATES**

Behavioral consequences of FAS/ARND often occur without problems in growth and physical development. It is the brain dysfunction caused by prenatal alcohol exposure, not the facial dysmorphism or physical growth impairment, that has the most serious functional consequences for affected individuals and their families. Brain dysfunction underlies the problem behaviors that lead to trouble in daily life, including learning disabilities, poor school performance, poor social skills and poor understanding of social rules and expectations, poor impulse and behavioral control, hyperactivity, problems with attention and concentration, and poor judgment and adaptive behavior problems. Many children with FAS/ARND are also diagnosed with Attention-Deficit Hyperactive/Disorder (ADAD). CNS dysfunction can also be expressed in speech/language difficulties, particularly language processing, and motor skill deficits.

Problems may be particularly difficult for the children with ARND who have few to no dysmorphic facial features and therefore, appear normal to others. Indeed, only about 25 percent of children with FAS and less than 10 percent of children with ARND readily qualify for special education services if mental retardation is used as a sole criterion. For example, the Intelligent Quotient (IQ) score of a child with FAS averages around 79 and that of a child with ARND around 90 (for the general population scores in the normal range are between 85 and 115). However, the adaptive behavior scores of both diagnostic groups is less than 70 (61 and 67, respectively). Streissguth (1997), a leading expert in the area of FAS, and her colleagues found that of children with FAS/ARND, 90 percent had mental health problems and 60 percent had disruptive school experiences characterized by suspension, expulsion, or dropping out. Other significant problems were noted as the children reached young adulthood (e.g., trouble with the law, substance abuse issues, homelessness, joblessness). Clearly, these problems go beyond what is expected based solely on IQ.

Caregivers' perceptions of children with prenatal exposure to alcohol and other drugs are more negative than those of children without exposure. Furthermore, these caregivers report significantly higher levels of stress. The difficult behaviors often seen in the children, together with the caregivers' perceptions and stress, increase the risk for child abuse/neglect and disruptive foster care placements.

**PSYCHOLOGICAL ASSESSMENT AND INTERVENTION**

Ongoing comprehensive evaluations are recommended for children with prenatal exposure to alcohol. As the difficulties faced by children with FAS (and alcohol related disabilities) and their families change with age, assessments can help to identify areas of deficits as well as strengths in these children. Assessments should incorporate not only measures of IQ and executive functioning, but also other areas of development such as language processing, visuospatial and motor abilities, and behavior and social-emotional functioning. Measures of attention and concentration are also recommended. Finally, ongoing evaluations of caregivers' stress and family functioning are important.

Most children with FAS and problems related to alcohol exposure require some special education services through the local school system. As many children also meet criteria for ADHD, medication management is often part of a family's treatment plan. Consultation with a mental health professional with expertise in this area can be extremely helpful to the family in terms of both education related to FAS and behavior management issues.

Finally, as this syndrome and related problems are wholly preventable, special efforts should be taken in educating childbearing women about the dangers of alcohol use during pregnancy. Motivational interviewing techniques have been found to be effective in interventions with individuals abusing alcohol. In general, improving and increasing treatment services for women who abuse alcohol are critical to reducing the number of children and families impacted by FAS and related problems.

**PROGNOSIS**

The prognosis for children with FAS and alcohol-related disabilities is, unfortunately, not promising. As noted above, children are at increased risk for a variety of problems. They are also at increased risk for specific learning disabilities (e.g., arithmetic), problems with memory, judgment, abstract reasoning, and poor adaptive functioning. Through early assessment of the child and the caregivers, relative strengths can be identified. Targeted services can then address these areas of strength as well as deficits to enhance the ability of helping the child reach his/her full potential.

**See also:** Attention-Deficit/Hyperactivity Disorder; Behavior Modification; Child Maltreatment; Effects of Parental Substance Abuse on Children; Family Intervention; Substance Abuse

### Further Reading

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<http://www.nofas.org>

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