

Developmental and Behavioral Effects of Prenatal Alcohol Exposure

— FASDs FACTS —



pregnant women in the U.S. have consumed alcohol in the past 30 days.



pregnant women have consumed 4+ alcoholic beverages at one time in the past 30 days.



of grade school children have one of the FASDs.

■ FETAL ALCOHOL SPECTRUM DISORDERS (FASDs) ARE A GROUP OF DISORDERS THAT RESULT FROM PRENATAL ALCOHOL EXPOSURE (PAE)

Fetal alcohol spectrum disorders (FASDs) are a group of disorders that result from prenatal alcohol exposure (PAE). About 1 in 10 pregnant women in the United States (US) report drinking alcohol in the past 30 days, and about 1 in 33 pregnant women report binge drinking—having four or more drinks at one time—in the past 30 days. These patterns create the potential for an alcohol-exposed pregnancy.

Alcohol can disrupt fetal development at any stage of pregnancy, causing neurodevelopmental abnormalities. Studies of grade school children suggest that 1-5% have one of the FASDs. Rates of FASDs are even higher among vulnerable populations such as children in foster care, those who are adopted from other countries, and children of American Indian descent.

■ MEDICAL HOME MANAGEMENT AND TREATMENT STRATEGIES

The pediatric primary care clinician plays a pivotal role in the continuity and integration of care for children with an FASD. Developmental and behavioral effects may vary among individuals affected by alcohol and can emerge at any point across the lifespan. While there is no “cure” for a FASD, there are evidence-based treatment options that can improve outcomes for affected individuals. Treatment options are aimed at improving the symptoms and/or providing environmental modifications, as well as parenting strategies and educational interventions to address the brain-based problems seen in children with FASDs.

■ HOW THIS PRESENTS CLINICALLY

Prenatal alcohol exposure can contribute to a range of growth deficiencies and functional brain anomalies leading to cognitive and behavioral problems that last a lifetime. There is risk of significant birth defects affecting the heart, eyes, kidneys, and/or bones resulting from PAE that warrant referral and follow-up in the medical home. Less than 20% of children with adverse effects from PAE will present with dysmorphic facial features but the majority will present with neurodevelopmental/neurobehavioral challenges.

Most, if not all, pediatric clinicians will encounter and need to manage behavioral issues related to PAE. Neurobehavioral deficits may present even when there are no facial/physical features. Challenges in the following domains will require the following management/treatment strategies:

- **Neurocognitive Deficits**—executive function, intelligence quotient (IQ)/cognition, learning, memory, visual-spatial
- **Problems with Self-Regulation**—including sleep and self-soothing, anger control, attention and impulse control
- **Delayed/Deficient Adaptive Skills**—social skills, language, gross/fine motor, daily living skills

See chart on reverse side.

Age	Neurodevelopmental and Neurobehavioral Concerns	Care Management and Treatment Strategies
Zero to Three	<ul style="list-style-type: none"> • Neurocognitive—Deficits may affect feeding and other daily living skills. Normal expressive language may hide comprehension problems which could affect ability to follow commands and behave appropriately. • Self-regulation—Increased impulsivity and distractibility, poor sleep. • Adaptive skills delays—See above under neurocognitive. Difficulty following daily routines. 	<ul style="list-style-type: none"> • Therapeutic interventions <ul style="list-style-type: none"> – Early intervention (EI). – Occupational therapy (OT) to address adaptive, feeding, and sensory deficiencies. – Speech-language therapy (ST). – May need physical therapy (PT) for gross or fine motor delays. • Parenting strategies to address behaviors through EI. • Care coordination. • Infant mental health.
Preschool to School-Age Children*	<ul style="list-style-type: none"> • Neurocognitive—IQ, learning (especially math, writing, reading comprehension), memory, executive functioning deficits, visual-spatial deficits. • Self-regulation—Attention, sleep, emotions, prolonged tantrums. • Adaptive skills—Acting younger, naïve, poor playground social learning, poor hygiene and day-to-day skills. 	<ul style="list-style-type: none"> • School-based interventions—Psychoeducational testing leading to IEP or 504 Plan to address learning, neurocognitive, and self-regulatory challenges. • Occupational therapy to address self-regulation and adaptive skills as well as writing challenges. • Social skills intervention (psychologist). • Language skills intervention (ST). • Address executive function deficits (neuropsychologist).
Adolescents	<ul style="list-style-type: none"> • Neurocognitive—As above but more pronounced with more demands on the teen for information processing, judgment, and metacognition. • Self-regulation—Attention, sleep, emotional regulation. • Adaptive skills—Acting younger, naïve, poor social learning, poor hygiene and day-to-day skills, susceptible to manipulation. 	<ul style="list-style-type: none"> • School-based interventions as above. • Work on life skills with OT and/or psychologist. • Address executive function and transition, social emotional needs with a psychologist (legal needs if appropriate). • Address with parents that children may be developmentally much younger in terms of social, language, and adaptive skills apart from challenges in learning and thinking skills. Safety routines should be discussed.

*Preschoolers may present with impulsivity, while school-age children may present with learning issues and inattention.

General Pediatric Considerations

Keep Healthy Anticipatory Guidance	Medical Home	Resources
<ul style="list-style-type: none"> • Good nutrition and exercise. • Safety due to poor judgement. • Discuss with family that child's developmental age is often younger than chronological age. • Vigilance for substance misuse. 	<ul style="list-style-type: none"> • Refer to developmental therapies. • Work with school systems to ensure child's needs are met. • Be aware of referral sources in your area; develop relationships with these individuals and/or organizations. • Medications may be helpful for comorbid conditions like ADHD, anxiety, aggression. • Remember that transitions may be time of particular difficulty. 	<p>AAP FASD Toolkit (aap.org/fasd)</p> <ul style="list-style-type: none"> • Implementation guide for screening for prenatal alcohol exposure. • Sample scripts for discussing FASD concerns with biological or adoptive families. • AAP PediaLink courses: <ul style="list-style-type: none"> – Fetal Alcohol Spectrum Disorders—Identification and Management (shop.aap.org/FASD-ID). – Fetal Alcohol Spectrum Disorders—Recognizing Behavioral Effects of Prenatal Alcohol Exposure (shop.aap.org/FASD-NDPAE). <p>National Organization on Fetal Alcohol Syndrome (nofas.org)</p> <ul style="list-style-type: none"> • Resource Directory (nofas.org/resource-directory). • Circle of Hope: A Mentoring Network for Birth Mothers (nofas.org/circleofhope).