

# The Management of Attention Deficit Hyperactivity Disorder in Children Prenatally Exposed to Drugs and Alcohol

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## Disclosure

- I may discuss off label uses of FDA approved medications in this presentation
- I have no financial relationships with the manufacturer of any medications discussed in this presentation

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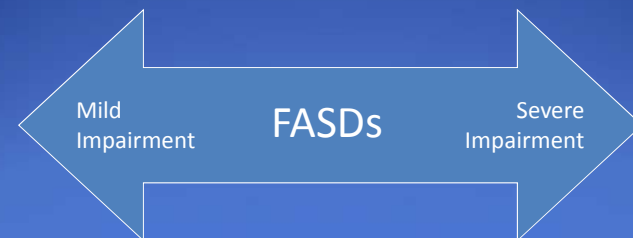
## Learning Objectives

- Describe the relationship between FASD and ADHD
- Understand the complexity of diagnosis and management of ADHD in a substance exposed child
- Become familiar with management options including therapies and medications to treat the whole child

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## FASDs are Spectrum Disorders

- Effects of alcohol vary
- Every child presents differently



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## Prenatal alcohol exposure causes brain damage

- Apoptosis—cell death
- Decreased nerve cell proliferation
- Errors in nerve cell migration
- Effect on neurotransmitter system

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## CNS Impairment in FASDs

- Cognitive
- Executive Functioning
- Behavior
- Social/Emotional
- Sensory Integration
- Developmental Delays

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## ADHD in FASDs

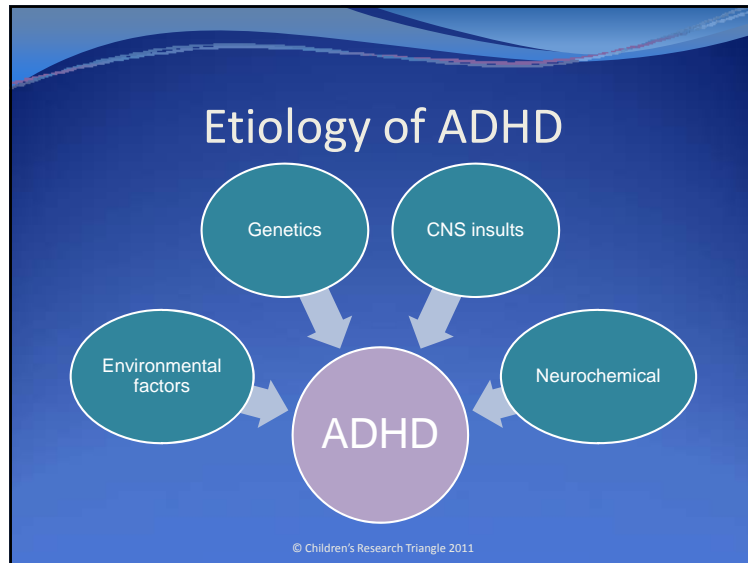
- Increased risk
- More complex presentation and diagnosis
- **Can** be treated

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## Why is diagnosis of FASD important in children with ADHD?

- Guide effective treatment
- Set appropriate expectations
- Address coexisting issues
- Prevent secondary disabilities
- Prevent future cases of FASDs

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- ## Neurotransmitters
- ADHD symptoms result from an imbalance
    - Norepinephrine (NE)
    - Dopamine (DA)
    - probably others
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- ## Symptoms of ADHD
- Core
    - Inattention
    - Hyperactivity
    - Impulsivity
  - Other functional problems
    - School and academic issues
    - Family and peer relationships
    - Low self-esteem
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- ## Diagnosis
- Gather information
    - Parents
    - Teachers
    - Caregivers
  - Evaluate for FASD
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## DSM-IV

- Symptoms present before 7 years old
- Impairment in 2 or more settings
- Evidence of social, academic or occupational impairment
- Not better accounted for by another disorder

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## DSM-IV Criteria

- Three subtypes of ADHD
  - Primarily inattentive
    - 6 of 9 inattention behaviors
  - Primarily hyperactive-impulsive
    - 6 of 9 hyperactive-impulsive behaviors
  - Combined
    - 6 of 9 behaviors in both categories

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## Primary Disabilities in FASDs

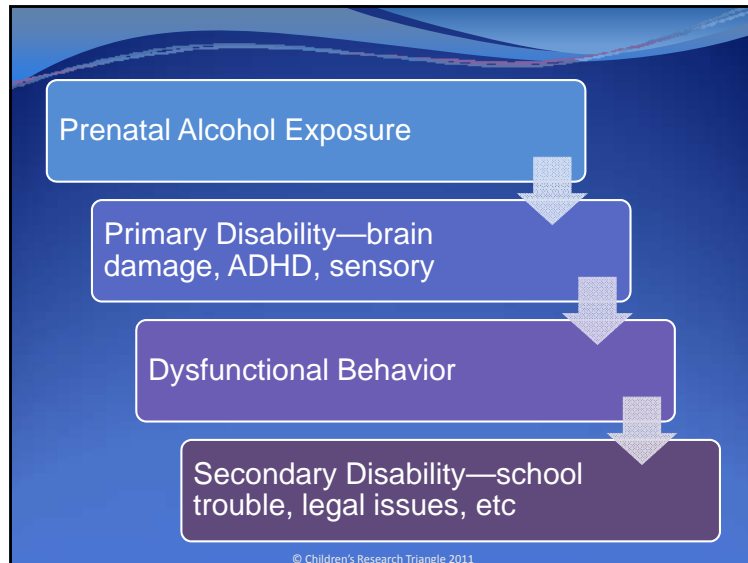
- Direct effects of alcohol on the developing brain

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## Secondary Disabilities in FASDs

- Caused by interaction between the individual and society

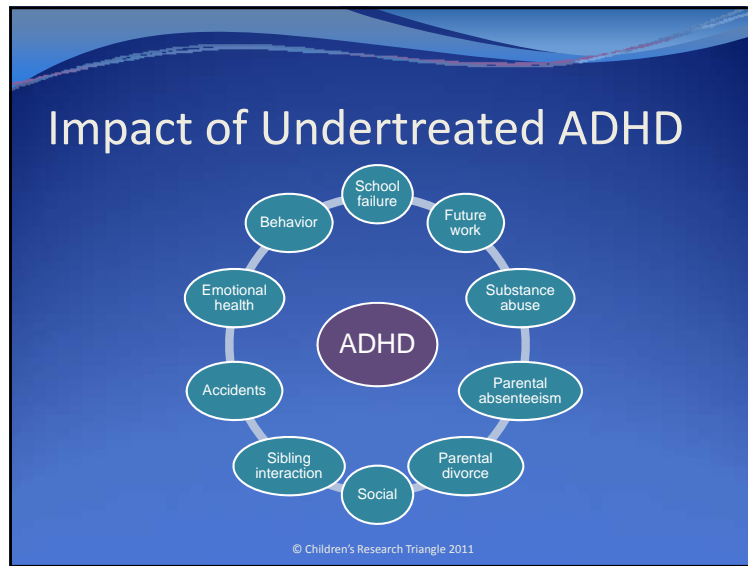
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## Why do we treat ADHD?

- Treatment works!
- Lack of treatment has a negative impact

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## Does Treating ADHD Pharmacologically Lead to Later Substance Abuse?

**NO!**

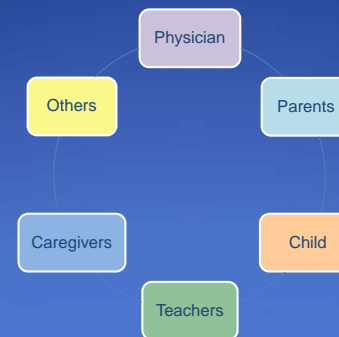
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## ADHD Evaluation and Treatment: Sources of Evidence

- AAP Clinical Practice Guidelines
- AACAP Practice Parameter for Assessment and Treatment
- NIMH Multimodal Treatment of ADHD (MTA) Study

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## Team Approach



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## Treatment of ADHD

- Treatment plan
  - Individualized
  - Child-centered

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## Management

- Diagnose
- Look for comorbidity
- Acknowledge as a chronic condition
- Specify target outcomes
- Medication choices
- Other appropriate interventions
- Systematic followup

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## ADHD as a Chronic Condition

- Education—initial and continuing
  - Child
  - Family
  - Others
- Linking with others with similar conditions

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## Target Outcomes

- Specify target goals
- Goal is to maximize function

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## Medications used in ADHD

- First-line
  - Stimulants
- Other treatments
  - Atomoxetine
  - Alpha agonists

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## Stimulants

- Active Management
  - Communication
  - Education
  - Followup
  - Attention to comorbidities

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## Stimulants: Side Effects

- Don't give up too soon
- Side effects
  - Common
  - Tics
  - Uncommon

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## Methylphenidate Derivatives

- First-line treatment
- Formulations
  - Short-acting
  - Intermediate-acting
  - Long-acting

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## Amphetamine Derivatives

- May also be first-line treatment
- Formulations
  - Short-acting
  - Intermediate-acting
  - Long-acting

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## Atomoxetine

- Selective norepinephrine reuptake inhibitor
- Differences from stimulants
  - Side effects
  - Takes time to become effective
  - Suicidal ideation—monitor

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## Alpha 2 Adrenergic Agonists

- Clonidine
  - Catapres
  - Kapvay
- Guanfacine
  - Tenex
  - Intuniv

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## Medication Recap

- Stimulants
  - Short acting
  - Long acting
- Atomoxetine
- Alpha agonists
  - Short acting
  - Long acting

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## Monitoring

- Active management!
  - Target goals
  - Communication between visits
  - Frequency of followup
  - Continued education

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## Monitoring

- Height, weight, blood pressure, pulse
- Side effects
- Development of comorbidities
- Differences with missed dose
- How does child feel about his/her medication
- Flow sheet

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## Is it a treatment failure?

- Realistic goals
- Consider comorbidities

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## Symptom Trends by Age



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## ADHD: Preschoolers

- Dosing
- Address sensory and other issues
- More risk of particular side effects

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## ADHD: Adolescents

- Compliance
- Control over treatment—parents/child
- Do not discontinue treatment prematurely
- Issues:
  - Driving
  - Academics
  - Sexual activity
  - Substances
  - Family functioning

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## FASDs

- Permanent
- Treatable

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## Protective Factors

- Stable and nurturing home
- Diagnosis under 6 years old
- No abuse
- Basic needs met
- Services and treatment

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## Treatment

- Family Education
- Speech/Language Therapy
- Sensory Integration Therapy
- Educational interventions
- Medication

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