ADHD

Attention Deficit Hyperactive Disorder

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Requires that at least once every 2 years, the in-service training of certified school personnel and administrators include training on current best practices regarding the identification and treatment of attention deficit disorder and attention deficit hyperactivity disorder, the application of non-aversive behavioral interventions in the school environment, and the use of psychotropic or psycho-stimulant medication for school-age children.

ADHD Facts

ADHD: A neurobehavioral disorder that causes a chronic level of inattention, impulsive hyperactivity, or both, such that daily functioning is compromised. Children with ADHD often struggle in important areas of life such as peer and family relationships, and school performance.

ADHD:

- Most prevalent disorder of children and involves 3-7% of the school-age population.
- 3 times more likely to be found in boys than in girls.
- About half the children with ADHD also have other mental or behavioral disorders, such as ODD (Oppositional Defiant Disorder), making it harder to diagnose and treat the disorder.
- Children with ADHD are at high risk for grade retention, placement in special classrooms, and dropping out from high school.

ADHD Diagnosis

Diagnostic and Statistical Manual of Mental Disorders- 4th Edition, Text Revision (DSM-IV-TR):

- Child must exhibit at least 6 inattentive, or at least 6 hyperactive-impulsive symptoms, some of which were present before age 7.
- Symptoms must be exhibited for at least 6 months, and in at least two settings.
- Symptoms must be present to an extent that is disruptive and inappropriate for the child's developmental level.
- The symptoms do not occur exclusively during the course of Schizophrenia or another Psychotic Disorder, and are not better accounted for by another disorder, such as Autism, Mood Disorder, Anxiety Disorder, Dissociative Disorders, or a Personality Disorder.

3 Types

- ADHD – Predominantly Inattentive Type
- ADHD – Predominantly Hyperactive/Impulsive Type
- ADHD – Combined Type

ADHD – Predominantly Inattentive Type

Symptoms

- Easily distracted by irrelevant stimuli
- Fail to sustain attention
- Organizational difficulties
- Appear sluggish
- Doesn't listen when spoken to directly
- Avoids or dislikes tasks that require sustained mental effort (such as homework)
- Loses things (such as toys, homework, pencils or books)
- Forgets things

ADHD – Predominantly Hyperactive/Impulsive Type

Symptoms

- Often on the go
- Acts as if driven by a motor
- Talks excessively
- Fidgets with hands or feet
- Has difficulty waiting turn
- Blurts out answers before questions are completed
- Leaves seat
- Interrupts or intrudes on others
- Runs and climbs excessively

ADHD – Combined Type

Symptoms

- At least 6 Inattentive symptoms, as well as at least 6 Hyperactive/Impulsive symptoms.

Causes of ADHD

- Genetic factors
- Pregnancy and birth complications
- Environmental toxins (early lead exposure or prenatal exposure to alcohol and tobacco smoke)
- Neurotransmitters balance is different when comparing brains of children with and without ADHD.
  - Prefrontal cortex size and operation are different.

ADHD Identification and Assessment

Current best practices requires multiple assessments methods:

- Interviews
- Rating Scales
- Observations
- Academic skills: academic productivity, accuracy, and progress
- Other diagnostic tests, such as neuro-imaging, x-rays, electroencephalograms (EEGs), are not routinely indicated, but may be appropriate in certain patients.

How is ADHD treated?

- Physicians will help in developing a long-term treatment plan.
- Treatment plan may include medication, behavior therapy, individual or family counseling.
- For an ADHD treatment plan to be effective, it's important for parents, doctors, teachers, counselors, and other caregivers to work together.

How is ADHD treated? (continued)

Most common and widely researched treatments for ADHD include psychostimulant medication and behavior modification strategies.

Medication

- Stimulants activate or stimulate the part of the brain that slows down responding.

- Stimulants help children with ADHD regulate their behavior, increase attention, and decrease impulsivity.

Examples: Ritalin, Concerta, Metadate, Methylin, Dexedrine, Cylert, Adderall

How is ADHD treated? (continued)

Medication

Some children do not show improvement taking stimulants (20-30% of children), so other medications may be prescribed.

Examples: Prozac, Tofranil, Anafranil, Paxil, Catepres, Depakote, Strattera

How is ADHD treated? (continued)

Common Medication Side Effects

- Decreased appetite
- Insomnia
- Irritability
- Stomachaches
- Headaches
- Dizziness
- Changes in heart rate and blood pressure

For most children, these side effects last only a short time.

How is ADHD treated? (continued)

Behavioral Intervention

- Indentify specific problem behavior
- Identify desired alternative behavior
- Identify the antecedents (triggers)
- Analyze consequences (What reinforces both desired and undesired behavior?)
- Hypothesize function of behavior
- Function of the problem behavior should guide interventions

How is ADHD treated? (continued)

Behavioral Intervention Examples

- Task duration: Assignments should be brief. Example: lengthy projects should be broken up into manageable parts. Short time limits for task completion should be clearly specified and can be enforced with timers.
- Direct Instruction: Teacher directed activities as opposed to independent seatwork. Frequent teacher feedback.
- Peer tutoring: Match according to gender. Select peer partners with higher academic and behavioral skills. As little as 20 minutes of daily peer tutoring resulted in increased on-task time.

How is ADHD treated? (continued)

Behavioral Intervention Examples

- Scheduling: Academic instruction should be provided in the morning. During the afternoon, more active, non-academic activities should be scheduled. Preferred activities should be scheduled after non-preferred activities.
- Novelty: Present novel, interesting, and highly motivating materials. Increase the novelty by using materials with novel colors, shapes or textures.
- Structure and organization: Lessons should be carefully structured and important points clearly identified.

How is ADHD treated? (continued)

Behavioral Intervention Examples

- Rule reminders and visual cues: Rules well defined, specific, and frequently reinforced. Relying on the child's memory of rules is not sufficient. Visual rule reminders or cues should be placed throughout the classroom. Prompt cards, "Am I doing my work?", "Am I listening?"
- Pacing of work: Allow child to set their own pace for task completion. The intensity of problematic behavior is diminished when work is self-paced.
- Instructions: Short , specific, and direct. Be prepared to repeat directions frequently. Have children rephrase directions in their own words.

How is ADHD treated? (continued)

Behavioral Intervention Examples

- Positive incentives: Appropriate rich positive incentives should be developed to encourage desired behavior. Encouragement, praise, and affection
- Negative consequences: Should be delivered in a way that does not embarrass or put down the child. Limit the use of verbal reprimands.
- Choices: Allow children to choose activities. Children may be given a list of possible tasks to complete and then given choice regarding what task to work on first.

How is ADHD treated? (continued)

Behavioral Intervention Examples

- Productive physical movement: Controlled movement, scheduled stretch breaks.
- Active versus passive involvement: Assign tasks requiring active responses. Example: have child help with audiovisual aids, write important points on the board.

How is ADHD treated? (continued)

Alternative Treatments

- Biofeedback: Trains the individual to control various bodily functions such as heart rate, blood pressure, or muscle tone. Individual is provided real-time feedback about their brainwave activities and taught to use that information to alter brainwave activities.
  - Electromyogram(EMG): Teaches child to become aware of muscle tension and to reduce the tension
  - Electroencephalogram(EEG): Providing feedback to child about their EEG activities and/or muscle tension.

How is ADHD treated? (continued)

Alternative Treatments

- Nutritional supplements: Use of Omega 3 fatty acids and certain anti-oxidants have shown promise
- Caffeine: Self-treatment to increase arousal
- Diet Restrictions:
  - Sugar: not found related to hyperactive behavior
  - Elimination diets: Most children with ADHD do not show marked improvement by restricting carbohydrates, fruits, vegetables, milk, processed foods, foods containing artificial dyes and flavors.

IDEA & ADHD

- May be considered under Other Health Impairment (OHI)
- To qualify, symptoms of ADHD should be chronic and acute health problems.
- To qualify, symptoms of ADHD:
  - Limit strength, vitality, alertness, including heightened alertness to environmental stimuli

    &

  - Limited alertness with respect to the educational environment

Section 504 and ADHD

- For children with an impairment that substantially limits one or more major life activities
- ADHD must affect/limit a life activity. Learning is usually the major life activity associated with ADHD.
- Modifications & accommodations must be offered when child has been identified in need of a 504 plan.

Myths about ADHD

"Beth doesn't need treatment for ADHD. She'll eventually grow out of it."

- Symptoms may change over time, but it is unlikely that ADHD will "go away" on its own.

"ADHD only affects John during school."

- ADHD affects every part of a child's life – at school, at home and in social situations.

"Medicine will change Clyde into someone else."

- The medicine isn't "in control." It improves a child's ability to manage behaviors and impulses. It won't Clyde into someone else.

Myths about ADHD

"Lisa's ADHD isn't real. With better discipline, she wouldn't be hyperactive or inattentive."

- ADHD is a real medical condition that affects children's brain. Research is finding more and more evidence that suggests causes of ADHD doesn't stem from home environment or parenting style, but from biological causes.

"Bill's ADHD won't affect his ability to have friendships with peers."

- ADHD symptoms can have an affect on children's ability to get along with others.

50 CONDITIONS THAT MIMIC ADHD

1. **Hypoglycemia** *(Low Blood sugar)*
2. **Allergies**
3. **Learning disabilities**
4. **Hyper or hypothyroidism**
5. **Hearing and vision problems**
6. **Mild to high lead levels**
7. **Spinal Problems**
8. **Toxin exposures**
9. **Carbon monoxide poisoning**
10. **Seizure disorders**
11. **Metabolic disorders**
12. **Genetic defects**
13. **Sleeping disorders**
14. **Post-traumatic subclinical seizure disorder**
15. **High mercury levels**
16. **High manganese levels**
17. **Iron deficiency**
18. **B vitamin deficiencies**
19. **Excessive amounts of Vitamins**
20. **Tourette's syndrome**
21. **Sensory Integration Dysfunction**
22. **Early-onset diabetes**
23. **Heart disease**
24. **Cardiac conditions**
25. **Early-Onset Bipolar disorder**
26. **CAPD** *(Central Auditory processing Disorder)*
27. **Worms**
28. **Viral or bacterial infections**
29. **Malnutrition or improper diet**
30. **Head injuries**
31. **Dietary factors**
32. **Some disorders such as anemia**
33. **Fetal alcohol syndrome**
34. **Intentionally or unintentionally sniffing materials**
35. **Some drugs** both prescription and illegal
36. **A beta-hemolytic streptococcus,** better known as "strep."
37. **Lack of exercise:** "Hyper Couch Potatoes"

50 CONDITIONS THAT MIMIC ADHD, cont.

38. **Gifted Children:** Bored
39. **Emotional problems**
40. **Some kids are spoiled and undisciplined**
41. **Spirited children**
42. **Lack of understanding and communication skills**
43. **(Rare) Early stage brain tumors**
44. **(Rare) Brain cysts**
45. **(Rare) Temporal lobe seizures**
46. **(Rare) Klinefelter syndrome**
47. **(Rare) Genetic Disorder XYY**
48. **(Rare) Porphyria**
49. **(Rare) Candida Albicans infestation** *(Yeast Infection)*
50. **(Rare) Intestinal parasites**

Research

ADHD Medication Trends

Recent study examined pharmacy claims for the years 2000 to 2005. 2.1 to 2.9 million participants total.

- 4.4% of children were using ADHD medications
- 0.8% of adults were using ADHD medications
- Annual treatment rates increased an average of 12% per year

Additional Research

School-Based Interventions for Students with ADHD: Current Status and Future Directions, George J. DuPaul, Lehigh University

- 579 children diagnosed with ADHD
- All four groups showed significant reductions in ADHD symptoms.
- 4 treatment groups
  - Medication
  - Behavioral Interventions
  - Medication and behavioral interventions
  - Control Group (treatment in community care)
- Greater reduction of symptoms were obtained for the combined group relative to the behavioral group or community group.
- Children in the combined group required a lower mean dosage of medication that did the medication group.

Additional Research

School-Based Interventions for Students with ADHD: Current Status and Future Directions, George J. DuPaul, Lehigh University

Identified Gaps in treatment literature

- Evaluate effects on academic and social functioning
- Assess treatment integrity and acceptability
- Document how the combination of stimulant medication and behavioral interventions can be optimized
- Delineate effective methods for consulting with teachers in designing classroom interventions
- Evaluate the effects of early interventions for adolescents with ADHD

Additional Research

3-year brain lag found in ADHD kids

They can catch up to their peers, says a reassuring study.

New York Times, Associated Press, Published 11/13/07

- Prefrontal Cortex development with children having ADHD reach peak of thickness an average of 3 years behind. (Child with ADHD : 10.5 years of age / 7.5 years of age for children without ADHD)
- Prefrontal Cortex development is involved in decision-making and supports the ability to focus attention, remembering things moment to moment and suppress inappropriate actions.
- Additionally, the study found that primary motor cortex reached peak thickness at age 7.4 in children with ADHD compared to 7.9 in children without the disorder.
- Primary motor cortex early development may contribute to the fidgety behavior characteristics of ADHD.
- This study showed a brain development delay but claims eventually the children catch up.
- The question is, "What have the children with ADHD missed during this time?"

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