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## Learner Outcomes:

- As a result of this course, participants will be able to:
- The participant will be able to accurately list five statistics regarding the prevalence of ADHD.
- The participant will be able to independently describe the screening and diagnosis process for ADHD.
- The participant will be able to list at least three barriers faced by children with ADHD.
- The participant will be able to compare and contrast at least four non-pharmaceutical treatment strategies for ADHD.
- The participant will be able to list at least three existing and potential opportunities for physical therapists and occupational therapists to provide services for individuals with ADHD.

7

## Prevalence, Etiology, Clinical Presentation and Prognosis

8

## What is ADHD? Attention Deficit Hyperactivity Disorder

- One of the most common neurodevelopmental disorders of childhood.
- Children with ADHD may have difficulties with:
  - 1) paying attention
  - 2) controlling impulsive behaviors
  - 3) be overly active
- Neurodevelopmental disorder affecting both children and adults
- This persistent or ongoing pattern of inattention and/or hyperactivity-impulsivity interferes daily life and/or typical development
- Individuals with ADHD may have difficulties with:
  - 1) executive function
  - 2) working memory

• Understanding ADHD for Healthcare Professionals: <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>

• Centers for Disease Control and Prevention. Attention Deficit/Hyperactivity Disorder (ADHD). Facts About ADHD: <https://www.cdc.gov/ncbddd/adhd/facts.html>

9

## What is ADHD?

- Can affect every aspect of an individual's life
- Typically diagnosed during childhood
  - Symptoms can remain through teenage years and into adulthood
- With treatment, children and adults with ADHD can live successful, productive lives.

• Marks, Lynn. January 14, 2016. What is ADHD? Retrieved from: <http://www.everydayhealth.com/adhd/guide/>

10

## ADHD? ADD?

- History:
- Attention deficit disorder (ADD): older term that now refer to as ADHD
- Term ADD was used until 1987 when "hyperactivity" was added to the term in the *Diagnostic and Statistical Manual of Mental Disorders*
- Confusion Today? The terms are sometimes used interchangeably and sometimes using the term ADD refers to an individual who does not display hyperactive, but only has difficulty focusing
- Common Censuses: ADD: an outdated term
  - Using "ADD" term can cause confusion, best practice to use the subtypes of ADHD when describing the individuals condition

• Marks, Lynn. January 14, 2016. What is ADHD? Retrieved from: <http://www.everydayhealth.com/adhd/guide/>

11

## ADHD Prevalence

- ~ 15 million individuals in America have ADHD
  - Understanding ADHD for Healthcare Professionals. Available at: <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>. Accessed January 4, 2017.
- Symptoms can continue into adulthood
  - American Academy of Pediatrics, and Michael I. Reiff. *ADHD: What every parent needs to know*. American Academy of Pediatrics, 2011.

12

## ADHD Prevalence

- In Children

- More common in boys than girls
- Affects ~ 11% school-age children 4-17 years of age (CHADD)

• Marks, Lynn. January 14, 2016. What is ADHD? Retrieved from: <http://www.everydayhealth.com/adhd/guide/>

- In Adolescence

- AAP: ADHD is a chronic condition
- Symptoms continue into adolescence for 60%-80% of individuals diagnosed with ADHD as a child

• American Academy of Pediatrics, and Michael I. Reiff. *ADHD: What every parent needs to know*. American Academy of Pediatrics, 2011.

- In Adults

- Affects ~ 4% of adults in the US (8 million adults)
- Symptoms continue into adulthood for 60% of individuals diagnosed with ADHD as a child

• <https://www.adaa.org/understanding-anxiety/related-illnesses/other-related-conditions/adult-adhd>

13

## ADHD Prevalence

- ~**2 million** of the more than 6 million children with ADHD were diagnosed as young children aged 2-5 years

- Children are diagnosed even earlier with more severe ADHD

• <https://www.cdc.gov/vitalsigns/adhd/>

- In the US, ~11% of children 4-17 years of age (6.4 million) have been diagnosed with ADHD as of 2011

- <https://www.cdc.gov/ncbddd/adhd/data.html>

14

## ADHD Prevalence Increasing in US

- ~11% of children 4-17 years of age (6.4 million) have been diagnosed with ADHD as of 2011
  - 7.8% in 2003, 9.5% in 2007, 11.0% in 2011
- Rates of diagnosis increased:
  - ~3% per year 1997 to 2006
  - ~ 5% per year 2003 to 2011
- Boys were more likely than girls to be diagnosed
  - Boys 13.2%, girls 5.6%
- <https://www.cdc.gov/ncbddd/adhd/features/key-findings-adhd72013.html>

15

## ADHD Prevalence Increasing in US

- Average age of ADHD diagnosis: 7 y.o.
  - Earlier diagnosis when parents report children to have more severe symptoms
- Prevalence of ADHD diagnosis varies substantially state to state:
  - Lowest: 5.6% Nevada
  - Highest: 18.7% Kentucky
  - Your state? <https://www.cdc.gov/ncbddd/adhd/features/key-findings-adhd72013.html>

16

## ADHD Etiology: Unknown

- Research indicates a genetic component
  - ADHD can run in families)
    - recent studies of twins link genes with ADHD
- Possible causes and risk factors being researched are:
  - Brain injury
  - Exposure to environmental (e.g., lead) during pregnancy or at a young age
  - Alcohol and tobacco use during pregnancy
  - Premature delivery
  - Low birth weight

• Facts about ADHD: <https://www.cdc.gov/ncbddd/adhd/facts.html>

17

## ADHD Etiology: Unknown

- Research does not support that ADHD is caused by:
  - eating too much sugar, watching too much television, parenting, or social and environmental factors such as poverty or family turmoil.

• Facts about ADHD: <https://www.cdc.gov/ncbddd/adhd/facts.html>

- More information about Etiology and Risk Factors:
  - Visit the [National Resource Center on ADHD](#).

18

## ADHD Clinical Presentation

- daydream often
- forget or lose things often
- squirm or fidget
- talk too much
- make careless mistakes or take unnecessary risks
- have difficulty resisting temptation
- have difficulty taking turns
- have difficulty getting along with others
- ADHD Symptoms and Diagnosis: <https://www.cdc.gov/ncbddd/adhd/diagnosis.html>

19

## ADHD Clinical Presentation

- **3 Presentations of ADHD:**
- **1) Predominantly Inattentive Presentation:**
  - difficult to organize or finish a task
  - difficult to pay attention to details
  - difficult to follow instructions or conversations
  - easily distracted or forgets details of daily routines

• ADHD Symptoms and Diagnosis: <https://www.cdc.gov/ncbddd/adhd/diagnosis.html>

20



## ADHD Clinical Presentation

- **3 Presentations of ADHD:**
- **2) Predominantly Hyperactive-Impulsive Presentation:**
  - fidgets and talks a lot
  - hard to sit still for long (e.g., for a meal or while doing homework)
    - smaller children may run, jump or climb constantly
  - feels restless and has trouble with impulsivity
  - is impulsive:
    - may interrupt others a lot
    - grab things from people
    - speak at inappropriate times
  - hard wait their turn or listen to directions
  - may have more accidents and injuries than others

• ADHD Symptoms and Diagnosis: <https://www.cdc.gov/ncbddd/adhd/diagnosis.html>

21

## ADHD Clinical Presentation

- **3 Presentations of ADHD:**
- **3) Combined Presentation:**
  - Symptoms of the above two types are equally present in the person.

• ADHD Symptoms and Diagnosis: <https://www.cdc.gov/ncbddd/adhd/diagnosis.html>

- **Looking for a Parent-friendly chart? More Information:**

• <https://www.healthychildren.org/English/health-issues/conditions/adhd/Pages/Diagnosing-ADHD-in-Children-Guidelines-Information-for-Parents.aspx>

22

## ADHD Prognosis

- AAP: ADHD is a chronic condition
- In Adolescence
  - Symptoms continue into adolescence for 60%-80% of individuals diagnosed with ADHD as a child
  - American Academy of Pediatrics, and Michael I. Reiff. ADHD: What every parent needs to know. American Academy of Pediatrics, 2011.
- In Adults
  - Affects ~ 4% of adults in the US (8 million adults)
  - Symptoms continue into adulthood for 60% of individuals diagnosed with ADHD as a child
  - <https://www.adaa.org/understanding-anxiety/related-illnesses/other-related-conditions/adult-adhd>

23

## ADHD Prognosis

- “Persistence of Parent-Reported Attention-Deficit/Hyperactivity Disorder Symptoms from Childhood through Adolescence in a Community Sample” (Holbrook et al 2016)
  - Parents interview conducted over a 6-year period regarding children age 5-13
  - Start: 481 parent interviews completed
  - 379 parents (79%) completed at least one follow up interview
  - Findings:
    - Parents reported fewer ADHD symptoms of hyperactivity and impulsivity as children aged.
    - Parents continued to report into adolescence ADHD symptoms of inattention (i.e. being forgetful or easily distracted).
  - Bottom Line: certain ADHD symptoms can often last into adolescence; healthcare providers and parents should be aware that inattentive symptoms can cause difficulty at school, at home, or with friends, and later with work

24

## ADHD Prognosis

- Adult ADHD can cause problems with relationships, work performance, and self-esteem.
- For some individuals symptoms improve as they age, while other individuals continue to struggle with symptoms

• Marks, Lynn. January 14, 2016. What Is ADHD? Retrieved from: <http://www.everydayhealth.com/adhd/guide/>

- ADHD throughout the lifespan:
  - [National Resource Center on ADHD](#)
  - [National Institutes of Mental Health](#)

25

## The Screening and Diagnosis Process

26

## ADHD: Diagnosis

- Prevalence rates have been increasing for more than a decade
- Diagnosis of ADHD in preschool and adolescent children is increasingly common
- More US Food and Drug Administration (FDA)-approved ADHD medications and formulations than ever before
- Knowing when and how to diagnose and treat ADHD so that children with ADHD and their families may be sufficiently supported is critical

• Visser- New Guidance on ADHD for Clinicians. *Medscape*. Mar 12, 2012.

27

## ADHD: Diagnosis

- ADHD is the most commonly diagnosed developmental-behavioral condition in children, affecting 6%-9% of school aged children
  - American Academy of Pediatrics, and Michael I. Reiff. *ADHD: What every parent needs to know*. American Academy of Pediatrics, 2011.
- Diagnostic experiences of children with attention-deficit/hyperactivity disorder. National Health Statistics Report (Visser et al 2015)
- ~¾ of children with ADHD were diagnosed before age 9
- 1/3 of children with ADHD were diagnosed by age 6
- A family member was usually the 1<sup>st</sup> person concerned about a child's behavior (64.7%)
- In 1/3, an individual from the child's school/daycare was the 1<sup>st</sup> person concerned (30.1%)

28

## ADHD: Diagnosis

- Diagnosis: Several step process
- No single test to diagnose ADHD
  - Difficulty: Many other conditions, i.e. anxiety, depression, and certain types of learning disabilities, can have similar symptoms.
- Some Steps:
  - Medical exam, including: hearing and vision tests
  - Checklist for rating ADHD symptoms
  - Taking a history of the child from parents, teachers, and others who know the child well

• ADHD Symptoms and Diagnosis: <https://www.cdc.gov/ncbddd/adhd/diagnosis.html>

29

## ADHD: Diagnosis

- CDC recommends: If a parent has concerns about ADHD:
- 1) Gain Knowledge of ADHD Symptoms and Diagnosis and get help for ADHD as early as possible
- 3) Contact Professionals: to find out if the symptoms fit the diagnosis
  - Complete a [symptoms checklist](#) and take it to the child's doctor
    - the child's doctor can also determine whether the child has another condition that can either explain the symptoms better, or that occurs at the same time as ADHD
  - Contact the local early intervention agency or public school
    - American Academy of Pediatrics (AAP) recommends that healthcare professionals ask parents, teachers, and other adults who care for the child about the child's behavior in different settings, like at home, school, or with peers
- 4) Utilize Resources: i.e. CDC sponsors the [National Resource Center on ADHD](#)

• ADHD Symptoms and Diagnosis: <https://www.cdc.gov/ncbddd/adhd/diagnosis.html>

30

## ADHD Rating Scales and Checklist for Children, Teens, and Adults

- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals/Clinical-Practice-Tools.aspx>
- <https://www.cdc.gov/ncbddd/adhd/checklist.html>

31

## ADHD: Tips for Sharing Concerns

- Sharing Concerns: Parent to Physician
  - [http://www.firstsigns.org/concerns/parent\\_doc.htm](http://www.firstsigns.org/concerns/parent_doc.htm)
- Sharing Concerns: Parent to Parent:
  - [http://www.firstsigns.org/concerns/parent\\_parent.htm](http://www.firstsigns.org/concerns/parent_parent.htm)
  - Elaborate on this
- Sharing Concerns: Physician to Parent:
  - [http://www.firstsigns.org/concerns/doc\\_parent.htm](http://www.firstsigns.org/concerns/doc_parent.htm)

32

## ADHD: Diagnosis

- The American Psychiatric Association's Diagnostic and Statistical Manual, Fifth edition (DSM-5)
  - Used by healthcare professionals to help diagnose ADHD
  - Provides a diagnostic standard
    - ensuring individuals are properly diagnosed and treated for ADHD
    - using the same standard across communities assists in establishing how many children have ADHD and how public health is impacted by this condition
- Checklist: Signs and Symptoms of ADHD: <https://www.cdc.gov/ncbddd/adhd/checklist.html>

33

## ADHD: Diagnosis

- Changes made to the DSM-5 for the diagnosis of ADHD:
  - **Including Teen and Adult ADHD:**
    - Symptoms can now occur by age 12 rather than by age 6
    - For adults and adolescents age 17 or older, only 5 symptoms are needed instead of the 6 needed for younger children
  - **Symptom description:** New descriptions were added: to show what symptoms might look like at older ages
  - **Severity:** clinicians now need to specify whether a person has mild, moderate or severe ADHD
  - **Pervasive presentation:** Several symptoms of ADHD now need to be present in more than one setting
- Checklist: Signs and Symptoms of ADHD: <https://www.cdc.gov/ncbddd/adhd/checklist.html>
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>

34

## DSM-5 Criteria for Diagnosing ADHD

- Key: 1<sup>st</sup> rule out other conditions that may be the true cause of the symptoms
- In children and teenagers: symptoms must be more frequent or severe compared to other children the same age
- In adults: symptoms must affect the ability to function in daily life and persist from adolescence
- Behaviors must create significant difficulty in at least 2 areas of life, such as home, social settings, school or work
- Symptoms must be present for at least 6 months
- DSM-5 identifies 3 presentations of ADHD, depending on the presence or absence of particular symptoms
- To be diagnosed with ADHD, **children must have 6 or more of the 9 characteristics** and **older teens or adults must have at least 5 of the 9 characteristics** in either or both of the DSM-5 categories listed below.
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>

35

## DSM-5: Characteristics ADHD - Predominantly Inattentive Presentation

- Often fails to give close attention to details or makes careless mistakes in schoolwork, at work or during other activities
- Often has difficulty sustaining attention in tasks or play activities
- Often does not appear to listen when spoken to directly
- Often does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace
- Often has difficulty organizing tasks and activities
- Often avoids, dislikes or is reluctant to complete tasks that require sustained mental effort
- Often loses things necessary for tasks or activities
- Is often easily distracted by extraneous stimuli
- Is forgetful in daily activities
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>

36



## DSM-5: Characteristics ADHD - Predominantly Hyperactive/Impulsive Presentation

- Fidgets with hands or feet or squirms in chair
- Has difficulty remaining seated
- Runs about or climbs excessively in children; extreme restlessness in adults.
- Difficulty engaging in activities quietly
- Acts as if driven by a motor; adults will often feel internally as if they were driven by a motor
- Talks excessively
- Blurts out answers before questions have been completed
- Difficulty waiting or taking turns
- Interrupts or intrudes upon others

• <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>

37

## DSM-5: Characteristics ADHD - Combined Presentation

- Individual meets both sets of inattention and hyperactive/impulsive criteria

• <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>

38

## AAP Guidelines: Important Changes to the Guideline

- *Expanded age range of coverage:* covers children 4-18 years of age
- *Expanded Scope*
- *A Process of Care for Diagnosis and Treatment.* includes an [algorithm to guide](#) evaluation, diagnosis, treatment, and monitoring of ADHD in children and adolescents
- *Integration with the Task Force on Mental Health*
- The guideline represents a single set of recommendations for diagnosis, evaluation, and treatment of ADHD
- <https://www.cdc.gov/ncbddd/adhd/guidelines.html>

39

## AAP Guidelines: Important Changes to the Guidelines Used To Confirm ADHD Diagnosis

- Symptoms occur in 2 or more settings, such as home, school, and social situations, and cause some impairment
  - primary care clinician should include reports from parents or guardians, teachers, and/or other school and mental health clinicians involved in the child's care.
- In a child 4 to 17 years of age, 6 or more symptoms must be identified
- In a child 17 years and older, 5 or more symptoms must be identified
- Symptoms significantly impair the child's ability to function in some of the activities of daily life, i.e. schoolwork, relationships with parents and siblings, relationships with friends, or the ability to function in groups such as sports teams

- <https://www.cdc.gov/ncbddd/adhd/guidelines.html>
- <https://www.healthychildren.org/English/health-issues/conditions/adhd/Pages/Diagnosing-ADHD-in-Children-Guidelines-Information-for-Parents.aspx>

40

## AAP Guidelines: Important Changes to the Guidelines Used To Confirm ADHD Diagnosis

- Symptoms start before the child reaches 12 years of age (these may not be recognized as ADHD symptoms until a child is older)
  - Symptoms have continued for more than 6 months
  - The primary care clinician should also exclude any other possible cause for the symptoms.
  - The primary care clinician should assess whether other conditions are present that might coexist with ADHD, including emotional or behavioral, developmental, and physical conditions
  - The primary care clinician should recognize ADHD as a chronic (long-standing) condition and, therefore, consider children and adolescents with ADHD as children and youth with special health care needs.
- <https://www.cdc.gov/ncbddd/adhd/guidelines.html>
  - <https://www.healthychildren.org/English/health-issues/conditions/adhd/Pages/Diagnosing-ADHD-in-Children-Guidelines-Information-for-Parents.aspx>

41

## ADHD: Diagnosis:

- New Guidance on ADHD for Clinicians
  - [CDC Expert Video Commentary Series](#) on Medscape.
  - <http://www.medscape.com/viewarticle/759086>

42

## ADHD: Without Diagnosis and Treatment

- May have serious consequences including:
  - school failure
  - family stress and disruption
  - depression
  - problems with relationships
  - substance abuse
  - delinquency
  - accidental injuries
  - job failure
- Understanding ADHD for Healthcare Professionals. Available at: <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>. Accessed January 4, 2017.

43

## Barriers Faced by Children with ADHD

44

## ADHD affects.....

- ADHD in Children
- Symptoms typically cause problems at home, at school, or in social situations
- Parents and teachers may mistake signs of ADHD for emotional or behavioral problems
- ADHD in Adults
- Had the disorder as children, but it may not have been diagnosed
- Can cause problems with relationships, work performance, and self-esteem
- Many adults who have ADHD are unaware they have it; only knowing that everyday tasks are challenging
- Symptoms may improve with age, some continue to struggle

Marks, Lynn, January 14, 2016. What is ADHD? Retrieved from: <http://www.everydayhealth.com/adhd/guide/>

45

## ADHD: can have effects on...

- Learning
- Ability to regulate behavior
- Social skills
- Self esteem
  - American Academy of Pediatrics, and Michael I. Reiff. *ADHD: What every parent needs to know*. American Academy of Pediatrics, 2011.
- Leads to.....higher rates of grade retention, high school dropout, unintentional injuries, and emergency department visits.
  - Vital Signs: National and State-Specific Patterns of Attention Deficit/Hyperactivity Disorder Treatment Among Insured Children Aged 2–5 Years — United States, 2008–2014. Visser et al 2016
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46

## 5 Ways ADHD Can Affect Your Child's Social Life

- 1) Difficulty making friends (interrupt., do not notice how their behavior affects others)
- 2) Quickly loses friends (Intense/demanding- difficulty with turn taking , compromise)
- 3) Struggles with Conversation (become side tracked, misinterpret)
- 4) Overreacts to situations (struggles with self control)
- 5) Difficulty with planning and follow through (difficulty with playing games and group projects)
- Result- a more pessimistic view of his/her social world
- <https://www.understood.org/en/learning-attention-issues/child-learning-disabilities/add-adhd/5-ways-adhd-can-affect-your-childs-social-life>
- Grygiel et al 2014

47

## Problems with Peer Relationship/ Peer Impairment (Hoza et al 2007)

- 1) having positive peer relationships is developmentally important for *all* children, whether ADHD or not
- 2) low acceptance or rejection by peers places children at risk for a host of serious negative outcomes
- 3) peer impairment is present in both boys and girls with ADHD
- 4) once rejected, overcoming a negative reputation with peers is extremely difficult
- 5) once labeled "ADHD" by peers, a negative process is set in motion whereby children suffer more negative treatment by peers
- 6) treatment of peer problems in children with ADHD is extremely difficult –yet to identify a treatment method that normalizes the peer functioning of children with ADHD.

48

## Academic and Educational Outcomes of children with ADHD Loe et al 2007

- ADHD: associated with poor grades, poor reading and math standardized test scores, and increased grade retention
- ADHD: associated with increased use of school-based services, increased rates of detention and expulsion, and ultimately with relatively low rates of high school graduation and postsecondary education.
- With or without the Diagnosis: children in community samples who show symptoms of inattention, hyperactivity, and impulsivity with or without formal diagnoses of ADHD also show poor academic and educational outcomes.
- Pharmacologic treatment and behavior management are associated with reduction of the core symptoms of ADHD and increased academic productivity, but not with improved standardized test scores or ultimate educational attainment.

49

## ADHD Complications

- Untreated ADHD can lead to complications, including:
- Academic failure, Poor self-esteem, Accidents and injuries, alcohol or drug addiction, Delinquent behavior, Trouble interacting with peers, Coexisting Conditions
- Children with ADHD may also be more likely to have other conditions, such as:
- Anxiety disorders, Learning disabilities, Depression, Increased injuries, Bipolar Disorder, Behavioral problems, Oppositional defiant disorder (ODD), Conduct disorder, Tourette syndrome, Sleep disorders, Bed-wetting, Peer Problems

- CDC: ADHD Other Concerns and Complications <https://www.cdc.gov/ncbddd/adhd/conditions.html>
- <http://www.webmd.com/add-adhd/childhood-adhd/news/20110206/kids-with-adhd-often-have-other-problems#1>
- Marks, Lynn. January 14, 2016. What Is ADHD? Retrieved from: <http://www.everydayhealth.com/adhd/guide>

50

## Motor Coordination Problems in Children and Adolescents with ADHD (Fliers et al)

- Reported in 1/3 of children with ADHD
- Affected both boys and girls
- Also apparent in adolescents with ADHD
- Take Home: Clinicians treating children with ADHD should pay attention to co-occurring motor coordination problems because of the high prevalence and the negative impact of motor coordination problems on daily life

51

## Understanding ADHD for Healthcare Professionals

- Professionals who work with people affected by ADHD include physicians; psychologists; social workers; nurses; therapists; teachers; coaches; and other individuals
- Each professional can play a vital role in the comprehensive assessment; treatment and management of ADHD
- With identification, proper treatment and management, individuals with ADHD can lead successful lives and even thrive.
- Key to Success: Having the help of a **team of professionals**
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>.

52



## Treatment of ADHD

53

## Pharmaceutical Treatment of ADHD

54

## ADHD Treatment: Getting Parents Started

- **Team Approach:** with everyone involved in the child's life—healthcare providers, therapists, teachers, coaches, and other family members, etc
- **Gain Knowledge:** Utilize all of the resources available will help parents guide their child towards success.
- **Consider Treatment Options for ADHD:**
  - Behavior therapy, including training for parents
  - Medications
  - School accommodations and interventions
- **AAP Treatment Recommendations:**
  - Children 6 years of age and older, both behavior therapy and medication, preferably both together.
  - For children under 6 years of age, behavior therapy as the first line of treatment, before medication is attempted
    - Closely monitor treatment effectiveness and adjust accordingly

• <https://www.cdc.gov/ncbddd/adhd/treatment.html>

55

## Behavior Therapy?

- **Goal:** learn or strengthen positive behaviors and eliminate unwanted or problem behaviors
- Parent Training and usage of behavior therapy: help reduce problem behaviors at home
- School staff usage of behavior therapy: help reduce problem behaviors in classroom
- **Parent training in behavior therapy:** parents learn new skills or strengthen their existing skills to teach and guide their children and to manage their behavior
  - shown to strengthen the relationship between the parent and child, and to decrease children's negative or problem behaviors
  - AKA: behavior management training for parents, parent behavior therapy, behavioral parent training, or just parent training
- **Behavior therapy with children:** child learns new behaviors to replace behaviors that cause problems
  - help child learn to express feelings in ways that do not create problems for the child or other people

• <https://www.cdc.gov/ncbddd/adhd/treatment.html>

56

## Behavior Therapy First

- Behavior therapy for young children: Training for parents
- [2011 clinical practice guidelines from the American Academy of Pediatrics \(AAP\)](#) recommend that doctors prescribe behavior therapy as the 1<sup>st</sup> line of treatment for preschool-aged children (4–5 years of age) with ADHD.
- Parent training in behavior therapy has the most evidence of being effective, but teachers and early childhood caregivers can use behavior therapy in the classroom as well.
- Visser et al 2016, <https://www.cdc.gov/ncbddd/adhd/treatment.html>, <https://www.cdc.gov/ncbddd/adhd/guidelines.html>

57

## Why Try Behavior Therapy First?

- Behavior therapy is an important first step because:
  - gives parents the skills and strategies to help their child
  - has been shown to work as well as medication for ADHD in young children
  - young children have more side effects from ADHD medications than older children
  - long-term effects of ADHD medications on young children have not been well-studied
- <https://www.cdc.gov/ncbddd/adhd/guidelines.html>
- <https://www.cdc.gov/ncbddd/adhd/treatment.html>

58

## Evidence for Parent Training in Behavior Therapy for Young Children

- Agency for Health Care Research and Quality (AHRQ) conducted a review in 2010 of all existing studies on treatment options for children less than 6 years of age:
  - Findings: evidence of parent training in behavior therapy as a good treatment option for children less than 6 with ADHD symptoms and for disruptive behavior, in general.
- Other effective intervention for young children:
  - [Helping the Non-Compliant Child](#)
  - Programs that focus on: helping parents strengthen parent-child relationships and manage negative behavior with positive discipline
- <https://www.cdc.gov/ncbddd/adhd/treatment.html>

59

## Evidence: Behavior Therapy and School Programs for School Age Children and Adolescents (6+)

- For children over the age of 6: behavior therapy is an important part of treatment
  - AAP recommends behavior therapy (home & school) together with medication
- Parent training in behavior therapy, may also be effective for children with disruptive behavior through age 12
- For adolescents (12–18 years of age): medications and behavior therapy, preferably together

<https://www.cdc.gov/ncbddd/adhd/treatment.html> and <https://www.cdc.gov/ncbddd/adhd/guidelines.html>

60

## Evidence: Behavior Therapy and School Programs for School Age Children and Adolescents (6+)

- Research evidence points to the effectiveness of several types of behavior therapies for older children:
  - Parent training in behavior therapy
  - Classroom behavior management
  - Peer interventions that focus on behavior
  - Organizational skills training
  - Combinations of behavior treatments
- Recommendation: School Programs to be Part of Any Treatment Plan: includes school environment, school program, and placement
  - i.e. classroom adaptations, preferred seating, modified work assignments, movement breaks, and test modifications (such as location for taking the test and extended test time), behavior plans and/or special education

<https://www.cdc.gov/ncbddd/adhd/treatment.html> and <https://www.cdc.gov/ncbddd/adhd/guidelines.html>

61

## ADHD: Medication Can Help

- According to the CDC:
- Medication Can Help:
  - Help with initiation and completion of tasks in everyday life
  - Effective way to manage ADHD symptoms
  - May help control behavior problems that impact relationships with family, friends and at school

• <https://www.cdc.gov/vitalsigns/adhd/> and <https://www.cdc.gov/ncbddd/adhd/treatment.html>

62

## Types of medications (FDA Approved to Treat ADHD in Children)

- **Stimulants:**
  - Best-known and most widely used ADHD medications
  - Fast-acting
  - 70-80% of children with ADHD have fewer ADHD symptoms when they take these
- **Nonstimulants:**
  - Approved for treating ADHD in 2003
  - Do not work as quickly as stimulants, but can last up to 24 hours
- **Note: Medications can affect children differently**
  - Doctors may need to try different medications and doses
- For more information: [National Resource Center on ADHD](#) and [National Institute of Mental Health](#)
- <https://www.cdc.gov/ncbddd/adhd/treatment.html>

63

## ADHD and Medication Side effects

- Poor appetite
- Stomach aches
- Irritability
- Sleep problems
- Slowed growth
- \*\*\*Long-term effects of ADHD medicine on young children are not known
- <https://www.cdc.gov/vitalsigns/adhd/>

64

## Treatment of ADHD Among Children with Special Health Care Needs (Visser et al 2015)

- Medication and Behavior Treatment Among Children Ages 4-17 Years (Survey Data)
- National sample of children with special health care needs (ages 4-17), collected in 2009-10
- Findings: **most** children with ADHD received either medication treatment or behavior therapy; many were **not** receiving treatment as described in the AAP best practice guidelines 2011
- Less than 1 in 3 children with ADHD received both medication treatment and behavior therapy (preferred treatment approach for children ages 6 and older)
- Only half of preschoolers (age 4-5) with ADHD received behavior therapy, the recommended first-line treatment for this age group
- About half of preschoolers with ADHD were taking medication for ADHD, and about 1 in 4 were treated only with medication

65

## National Patterns of ADHD Treatment Among Insured Children Aged 2–5 Years in the US 2008–2014. (Visser et al 2016)

- Just over **75% of young children** (with either Medicaid or employer-sponsored insurance) in clinical care for ADHD **received ADHD medication for treatment**
- **However** only about 54% of the young children in Medicaid and 45% of the children with employer-sponsored insurance (2011) annually received psychological services (including parent training in behavior therapy)
  - The percentage of young children with ADHD receiving psychological services also has not increased over time
- \*\*\*Increased parent training in behavioral therapy could lead to improved management of ADHD in young children without the side effects of ADHD medication

66

## Non-Pharmaceutical Treatment Strategies and Resources

67

## Understanding ADHD for Healthcare Professionals

- Professionals who work with people affected by ADHD include physicians; psychologists; social workers; nurses; therapists; teachers; coaches; and other individuals
- Each professional can play a vital role in the comprehensive assessment; treatment and management of ADHD
- With identification, proper treatment and management, individuals with ADHD can lead successful lives and even thrive.
- Key to Success: Having the help of a **team of professionals**
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals.aspx>.

68



## Behavior Therapy for Children with ADHD

- Can improve a child's behavior, self-control, self-esteem
- Most effective when delivered by parents
- When parents become trained in behavior therapy, they learn skills and strategies to help their child with ADHD succeed at school, at home, and in relationships
- Behavior therapy, given by parents and with the support of healthcare providers, teaches children to better control their own behavior, leading to improved functioning at school, home and in relationships
- Has lasting benefits for the child

• <https://www.cdc.gov/ncbddd/adhd/behavior-therapy.html>

69

## Behavior Therapy: Parent Training

- 8 or more sessions with a therapist, involving groups or individual families
- Therapist meets regularly with the family to review their progress, provide support, and adjust strategies as needed to ensure improvement
  - Parents practice with their child between sessions
- **Parents learn how to:**
- Strengthen the relationship with their child through **positive communication**, for example, active listening and describing emotions
- **Reinforce good behavior**, for example, giving positive attention and effective praise for good behavior
- **Create structure and provide consistent discipline**, for example, giving effective instructions, withholding attention for unwanted behavior, and effective use of time-out

• <https://www.cdc.gov/ncbddd/adhd/behavior-therapy.html>

70

## A Team Approach (Reiff 2011)

- Build the Team:
  - Parents
  - Child
  - Medical team
  - Teachers
  - Others who know and work with the child
- The Team's Job:
  - Analyze the child's functioning
    - Do his/her symptoms seriously affect the following?
      - Behavior
      - Learning
      - Social skills
      - Self esteem
    - And if so.....in which setting(s).....home? school? Other setting(s)?
    - And.....how?

71

## Analyze the child's functioning

Completed By: _____	Behavior	Learning	Social skills	Self esteem	Notes	Notes
Home						
School						
Extra-Curricular Activities						
Other: _____						

72

## Evidence: Behavior Therapy and School Programs for School Age Children and Adolescents (6+)

- Research evidence points to the effectiveness of several types of behavior therapies for older children:
  - Parent training in behavior therapy
  - Classroom behavior management
  - Peer interventions that focus on behavior
  - Organizational skills training
  - Combinations of behavior treatments
- Recommendation: School Programs to be Part of Any Treatment Plan: includes school environment, school program, and placement
  - i.e. classroom adaptations, preferred seating, modified work assignments, movement breaks, and test modifications (such as location for taking the test and extended test time), behavior plans and/or special education

<https://www.cdc.gov/ncbddd/adhd/treatment.html> and <https://www.cdc.gov/ncbddd/adhd/guidelines.html>

73

## ADHD and the Classroom Strategies

- Make assignments clear – check with the student to see if they understood what they need to do
  - Give positive reinforcement and attention to positive behavior
  - Make sure assignments are not long and repetitive.
  - Allow time for movement and exercise
  - Communicate with parents on a regular basis
  - Use a homework folder to limit the number of things the child has to track
  - Be sensitive to self-esteem issues
  - Minimize distractions in the classroom
- <https://www.cdc.gov/ncbddd/adhd/treatment.html>

74

## Tips for Teachers

- Classroom Management
- Creating a Positive Dialogue with Parents
- Classroom Accommodations
  - Know the Difference Between School Accommodations, Modifications and Intervention
- Instructional Processes
- Executive Functions in the Classroom
- Homework
  - Tailoring Homework to Make a Difference
- Social Skills
- Educational Rights
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Teacher-Training-on-ADHD.aspx>
- CHADD's National Resource Center on ADHD video series Tips for Teachers: <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Tips-for-Teachers-Video-Series.aspx>

75

## Classroom Accommodations

- Accommodations are intended to help students with ADHD learn the same information as other students
- Changes to the structures and/or the environment that provide support to help students access the curriculum
- Key: observe the student to see which accommodations are effective (effectiveness of accommodations can change over time)
  - Empower students to help figure out what helps them the most
    - Accommodations thus are seen as support instead of punishment
    - Team approach: school staff , parents, and students should partner together to address needs and supports
- Work best when individualized based on the needs of the student and the severity and symptoms of his/her ADHD and any other co-occurring conditions
  - Consider DSM-5 symptom categories : inattentive and hyperactive-impulsive
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Accommodations.aspx>

76

## Classroom Accommodations: Inattentive Symptoms

- Seating the student in an area with fewer distractions (i.e. near the teacher's desk, away from windows and the doorway)
- Seating the student next to positive role models, peers who are less likely to provide distractions and can help them stay on task
- Breaking long assignments into smaller parts (students can see both the start and end of the task)
- Making sure all assignments are clear and provided in writing in addition to giving them out loud
- Checking with the student before they complete an assignment to see if they heard and understood instructions. Ask them to repeat it back to verify understanding
- Allowing them to take tests in a different room, one that is quiet and has few distractions. Or using aids such as headphones or privacy boards to create quiet spaces in the classroom
- Giving more time to complete assignments, projects, and tests

• <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Accommodations.aspx>

77

## Classroom Accommodations: Inattentive Symptoms

- Using a timer or alarm to help with time management (timer apps, sand timers, visual timers)
- Providing break. (i.e.. stretching, walking to the board to complete a task, or handing out assignments or materials)
- Limiting repetitive assignments "busy work", especially when the material has already mastered, or tasks that are too far above the student's level. Students are most able to pay attention to tasks that present some challenge but are within their current learning zone
- **Making sure that the student has the opportunity for physical activities because active movement increases the ability to focus. Recess should never be taken away as a punishment for misbehavior.**
- Providing tools to help with organization, such as different colored folders, a notebook with dividers, or a homework assignment book, clear backpack
- Using computers or tablets for work. Computers are visually stimulating and allow for more engagement and also help students organize their thoughts

• <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Accommodations.aspx>

78

## Classroom Accommodations: Hyperactive-Impulsive Symptoms

- Seating the student in an area of the room where there will be the least disruption. This might be towards either side of the classroom rather than the center
- Allowing for the student to move around. You could allow the student to do their work while standing, sitting on the floor, or moving between desks (i.e. movement cushion, stability balls)
- Pairing the student with a peer who is a good role model and can model appropriate behavior.
- Providing activity breaks. Depending on the student, these could include stretching, walking to the board to complete a task, or handing out assignments or materials.
- Ignoring minor misbehavior.

• <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Accommodations.aspx>

79

## Classroom Accommodations: Hyperactive-Impulsive Symptoms

- Allowing the student to move or fidget in a non-distracting manner. They might tap their foot in the air or rotate their pen back and forth in their hands. Asking the student to offer suggestions is always a great way to get more ideas.
- Allowing them to take tests in a different room. One that is quiet, has few distractions, and lets them move around without interrupting other students.
- Praising when they exhibit appropriate behavior such as raising their hands and waiting to be called.
- Limiting repetitive assignments, particularly those the students has already mastered, or tasks that are too far above the student's level. Fidgeting is often a symptom of boredom or overstimulation.
- **Making sure that the student has the opportunity for physical activities. Recess should never be taken away as a punishment for misbehavior.**
- Using a speaking stick or other object that gets passed around during class discussions as a cue to indicate whose turn it is to speak.

• <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Accommodations.aspx>

80

## Executive Function

- The brain's executive functions organize, activate, focus, integrate and direct, allowing the brain to perform both routine and creative work.
- The components of executive functioning that impact school or work:
- working memory and recall (holding facts in mind while manipulating information; accessing facts stored in long-term memory)
- activation, arousal and effort (getting started; paying attention; completing work)
- emotion control (tolerating frustration; thinking before acting or speaking)
- internalizing language (using self-talk to control one's behavior and direct future actions)
- complex problem solving (taking an issue apart, analyzing the pieces, reconstituting and organizing them into new ideas)
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Accommodations/Executive-Functioning.aspx>

81

## Social Skills

- Create a positive learning environment
- Praise the student for good behavior more often than punishing for bad
  - Give encouragement and reassurance
  - Let the student hear he/she is succeeding (peers too)
  - Frequent but brief feedback that lets the student know they are on the right track is often very effective
- Work with students to set up a private signal, either visually or verbally, to help them recognize when their behavior is bordering on inappropriate
  - When prompting behavior you want it to be a reminder not a scolding (item on wall, teachers desk, teacher picks up certain pencil)
- Promote self-awareness
  - Ask students to describe the problem or issue they are having
  - Ask them why they think it is happening and how they can change their behavior
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Accommodations/Social-Skills.aspx>

82

## Social Skills

- Give opportunities for group or paired learning
  - provides a structured setting for students to interact with peers
- Provide opportunities for other students to see them in a positive light
  - i.e. ask the student to help you with a task, give her a leadership role in the class for a day, tap into student's strengths/interests
- Provide feedback in 1 on 1 settings
  - Private feedback preserve self-esteem
  - Can reinforce positive behavior
  - Student can practice having a conversation with you to improve social skills

• <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Accommodations/Social-Skills.aspx>

83

## Classroom Management:

- Rules and routines are well known by the students and consistently followed
- Transitions among lessons and activities are smooth
- Teacher gives the impression that the he or she is aware of all activities by students in the classroom
- Meet the educational and personality needs of each students, regardless of the students' abilities and special needs.
- How to prevent behavior related to ADHD symptoms:
  - the physical environment of the classroom: minimize distractions
  - establish and practice the rules and procedures for routines and classroom tasks
  - organize lesson plans and instruction to minimize interruptions
  - increasing teacher awareness in the classroom by letting students know you are aware of their actions at all times

• <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Classroom-Management.aspx>

84



## Instructional Process

- Introducing Lessons: consistent structure and sequence day to day
  - Summarize the activities of the whole lesson visually and verbally
  - Present learning objectives in many ways (copy from board, stomp and say out loud)
  - Describe behavior expectations
  - List materials
  - Include time limits
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Instructional-Process.aspx>

85

## Instructional Process

- Teaching the Lesson
  - Stick to the plan (how you introduced the lesson)
  - Review the previous lesson
  - Provide guidance to stay focused
  - Check for understanding
  - Give students enough time
  - Provide extra support
  - Break work into small steps
  - Incorporate assistive technology
  - Provide time reminders and model how to pace (5 minutes to complete 2 questions)
- Ending the Lesson
  - Summarize key points
  - Review take-home assignments
  - Smooth transitions
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Instructional-Process.aspx>

86

## Homework

- Establish a designated homework space to help create an organized and comfortable homework space (similar the set up at school)
  - Needs to be near the parent/adult to minimize distractions (i.e. kitchen table, desk, or space on the floor)
- Create a Habit: children can get into the homework habit each time they sit down at their space to do their homework.
  - begin to associate that space with being focused and productive
- Involve child in setting up the homework space to help figure out what works best for him or her early in the school year/over the summer
- Make sure child has all the necessary materials to do his or her homework (paper, binders, calculator, rulers, pencils, pens and erasers)
- Color-coded folders help remind your child what goes where. Stay home bin, go back to school bin
- Floor or sofa studier? Use a portable homework station like a basket with supplies that travels with the child
- Remove or minimize things that distract or cause stress (face away from the doors/windows, TV, siblings)
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Homework.aspx>

87

## Homework

- Keep pets in another room
- Good lighting
- Declutter the area
- Provide a timer or a silent clock to help your child know the difference between work time and break time
- Child may work better with predictable background noise or music without words than complete silence
- Some children work better if they are able to stand or move around/walk while doing activities such as reading, memorizing, or being quizzed
- Reassess as needed: periodically check to see what's working for the child in their homework space as well as what's successful at school work space
- <http://www.help4adhd.org/Understanding-ADHD/For-Professionals/For-Teachers/Homework.aspx>

88

## Educational Rights

- Child Find, public school systems, some private schools, colleges and universities are required to help students with ADHD and other disabilities rise to meet educational challenges
- Children with ADHD, may face many challenges in a traditional school setting and may qualify for educational services and accommodations, even if their needs are minor
  - **Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act of 1973:** designed to ensure that students with disabilities receive equal access to education and school activities
- [\*Educational Rights for Children with Attention-Deficit/Hyperactivity Disorder \(ADHD\): A Primer for Parents\*](#) (both English and Spanish)

- <http://www.help4adhd.org/Understanding-ADHD/For-Parents-Caregivers/Education.aspx>
- <https://www.cdc.gov/ncbddd/adhd/treatment.html>

89

## Tips for Parents

- **Create a routine.** Try to follow the same schedule every day, from wake-up time to bedtime
- **Get organized.** Encourage your child to put schoolbags, clothing, and toys in the same place every day, less likely to lose them
- **Manage distractions.** Turn off the TV, limit noise, and provide a clean workspace when your child is doing homework. Some children with ADHD learn well if they are moving, or listening to background music.
- **Limit choices.** Offer choices between a few things so that your child doesn't get overwhelmed and overstimulated. (i.e. 2 outfit, 2 snack choices)
- **Be clear and specific when you talk with your child.** Use clear, brief directions when they need to do something.

- <https://www.cdc.gov/ncbddd/adhd/treatment.html>

90

## Tips for Parents

- **Help your child plan.** Break down complicated tasks into simpler, shorter steps. For long tasks, starting early and taking breaks may help limit stress.
- **Use goals and praise or other rewards.** Use a chart to list goals and track positive behaviors, praise and reward with nontangible rewards (i.e. extra minutes of playing outside, extra computer minutes, trip to park). Set realistic goals
- **Discipline effectively.** Instead of yelling or spanking, use timeout or removal of privileges as consequences for inappropriate behavior.
- **Create positive opportunities.** Finding out and encouraging what your child does well — whether it's school, sports, art, music, or play — can help create positive experiences. (use Interest inventories)
- **Provide a healthy lifestyle.** Healthy food and physical activity, sufficient sleep are important in keeping ADHD symptoms from getting worse

• <https://www.cdc.gov/ncbddd/adhd/treatment.html>

91

## Managing Symptoms: Staying Healthy

- Eat a healthy diet: fruits, vegetables, whole grains, legumes, lean protein sources, and nuts and seeds
- Participating in physical activity for at least 60 minutes each day
- Limit daily amount of screen time: TVs, computers, phones, etc.
- Getting the recommended amount of sleep each night based on age

• <https://www.cdc.gov/ncbddd/adhd/facts.html>

92

## Summary: Non-Pharmaceutical Treatment Strategies and Resources

- Team Approach
- Behavior Therapy:
  - Positive Communication
  - Positive Reinforcement
  - Structure and Discipline
- School Programming:
  - Classroom Accommodations
  - Executive Functioning
  - Social Skills
  - Instructional process
  - Classroom management
  - Homework
- Healthy Life style / Physical Activity

93

## Role of Physical Therapy and Occupational Therapy

94

## A Team Approach (Reiff 2011)

- **Build the Team:**
  - Parents
  - Child
  - Medical team
  - Teachers
  - Others who know and work with the child
- **The Team's Job:**
  - Analyze the child's functioning
    - Do his/her symptoms seriously affect the following?
      - Behavior
      - Learning
      - Social skills
      - Self esteem
    - And if so.....in which setting(s).....home? school? Other setting(s)?
    - And.....how?

95

## Analyze the child's functioning

Completed By: _____	Behavior	Learning	Social skills	Self esteem	Notes	Notes
Home						
School						
Extra-Curricular Activities						
Other: _____						

96

## PT and OT Support: Non-Pharmaceutical Treatment Strategies

- Team Approach
- Behavior Therapy:
  - Positive Communication
  - Positive Reinforcement
  - Structure and Discipline
- School Programming:
  - Classroom Accommodations
  - Executive Functioning
  - Social Skills
  - Instructional process
  - Classroom management
  - Homework
- Healthy Life style / Physical Activity

97

## OTs and PTs: provide services for individuals with ADHD

- Home
- School
- Community
- Child
- Parent
- School Staff
- Team

98

## OTs and PTs: Interventions

- See chart

99

## ADHD: Technology

- See apps and websites chart

100



## ADHD: References/Resources

- See list

101

## Summary

102