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Overview of ADHD Treatment Utilizing Medication

ADHD and Related Concerns Conference

November 2, 2023

William Carey University

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Disclosures

- I have no relevant financial relationships with manufacturers of any commercial products and/or providers of commercial services discussed in this CME activity.
- I do not intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.
- Generic medication names used when possible, but brand names are often needed to clearly identify some formulations of ADHD medications

My Family's Journey with Attention and Learning Problems

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What is Hattiesburg Clinic Connections?

Our providers are dedicated to helping individuals and families function in such a way that each person reaches their fullest potential.

Objectives

- As a result of participating in this activity, the learner should be able to do the following:
  - Understand the importance of the role medications play in ADHD treatment
  - Recognize how different medications act to reduce ADHD symptoms and improve the lives of individuals with ADHD
  - Know the most common potential side effects as well as prevalent misconceptions related to ADHD medications

ADHD Medication Video

- https://youtu.be/I7QGn1Ri9cg?si=5iGgmbOJri1wsXFk

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Article Contents

FROM THE AMERICAN ACADEMY OF PEDIATRICS | CLINICAL PRACTICE GUIDELINE | OCTOBER 01 2019

Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents

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POTENTIAL CONFLICT OF INTEREST: All authors have filed conflict of interest statements with the American Academy of Pediatrics. Any conflicts have been resolved through a process approved by the American Academy of Pediatrics board of directors. Dr Allan reports a relationship with ADDitude Magazine; Dr Chan reports relationships with TriVox Health and Wolters Kluwer; Dr Lehmann reports relationships with International Medical Informatics Association, Springer Publishing, and Thieme Publishing Group; Dr Wolraich reports a Continuing Medical Education trainings relationship with the Resource for Advancing Children's Health Institute; the other authors have indicated they have no potential conflicts of interest to disclose.

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Connected Content

This is a revision to: ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents
This is a revision to: Clinical Practice Guideline: Diagnosis and Evaluation of the Child With Attention-Deficit/Hyperactivity Disorder

AAP ADHD Guidelines

- Key Action Statement 4:

ADHD is a chronic condition; therefore, the PCC should manage children and adolescents with ADHD in the same manner that they would children and youth with special health care needs, following the principles of the chronic care model and the medical home.

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ADHD Long Term Prognosis

- Chronic course
  - 50-60% of children continue with ADHD in adulthood
  - 75% of adolescents continue with ADHD into adulthood

- **Acknowledge positive traits/strengths**
  - Curiosity (inattention)
  - Energetic (hyperactivity)
  - Creative/spontaneous (impulsive)

Why treat ADHD?

- Friction between the child and parents, teachers and peers
  - Difficulty making and keeping friends
  - Tension between parents – marital problems for parents
  - Losing shoes, coats, phones, etc.

- More likely to have lower self esteem
  - More anxiety and depression

- Greater risk for intentional and unintentional injury
  - Stimulant meds may be preventive

Why treat ADHD?

- Poorer academic outcomes
  - Less schooling completion, lower achievement scores, more course failures
- More likely to be unemployed or have poor job performance
- More likely to have motor vehicle crashes and lose driving license
  - Stimulant meds improve driving performance
- Increased risk for substance abuse
  - Some studies show stimulants are protective

Why treat ADHD?

- Quantifying the Protective Effects of Stimulants on Functional Outcomes in Attention-Deficit/Hyperactivity Disorder: A Focus on Number Needed to Treat Statistic and Sex Effects
- Joseph Biederman, M.D. Maura DiSalvo, M.P.H.Ronna Fried, Ed.D.K. Yvonne WoodworthItai Biederman, M.B.A.Stephen V. Faraone, Ph.D.
- Published:July 23, 2019DOI:https://doi.org/10.1016/j.jadohealth.2019.05.015

- "Our study documents that early treatment with stimulant medication has very strong protective effects against the development of serious, ADHD-associated functional complications like mood and anxiety disorders, conduct and oppositional defiant disorder, addictions, driving impairments and academic failure," says Joseph Biederman, MD, chief of the Pediatric Psychopharmacology and Adult ADHD Program at MGH and MassGeneral Hospital for Children.

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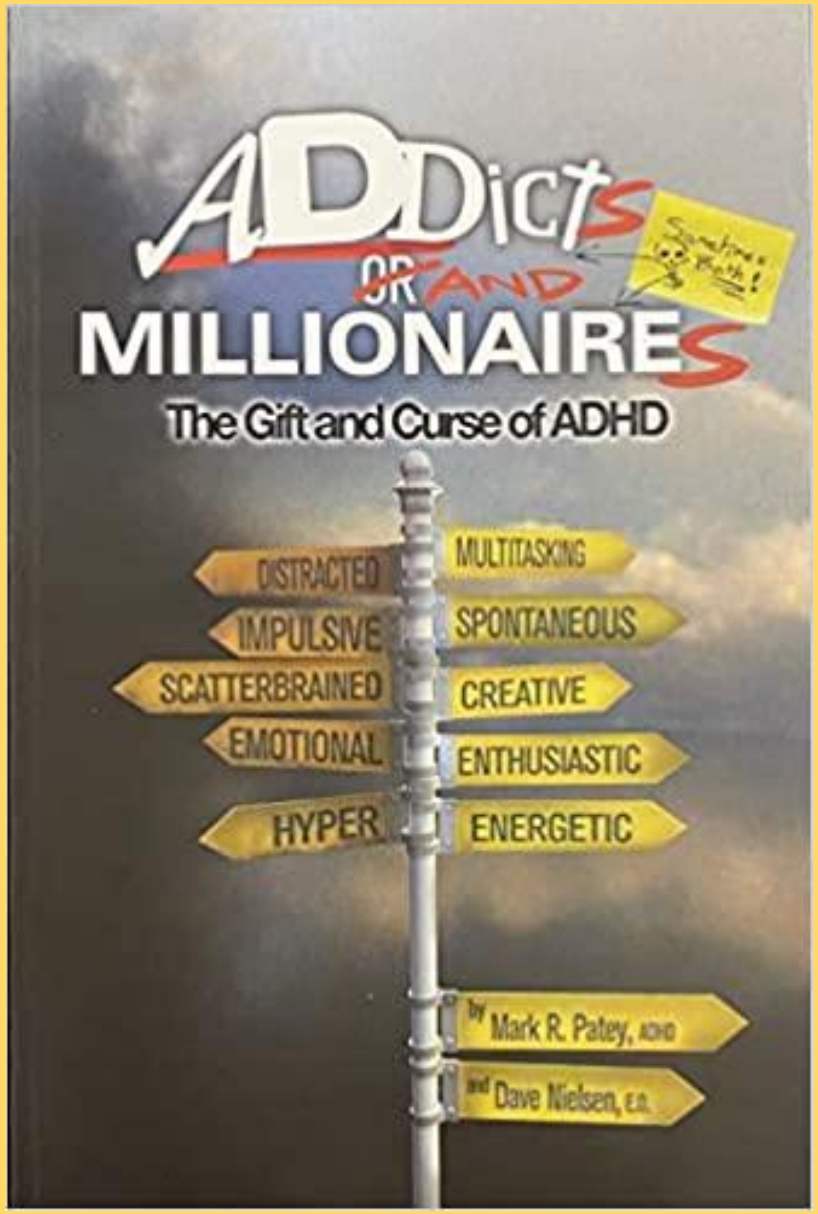
Why treat ADHD?

- Study (continued from previous slide) calculated protective effects of stimulant medication for children/teens:

- 3 participants with ADHD needed to be treated to prevent 1 from repeating a grade or developing conduct disorder, anxiety disorders or oppositional-defiant disorder.
- 4 participants with ADHD needed to be treated to prevent 1 from developing major depression or experiencing an accident during the driving simulation.
- 5 participants with ADHD needed to be treated to prevent 1 from developing bipolar disorder, 6 to prevent 1 from smoking cigarettes, and 10 to prevent 1 from developing a substance use disorder.

ADHD Long Term Prognosis



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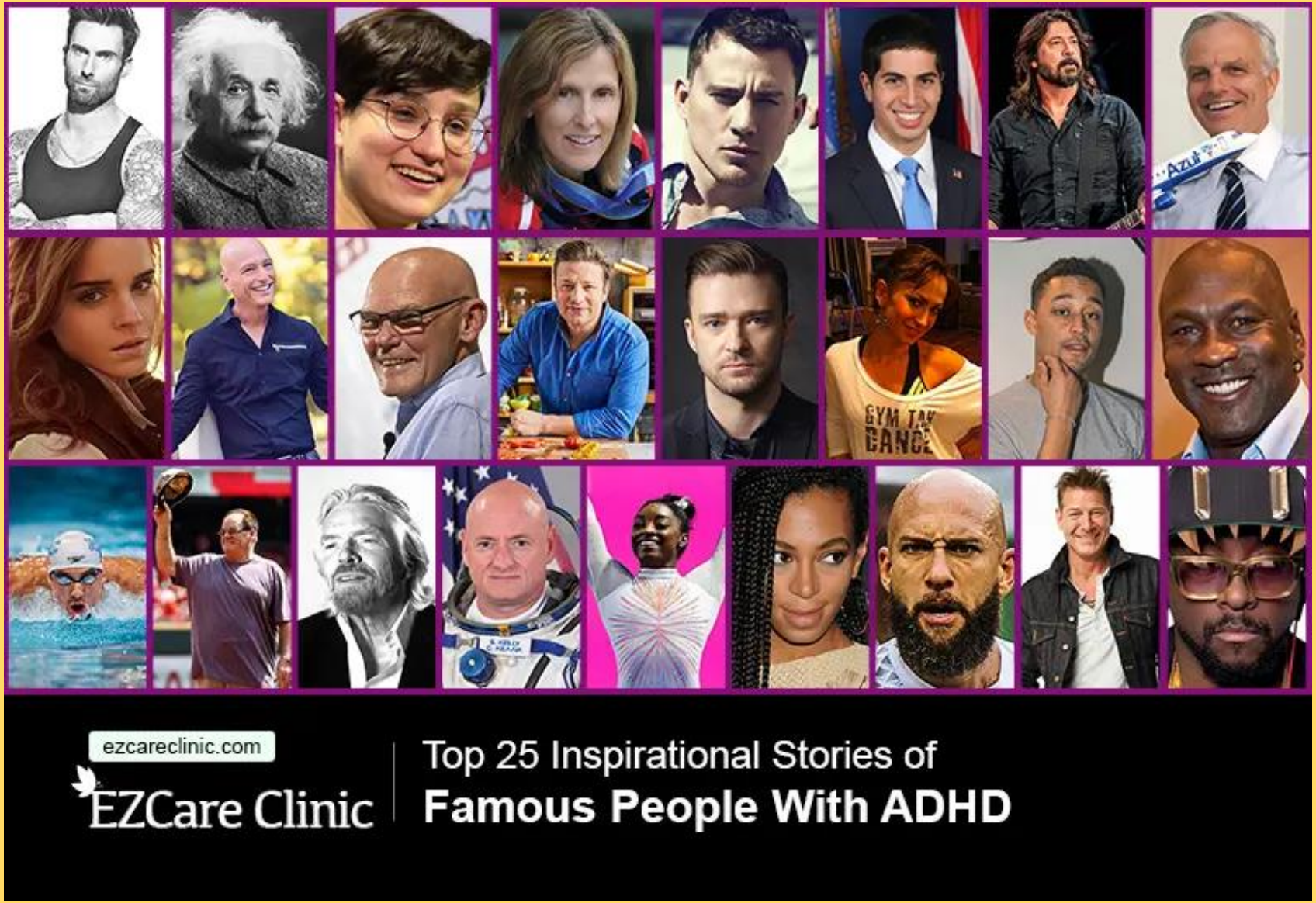
ADHD Long Term Prognosis



ADHD Treatments

- No cure
- Goals of treatments are to reduce symptoms and improve functioning
- Treatment categories:
  - Non-pharmacologic
  - Medications

ADHD Treatments

- Non-pharmacologic treatments
  - Behavior therapy
    - **Parent training in behavior management (PTBM) recommended by American Academy of Pediatrics (AAP) as first-line for preschoolers**
  - Education and training
    - Home/family routines
    - Extra help at school
    - Organizational skills training for older kids/teens
  - Lifestyle optimization
    - Sleep, nutrition, exercise, etc.

ADHD Treatments

- Medications
  - **Stimulants: recommended by AAP as first line for school-age children 6 years old and up** (with or without behavior therapy).
    - Immediate release (shorter duration)
    - Extended release (longer duration)
  - Non-stimulants
    - Work differently; can take weeks to see optimal effects
    - Can be taken along with stimulants

"Stimulants" per Wikipedia

- Also known as psychostimulants … is an overarching term that covers many drugs including those that increase the activity of the central nervous system and the body, ...and that have sympathomimetic effects
  - Affect hormones and neurotransmitters in the body that can increase heart rate, blood pressure, cognitive focus, etc.

- "In therapeutic doses, such as those given to patients with ADHD, increases ability to focus, vigor, ... and may elevate mood. However, in higher doses, stimulants may actually decrease the ability to focus, ...may also produce euphoria, vigor, and a decreased need for sleep."
  - Some used medically by prescription
  - Others used recreationally and sometimes illegally

ADHD Stimulant Medications

- Methylphenidate and amphetamine formulations
  - Used to treat ADHD since the 1960s.
  - Considered controlled substances due to potential for abuse/diversion
- Primary target neurotransmitter is dopamine
  - key role in attention and motivation.
  - helps in controlling emotional responses.
- Effective in reducing symptoms in 70-80% of those with ADHD
  - Each has duration of action between about 3 to 14 hr.
- Optimal dose not determined by age, weight, or severity of symptoms
  - Efficacy and tolerability

ADHD Medication Guide*

Revised: September 1, 2023

Methylphenidate Formulations – Long Acting, Oral** (Capsules and tablets in this section are shown at actual size)

Concerta®†	6-12 Yrs: 18-54mg; SD: 18mg 13-17 Yrs: 18-72mg; SD: 18mg ≥18 Yrs: 18-72mg; SD: 18mg or 36mg	G 18mg	G 27mg	G 36mg	G 54mg	Methylphenidate ER (bioequivalent to corresponding Concerta dosing)	G 45mg	G 63mg	G 72mg
Focalin® XR‡ (dexmethylphenidate)	6-17 Yrs: 5–30mg; SD: 5mg 18 Yrs-Adult: 5–30mg; SD: 5mg (biphasic – 50/50)	G 5mg		G 10mg	G 15mg	G 20mg; G 25mg	G 30mg	G 35mg	G 40mg
Cotempla XR-ODT®¶ (grape flavor)	6-17 Yrs: 8.6–51.8mg; SD: 17.3mg	8.6mg		17.3mg	25.9mg	34.6mg	51.8mg		
Aptensio® XR‡	6 Yrs–Adult: 10–60mg; SD: 10mg (biphasic – 40/60)	G 10mg	G 15mg	G 20mg	G 30mg	G 40mg; G 50mg	G 60mg		
Quillivant XR® 25mg/5mL (5mg/mL) (banana flavor)	6 Yrs–Adult: 20–60mg; SD: 20mg	10mg 2mL		20mg 4mL	30mg 6mL	40mg 8mL	50mg 10mL	60mg 12mL	
		1 Bottle: 300mg 60mL		1 Bottle: 600mg 120mL	1 Bottle: 900mg 180mL	2 Bottles: 600mg 120mL	2 Bottles: 750mg 150mL	2 Bottles: 900mg 180mL	
QuilliChew ER®§ (cherry flavor)	6 Yrs–Adult: 20–60mg; SD: 20mg (biphasic – 30/70)			20mg	30mg	40mg			
Ritalin® LA‡	6-12 Yrs: 10–60mg; SD: 20mg (biphasic – 50/50)	G 10mg		G 20mg	G 30mg	G 40mg		G♦ 60mg	
Metadate® CD‡	6-17 Yrs: 10–60mg; SD: 20mg (biphasic – 30/70)	G 10mg		G 20mg	G 30mg	G♦ 40mg	G 50mg	G♦ 60mg	
Metadate® ER†	6 Yrs-Adult: 20–60mg; SD: 20mg	G♦ 10mg		G 20mg					

Methylphenidate Pro-Drug Formulations - Long Acting, Oral** (Medications in this section are shown at actual size)

Azstarys®? (dexmethylphenidate + serdexmethylphenidate)	6-12 Yrs: 26.1/5.2 – 52.3/10.4; SD: 39.2/7.8 mg; 13 Yrs – Adult: 39.2/7.8 – 52.3/10.4; SD: 39.2/7.8mg	26.1mg SDX / 5.2mg d-MPH	39.2mg SDX/ 7.8mg d-MPH	52.3mg SDX/ 10.4mg d-MPH		

Methylphenidate Formulations – Long Acting/Delayed Onset, Oral** (Medications in this section are shown at actual size)

Jornay PM®‡	6 Yrs–Adults: 20–100mg (dosed in the evening); SD: 20mg	20mg	40mg	60mg	80mg	100mg

Methylphenidate Formulations – Short Acting, Oral** (Medications in this section are shown at actual size)

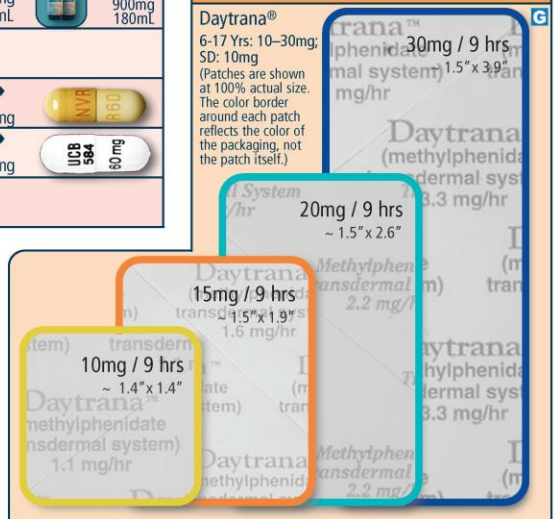
Focalin® (dexmethylphenidate)	6–17 Yrs: Daily: 5–20mg, divided BID; SD: 2.5mg BID		G 2.5mg	G 5mg	G 10mg	
Ritalin®	6–12 Yrs: Daily: 10–60mg; divided BID or TID; SD: 5mg BID Adults: Daily: 10–60mg, divided BID or TID		G 5mg	G 10mg	G♦ 20mg	
Methylphenidate Chewable§ (grape flavor)	6–12 Yrs: Daily: 10–60mg; divided BID or TID; SD: 5mg BID Adults: Daily: 10–60mg, divided BID or TID	G♦ 2.5mg	G♦ 5mg	G♦ 10mg		
Methylin® Solution (grape flavor)	6–12 Yrs: Daily: 10–60mg; divided BID or TID; SD: 5mg BID Adults: Daily: 10–60mg, divided BID or TID		G 5mg/5mL	G 10mg/5mL		

Methylphenidate Formulations - Long Acting, Transdermal

Daytrana®

6-17 Yrs: 10–30mg; SD: 10mg

(Patches are shown at 100% actual size. The color border around each patch reflects the color of the packaging, not the patch itself.)



Administration Key:

¶ Orally disintegrating tablet ÷ Must be swallowed whole § Chewable

¥ Can be mixed with yogurt, orange juice, or water

‡ Can open capsule and sprinkle medication on apple sauce

⁋ Can open capsule and sprinkle medication into water or onto apple sauce

⁝ Can open capsule and mix with apple sauce or yogurt

G Indicates a generic formulation is also available; generic products are not shown

G Indicates a generic (but NOT a branded) formulation is available

- View the latest version of the ADHD Medication Guide at www.ADHDMedicationGuide.com

♦**Discontinued ADHD Medications:** The following FDA-approved proprietary formulations are no longer available (though, in some cases, branded or generic equivalents are still available): Adhansia XR; Ritalin LA capsule (60mg); Metadate CD capsules (40mg, 60mg); Metadate ER tablet (10mg); Ritalin SR tablets (20mg); Methylin Chewable tablets (2.5mg, 5mg, 10mg); Dexedrine Spansules (5mg, 10mg); Dexedrine tablets (5mg, 10mg); DextroStat tablets (5mg, 10mg); LiquADD solution (5mg/5mL), and Cylert (pemoline).

Important Information: The age-specific dosing information listed for each medication reflects the FDA-approved prescribing information. "SD" refers to the FDA-recommended starting dose, which sometimes varies by age. Practitioners should refer to the full prescribing information for each medication. **Please note:** medications have been arranged on the ADHD Medication Guide for ease of display and visual comparison; dosing comparability cannot be assumed.

- Updated versions of the ADHD Medication Guide can be viewed at: www.ADHDMedicationGuide.com
- Laminated copies of the ADHD Medication Guide can be ordered on-line from the ADD Warehouse
- Contact Dr. Andrew Adesman with any comments or suggestions: ADHDMedGuide@Northwell.edu

Cohen Children's Medical Center
Northwell Health

http://www.adhdmedicationguide.com/

ADHD Medication Guide*

Revised: September 1, 2023

Amphetamine Formulations – Long Acting, Oral** (Medications in this section are shown at actual size)

Dyanavel® XR (d- & l-amphetamine sulfate)	6 Yrs–Adults: 2.5–20mg; SD: 2.5 or 5mg		5mg		10mg		15mg		20mg	
Dyanavel® XR (d- & l-amphetamine sulfate) 2.5mg/mL (bubblegum flavor)	6 Yrs–Adults: 2.5–20mg; SD: 2.5 or 5mg	2.5mg 1mL	5mg 2mL	7.5mg 3mL	10mg 4mL	12.5mg 5mL	15mg 6mL	17.5mg 7mL	20mg 8mL	
Mydayis®‡ (mixed amphetamine salts)	13–17 Yrs: 12.5–25mg; SD: 12.5mg Adults: 12.5-50mg; SD: 12.5mg	12.5mg		25mg		37.5mg		50mg		
Adzenys XR-ODT®¶ (d- & l-amphetamine) (orange flavor)	6–12 Yrs: 3.1–18.8mg; SD: 6.3mg 13–17 Yrs: 3.1–12.5mg; SD: 6.3mg Adults: 12.5mg		3.1mg	6.3mg	9.4mg	12.5mg	15.7mg	18.8mg		
Adzenys ER® (d- & l-amphetamine) 1.25mg/mL (orange flavor)	6–12 Yrs: 6.3–18.8mg; SD: 6.3mg 13–17 Yrs: 6.3–12.5mg; SD: 6.3mg Adults: 12.5mg		3.1mg 2.5mL	6.3mg 5mL	9.4mg 7.5mL	12.5mg 10mL	15.7mg 12.5mL	18.8mg 15mL		
Adderall XR®‡ (mixed amphetamine salts)	6–17 Yrs: 5–30mg; SD: 10mg Adults: 5-30mg; SD: 20mg (biphasic – 50/50)		G 5mg	G 10mg	G 15mg	G 20mg	G 25mg	G 30mg		
Dexedrine Spansule® (d-amphetamine sulfate)	6-17 Yrs: 10–60mg; SD: 5mg 1-2x/day		G◆ 5mg	G◆ 10mg	G 15mg					

Amphetamine Pro-Drug Formulations – Long Acting, Oral** (Medications in this section are shown at actual size)

Vyvanse®¥ (capsules) (lisdexamfetamine)	6 Yrs–Adults: 10–70mg; SD: 30mg	G 10mg	G 20mg	G 30mg	G 40mg	G 50mg	G 60mg	G 70mg		
Vyvanse®§ (chewables) (lisdexamfetamine) (strawberry flavor)	6 Yrs–Adults: 10–70mg; SD: 30mg	G 10mg	G 20mg	G 30mg	G 40mg	G 50mg	G 60mg			

Amphetamine Formulations - Long Acting, Transdermal

Xelstrym™ (d-amphetamine)

6-17 Yrs: 4.5–18mg; SD: 4.5mg

Adults: 9-18mg; SD: 9mg

(Patches are shown at 100% actual size. The color border around each patch reflects the color of the packaging, not the patch itself.)

Amphetamine Formulations – Short Acting, Oral** (Medications in this section are shown at actual size)

Evekeo® (d- & l- amphetamine sulfate)	3–5 Yrs: SD: 2.5mg 1x/day 6–17 Yrs: 5-40mg divided BID; SD: 5mg 1-2x/day		5mg		10mg					
Evekeo® ODT (d- & l- amphetamine sulfate)	6–17 Yrs: 5-40mg divided BID; SD: 5mg 1-2x/day	2.5mg	5mg		10mg		15mg	20mg		
Zenzedi® (d-amphetamine sulfate)	3–5 Yrs: SD: 2.5mg 1x/day 6–16 Yrs: 5-40mg divided BID; SD: 5mg 1-2x/day	2.5mg	G 5mg	7.5mg	G 10mg		G 15mg	G 20mg	G 30mg	
Adderall® (mixed amphetamine salts)	3–5 Yrs: SD: 2.5mg 1x/day 6–17 Yrs: 5-40mg divided BID; SD: 5mg 1-2x/day		G 5mg	G 7.5mg	G 10mg	G 12.5mg	G 15mg	G 20mg	G 30mg	
ProCentra® (d-amphetamine sulfate) (bubblegum flavor)	3–5 Yrs: SD: 2.5mg 1x/day 6–17 Yrs: 5-40mg divided BID; SD: 5mg 1-2x/day		G 5mg/5mL							

Non-Stimulants** (Medications in this section are shown at actual size)

Intuniv®† (guanfacine, extended release)	6–12 Yrs: 1-4mg; SD: 1mg 13–17 Yrs: 1-7mg; SD: 1mg Weight-based dosing: SD: 0.05-0.08 mg/kg/day; may increase to 0.12 mg/kg/day	G 1mg	G 2mg	G 3mg	G 4mg					
Kapvay®† (clonidine, extended release)	6–17 Yrs: 0.1-0.2mg BID; SD: 0.1mg qHS	G 0.1mg	(only in dose pack) 0.2mg							
Strattera®† (atomoxetine)	≤70kg: 0.5mg/kg x ≥3days, then 1.2mg/kg (max:1.4mg/kg, not to exceed 100mg) >70 kg: 40mg x ≥3days, then 80mg (max:100mg)	G 10mg	G 18mg	G 25mg	G 40mg	G 60mg	G 80mg	G 100mg		
Qelbree®‡ (viloxazine)	6–11 Yrs: 100-400mg; SD: 100mg 12–17 Yrs: 200-400mg; SD: 200mg Adults: 200-600mg; SD: 200mg	100mg	200mg	300mg +		400mg +				

http://www.adhdmedicationguide.com/

ADHD: Non-stimulant medications

- Designed for 24 hour duration
  - Helpful for early a.m. and late p.m. symptoms
- Gradual onset of action (1-6 weeks)
- Side effects less frequent than stimulants
  - e.g. somnolence, nausea, fatigue, dizziness, etc.
  - Often mild and/or improve
- Good option if stimulants not tolerated
- Often used + stimulant

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ADHD: Non-stimulant Medications

- Different mechanism of action and side effects than stimulants.
  - Atomoxetine (SNRI)
  - Viloxazine (SNRI)
  - guanfacine (Alpha-2 agonist)
  - clonidine (Alpha-2 agonist)
- Primarily Increase brain activity of or mimic effects of norepinephrine.
  - neurotransmitter linked to attention and mood
  - Effectiveness < stimulants
  - may take 2-6 weeks to show effectiveness

AAP ADHD Guidelines:

Key Action Statement 5

KAS 5a: For preschool-aged children (age 4 years to the sixth birthday) with ADHD, the PCC should prescribe evidence-based PTBM and/or behavioral classroom interventions as the first line of treatment, if available.

Methylphenidate may be considered if these behavioral interventions do not provide significant improvement and there is moderate-to-severe continued disturbance in the 4- through 5-year-old child's functioning. In areas in which evidence-based behavioral treatments are not available, the clinician needs to weigh the risks of starting medication before the age of 6 years against the harm of delaying treatment.

KAS 5b. For elementary and middle school-aged children (age 6 years to the 12th birthday) with ADHD, the PCC should prescribe FDA-approved medications for ADHD, along with PTBM and/or behavioral classroom intervention (preferably both PTBM and behavioral classroom interventions). Educational interventions and individualized instructional supports, including school environment, class placement, instructional placement, and behavioral supports, are a necessary part of any treatment plan and often include an IEP or a rehabilitation plan (504 plan).

KAS 5c. For adolescents (age 12 years to the 18th birthday) with ADHD, the PCC should prescribe FDA-approved medications for ADHD with the adolescent's assent. The PCC is encouraged to prescribe evidence-based training interventions and/or behavioral interventions as treatment of ADHD, if available. Educational interventions and individualized instructional supports, including school environment, class placement, instructional placement, and behavioral supports, are a necessary part of any treatment plan and often include an IEP or a rehabilitation plan (504 plan).

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Key Action Statement 5: ADHD Treatment

- Age 4 - 5:
  - Parent training in behavior management (PTBM) first line Tx
  - Consider Methylphenidate (MPH) if needed
- Age 6 - 11:
  - FDA approved med first line (preferably stimulant)
  - Med plus PTBM and/or behavioral classroom interventions (preferably both)
- Age 12 – 18:
  - FDA approved med first line **with teen's assent**
  - Behavioral and/or training interventions if available

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Benefits of ADHD Medications

- Sustained and improved focus
- Less impulsivity
- Improved mood
- Greater attention to detail
- Better memory

ADHD Meds: Choice of Agent

- Duration of desired coverage
  - homework or driving may require coverage into evening
- Time of day when the target symptoms occur
- Preference of the child/adolescent and their caregiver or guardian
- Expense/insurance coverage/availability
- Ability of the child to swallow pills or capsules
- Desire to avoid administration at school

ADHD Meds: Choice of Agent

- Potential adverse effects
- H/o substance abuse in pt. or household
  - avoid stimulants or use stimulants with less potential for abuse
- Coexisting emotional or behavioral condition
  - Consider alpha-2 agonist if over-aroused, easily frustrated, highly active, or aggressive
- Coexisting tic disorder
  - Consider alpha-2 agonist

Stimulants vs. Non-stimulants

- Stimulants have larger treatment effect size and have long record of safety and efficacy
  - Positive response rate for children/teens to a given stimulant is ~ 70%
  - ~ 80% will have positive response if stimulants tried systematically
- Stimulants have shown significant improvement in multiple domains:
  - ADHD core symptoms
  - caregiver-child interactions
  - aggressive behavior
  - academic productivity and accuracy
- Stimulant benefits limited to duration of action during the day
  - Non-stimulant benefits available 24 hr.

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Methylphenidate (MPH) vs. Amphetamine (AMP)

- MPH more tolerable than AMP in children/teens
  - AAP guidelines make no preference
  - England's National Institute for Health and Care Excellence (NICE) ADHD guidelines recommend MPH first line for children/teens

- AMP slightly more efficacious than MPH in children/teens
  - Consider AMP if MPH not effective/tolerated
  - Consider if h/o positive response to AMP in close family member

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Stimulant Duration of Action

- Long acting stimulant in a.m. best for most students
  - Most help for 8-12 hr.
  - Usually avoids med dosing during school day
  - Improves medication consistency/adherence
  - Less risk for diversion
- Short acting stimulant often used in after school hours to help with homework or other activities
  - Duration 3-5 hr.

ADHD Medical Management

- “High bar" of expectations with ADHD medicine
  - •Goal is a "win-win“ with noticeable improvement and no significant side effects
  - •change plans when needed
- Start med at low dose and increase as needed
  - every 7-10 days for children
  - Every 3-5 days for older teens/adults

ADHD Medical Management

- Follow up soon after starting or changing medicine
  - Usually 2 - 3 weeks
- Regular visits to monitor weight, height and vital signs
  - feedback from the individual with ADHD
  - feedback from parents, teachers and others
- Follow up appointments spaced to every 3 months after medicine dosage optimized.
  - Telemedicine = improved communication/convenience

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Treatment Failure on Stimulant

- Is dosage high enough?
- Is med taken consistently?
- Try different stimulant
- Consider adding or changing to non-stimulant

ADHD Pharmacogenetics

- Genes have been identified that can affect how one responds to certain medications.
  - Primarily genes involving how drugs are metabolized

- Several companies offer genetic testing to help with selecting mental health medications.

ADHD Pharmacogenetics

- Goal is to decrease the need for trial and error when prescribing mental health medications.
  - Not uncommon try several doses and types of ADHD medication to find the right fit.

- Not enough evidence that genetic testing will help find “the right” ADHD medication
  - Majority of population are “normal” metabolizers; tests more helpful for the less common “outliers”

ADHD Pharmacogenetics

- Genetic tests are very expensive and often not covered by insurance
  - Other factors affect how medications work
  - age, sex, diet, lifestyle routines, other health conditions, other medications

- Not recommended for use in ADHD treatment guidelines by American Academy of Pediatrics (AAP) or other organizations.
  - Possible in the future depending on research findings
  - May be an option for some who have tried and failed multiple medications

ADHD Co-existing Conditions

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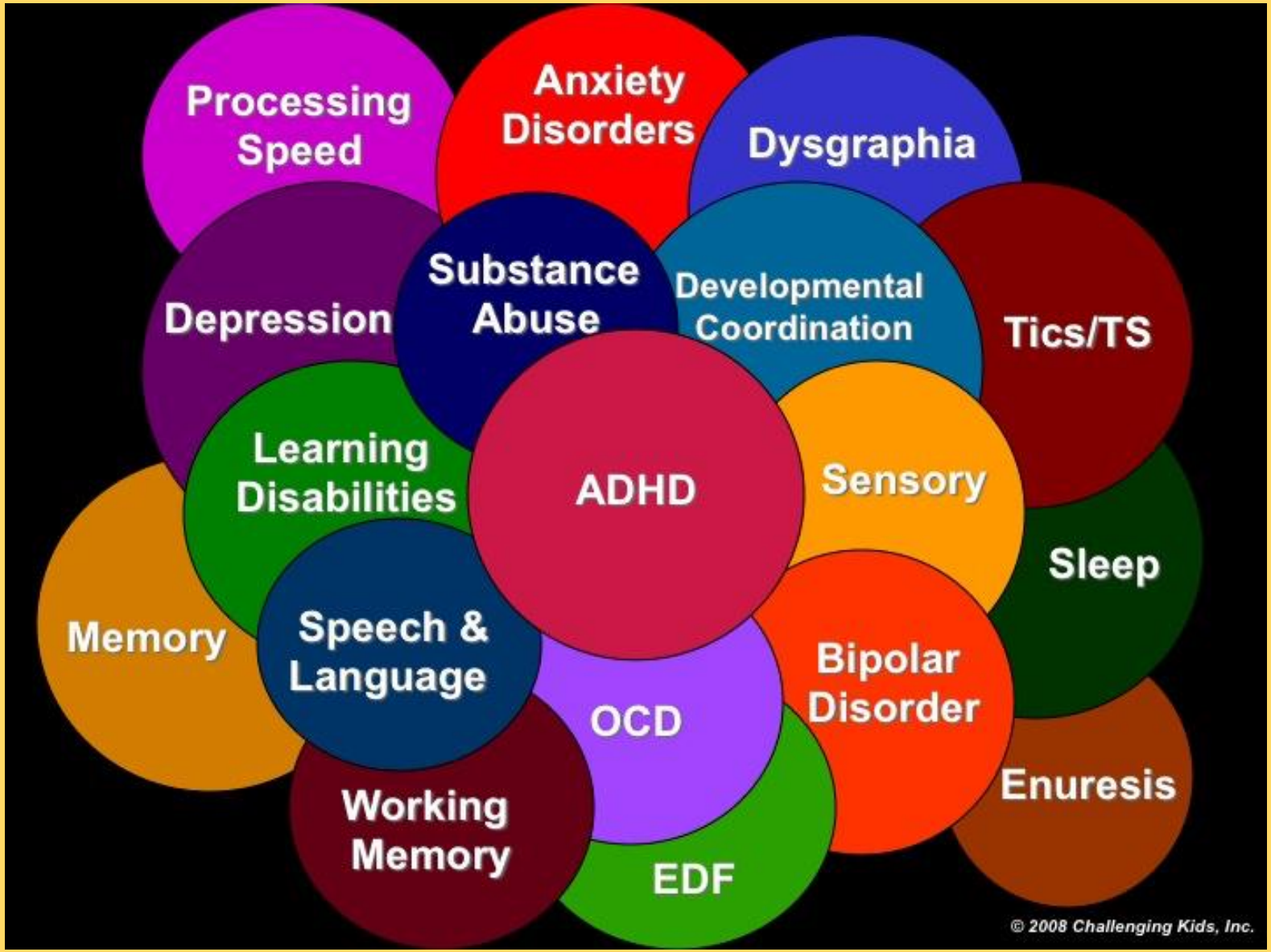

Stimulants: Common side effects

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- Loss of appetite
- Sleep problems
- Body complaints – headache, stomachache, heart racing, dizziness, dry mouth, chest pain
- Moodiness – sadness or madness
- Tics

Stimulants: Rare side effects

- weight loss
- increased anxiety
- social blunting/withdrawal
- slight delay in the rate of growth, but final height likely not significantly affected
- heart problems in children with pre-existing heart defects

Managing Poor Appetite with Stimulants

- Take med at or after a meal
- Breakfast very important
  - protein and complex carbohydrates
- Calorie dense foods at meals and snacks
- Adjust eating schedule
  - Understand about lunch; go with times most hungry
- Possible medication
  - Cyproheptadine most common

Sleep problems on Stimulants

CONNECTIONS HATTIESBURG CLINIC

- No screen for one hour before bedtime – good reading time
- Good bedtime routine
- Possible white noise or soft music
- Limit sugar and caffeine after 4 PM
- Possible medication
- Consider decreasing duration of stimulant med

Moodiness on Stimulants

CONNECTIONS HATTIESBURG CLINIC

- Improve sleep, nutrition, exercise
- If throughout duration with no symptom improvement, increase dose
- If at peak time, lower dose or try longer acting med
- If in afternoon, add IR medication or increase dose
- Change medication type or mode of release
- Additional diagnosis?

Body Complaints on Stimulants

CONNECTIONS HATTIESBURG CLINIC

- Headaches or Dizziness
  - better nutrition, better sleep, more fluids
- Chest pain
  - take medication with food (not sugary)
  - GERD medication

Tics on Stimulants

- Patience
- Lower dose or different release mode
- Change medication type
- Add medication
  - e.g. guanfacine or clonidine

Common Concerns about Stimulants

- Long term side effects?
  - Growth
  - Cardiovascular
- Risk of addiction?
- Are generic medications OK?
- Can ADHD meds be taken during pregnancy?

Common Concerns about Stimulants

- Drug holidays?
  - Weekends/holidays/summers
- Can one develop tolerance to ADHD meds?
- Can I take other medications or drink alcohol?

ADHD Stimulant Medication Shortage

- Increased demand since pandemic
  - Increased stresses on those previously not treated for ADHD
  - Increased access to care with relaxed restrictions
  - Over-diagnosing?
- Supply of ingredients limited by DEA?
- Manufacturing problems?

ADHD Stimulant Medication Shortage

- Duration?

- Affecting:
  - Adderall (mixed amphetamine salts) IR and XR generics
  - Ritalin (methylphenidate) brand and generics
  - Focalin (dexmethylphenidate) IR and XR generics
  - Concerta (methylphenidate HCl extended-release) generics
  - Metadate ER & CD (methylphenidate HCl extended-release) generics
  - possibly others

Vyvanse (lisdexamfetamine) Update

- 14 companies may now manufacture and sell generic versions of Vyvanse capsules and chewable tablets, according to the FDA.

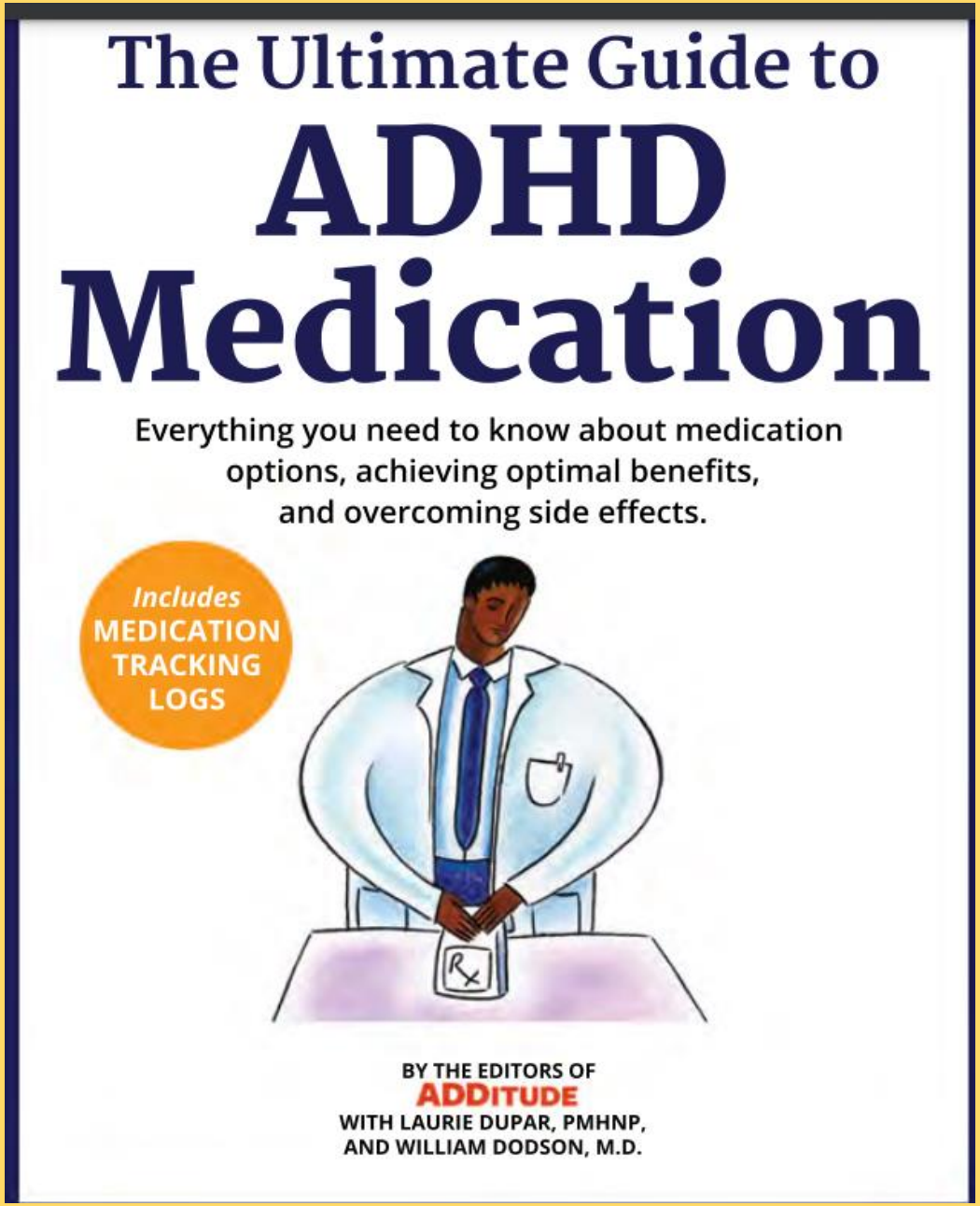
Goals of treatment

- Appropriate academic performance
- Good self-esteem
- Improved Relationships
- Happy, healthy, productive adult

Helpful ADHD Resources

- www.adhdmedicationguide
- www.chadd.org
- www.additudemag.com
- www.understood.org
- www.healthychildren.org/adhd

CONNECTIONS
HATTIESBURG CLINIC



- https://www.additudemag.com/download/ultimate-guide-adhd-medications/

Comments/Questions?