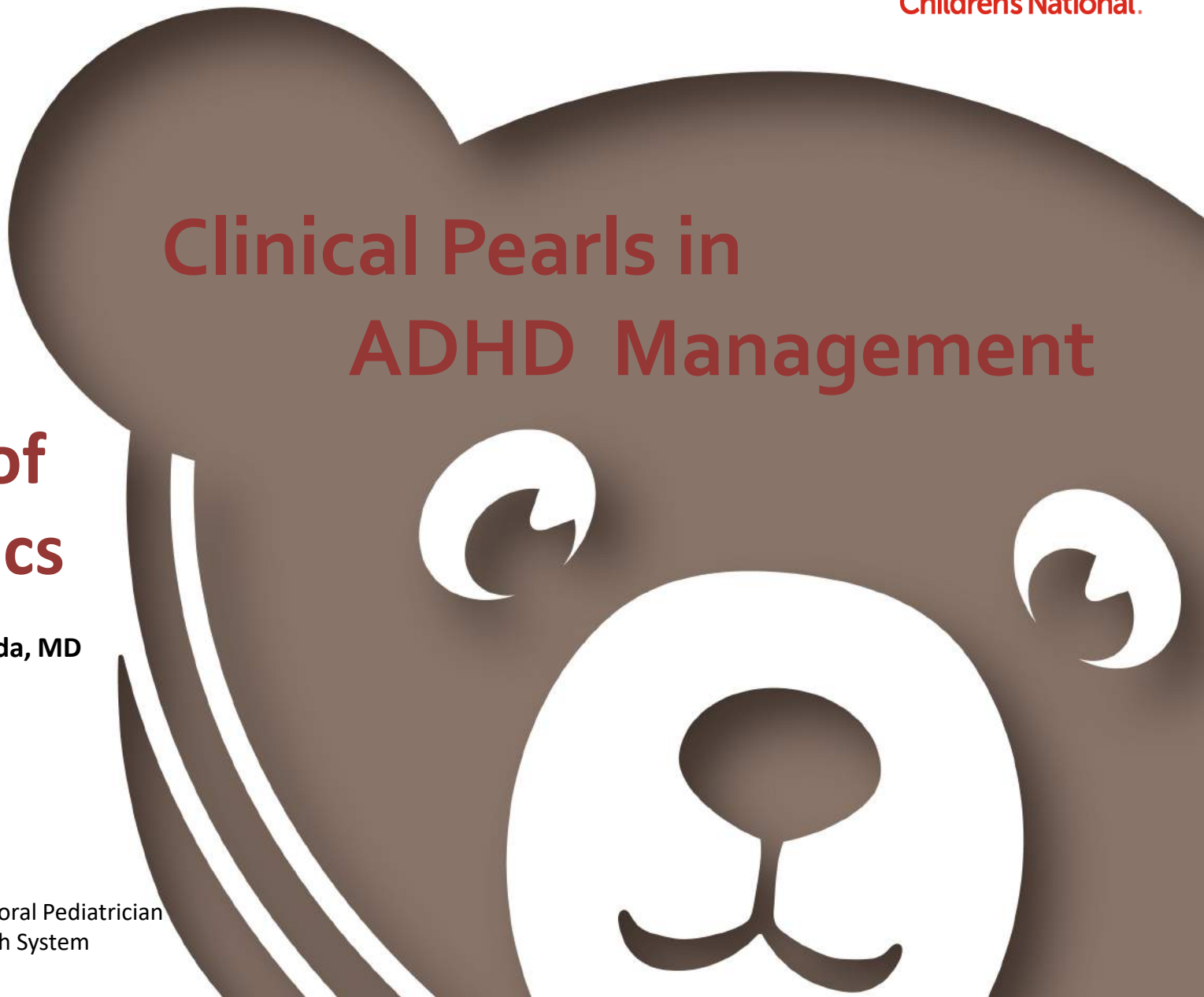

Clinical Pearls in ADHD Management

Future of Pediatrics

Marriott N. Bethesda, MD
June 19, 2019

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Developmental & Behavioral Pediatrician
Children's National Health System

- No financial conflicts of interest to disclose

- Will mention examples of medication brand names
- Will mention an FDA-approved device as treatment for ADHD

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Scope of talk

- Due to time constraint, will **NOT** be covering:
  - Making diagnosis
  - Differential diagnoses / Comorbidities
  - Mechanism of action and off-label use of medications

- Focus will be on:
  - Management (pharmacologic and non-pharmacologic)
  - Practical considerations in medication treatment
  - Dilemmas / Issues commonly encountered in clinic visits
  - FAQ from caregivers and how to advise

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Key points of Discussion -- ADHD Management

- 1. Medication vs. Non-pharmacologic interventions
- 2. Myths and misconceptions on ADHD medications
- 3. Stimulant vs. non-stimulants
- 4. What medication to pick? (factors to consider)
- 5. Visual supports
- 6. Common pitfalls
- 7. Side effects … and what to do
- 8. Bonus Update: New FDA approved device for ADHD

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1. Diagnosis: ADHD … Now what?

- Medication vs. Non-pharmacologic interventions

Pharmacologic	Non-pharmacologic
1.) Stimulants - Methylphenidates - Amphetamines 2.) Non- Stimulants - Atomoxetine - Alpha-agonists	1.) Parent Management Therapy 2.) Psychoeducational interventions (school accommodations and supports)

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Which is better – To medicate or not to medicate?

– Unlike anxiety/depression where therapy is usually first-line and effective -- NOT the case for ADHD.

* remember: pathophysiology of ADHD

– According to MTA study: [1]

- Medication alone
- Combination (med + therapy)

Intensive behavior treatment alone

- Other areas of functioning: (anxiety, parent child interaction, social skills) = combination treatment consistently superior to others

1 The MTA Cooperative Group: A 14-Month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder (ADHD). *Arch Gen Psychiatry* 1999;56:1073-1086

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Non-pharmacologic Intervention:
Parent Training (a.k.a. Behavior Management Training for Parents, Parent Behavior Therapy)

- Cannot be overemphasized …. PARENTS (not kids!)
- Play therapy, talk therapy in young children – ineffective for ADHD

- Behavior therapy, given to parents is effective treatment for ADHD in young children.
  - 1st line for preschoolers (4-5 years old)[2] ; and may prescribe medication if behavior interventions do not provide significant improvement.

2 ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents. *Pediatrics.* November 2011. 128(5).

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What parents learn when trained in behavior therapy

Behavior therapy, given by parents, teaches children to better control their own behavior, leading to improved functioning at school, home and in relationships. Learning and practicing behavior therapy requires time and effort, but it has lasting benefits for the child.

- *"Only therapy that focuses on training parents is recommended because young children are not mature enough to change their own behavior without their parents' help."*

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2. Dispelling myths and wrong notions :

Parents against medication

- Probe reasons why:
  - "I don't want to drug my child" (guilt feelings)
  - " I don't him to be a zombie, like what happened to …"
  - "Medication will mess up his brain; may lead to mental health problems in the future"
  - "When he starts medication, he will always be on medication"

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Dispelling myths and wrong notions :

Parents against medication

- Probe reasons why:
  - " I don't want my child to be dependent on medication" (tolerance/dependence)
  - "He needs to learn how to behave himself"
  - " I don't want my child to be addicted to medication" (addiction potential)
  - Physician mistrust (we profit when we prescribe medication)

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Dispelling myths and wrong notions :

Parents against medication

- Explain pathophysiology of ADHD – brain-based disorder
- Reiterate our common, shared goal: more calm and attentive, not "zombie" or flat
- No tolerance, dependence potential
- We do not get incentives for starting medication
- Offer maximizing non-pharmacologic interventions →

if problems persist, consider medication at follow up visit

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3. Stimulants vs. Non-stimulants

- Effect size:
  - Stimulants = 0.8
  - Non-stimulants = 0.6

- Indications for Non-stimulants:
  - Stimulants contraindicated (symptomatic cardiovascular disease, hyperthyroidism, hypertension, sensitivity to stimulants) [3]
  - Intolerance to stimulants
  - Adjunct / partial responders to stimulants
  - Too young, but with clear indication to start medication
  - Parent refusal

3. Practice Parameter for the Use of Stimulant Medications in the Treatment of Children, Adolescents, and Adults. *J. Am. Acad. Child Adolesc. Psychiatry*, 2002, 41(2 Supplement):26S–49S

If starting medication …

- Counsel parents - appropriate expectations
- Screen family history for CV diseases and patient's cardiac symptoms
- Discuss:
  - Potential side effects
  - Plan (what to do if not effective? if with severe side effects?) Warn them of possibilities
  - Goals of treatment (maximum control of symptoms with least amount of side effects)
  - Follow up (bring Vanderbilt forms - objective measures)

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4. Which medication to pick?

- Personal preference by clinician (MPH or AMP, non-stimulants)
- Important to know and understand that **not** all medications are similar. Not "1 size fits all".
- Considerations:
  - 1.) Duration of action (4-6 hrs, 8-9 hrs, 10-12 hrs)
  - 2.) Formulation and ability to swallow (sprinkled, swallowed, chewable, liquid, patch)
  - 3.) Age of patient (FDA approval)
  - 4.) Insurance coverage

  * Must take in to consideration patient's needs!

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What dose do I start with?

- Mantra: *Start low, go up slow*

- But remember the goal:
  - Maximum control of ADHD symptoms with the least amount of side effects

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My personal style:

- Pre-schooler (half day)
  - Start with short acting
    (Dexedrine, Adderall, Ritalin, Focalin)
- School aged (whole day school)
  - 8-9 hrs long
  - can be sprinkled
    (Ritalin LA, Metadate CD, Focalin XR, Adderall XR, Dexedrine SR)
- Older patients (needs long coverage)
  - Can swallow pill? Concerta, Vyvanse (⬇ abuse potential)
  - Vyvanse mixed with water, Quillivant XR

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5. Visual Supports

- Helps to engage parents
- Shared decision making

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COST

WHAT WILL I PAY OUT-OF-POCKET?

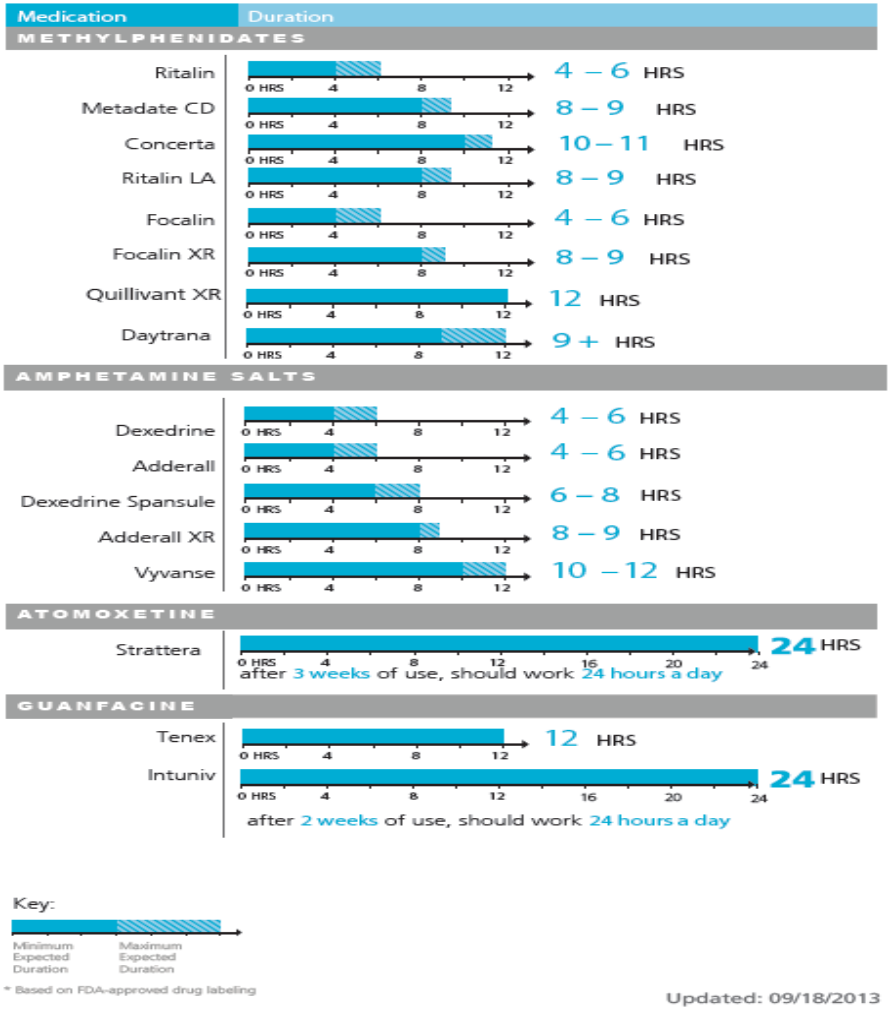
Many medicines for ADHD work equally well. They may differ a lot in the out-of-pocket cost to you based on your insurance plan. Cost is often good to think about when picking a medicine.

If the out-of-pocket cost of medicine is important to you, please fill in this table.
You can find out your costs by talking to your insurance company. You can call the phone number or go to the website listed on your insurance card.

Medication Type	Cost		
Brand name	**30 day supply**	**90 day supply**	**Generic Available**
METHYLPHENIDATES			
Ritalin			Methylin
Metadate CD			Methylin ER
Concerta			Methylphenidate HCL ER Tablets
Ritalin LA			Methylin ER
Focalin			no
Focalin XR			no
Quillivant XR			no
Daytrana			no
AMPHETAMINE SALTS			
Dexedrine			Dextroamphetamine
Adderall			Dextroamphetamine-Amphetamine
Dexedrine Spansule			Dextroamphetamine
Adderall XR			Dextroamphetamine-Amphetamine ER
Vyvanse			no
ATOMOXETINE			
Strattera			no
GUANFACINE			
Tenex			Guanfacine
Intuniv			no

DURATION

HOW LONG WILL MEDICINE LAST?



Key:

Minimum Expected Duration — Maximum Expected Duration

* Based on FDA-approved drug labeling

Updated: 09/18/2013

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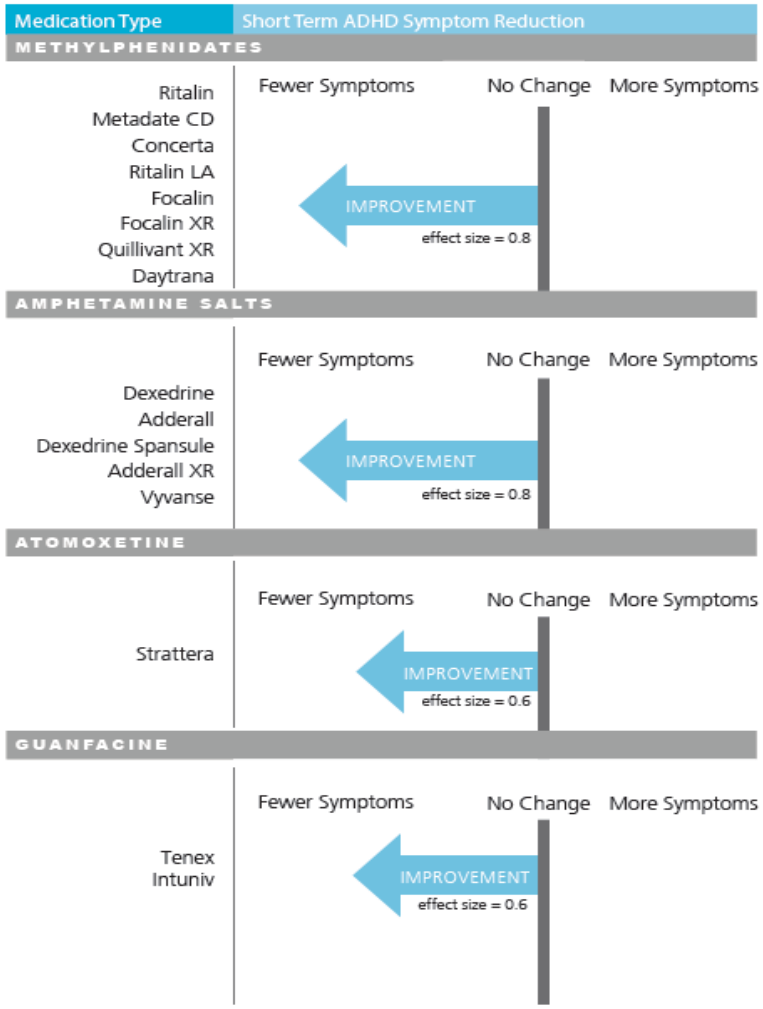
IMPROVEMENT

HOW MUCH WILL MEDICINE HELP?



DAILY ROUTINE

DOES MY CHILD NEED TO SWALLOW A PILL?

Medication	Times / day	When Taken	Method
METHYLPHENIDATES			
Ritalin	2 – 3 / day	AM, 4 hrs, 4 hrs	Swallow whole or CRUSH to put in food
Metadate CD	1 / day	AM, 45 minutes before class or activity	Swallow, or sprinkle in applesauce, pudding, or yogurt
Concerta	1 / day	AM, 90 minutes before class or activity	Swallow ONLY
Ritalin LA	1 / day	AM, 45 minutes before class or activity	Swallow, or sprinkle in applesauce, pudding, or yogurt
Focalin	2 – 3 / day	AM, 4 hrs, 4 hrs	Swallow whole or CRUSH to put in food
Focalin XR	1 / day	AM, 45 minutes before class or activity	Swallow, or sprinkle in applesauce, pudding, or yogurt
Quillivant XR	1 / day	45 minutes before class or activity	Swallow liquid
Daytrana	1 / day	AM, 2 hours before class or activity, lasts 3 hours after removal	Patch
AMPHETAMINE SALTS			
Dexedrine	2-3 / day	AM, 4 hrs, 4 hrs	Swallow whole or CRUSH to put in food
Adderall	2-3 / day	AM, 4 hrs, 4 hrs	Swallow whole or CRUSH to put in food
Dexedrine Spansule	1 / day	AM, AM 60 minutes before class or activity	Swallow ONLY
Adderall XR	1 / day	AM, 45 minutes before class or activity	Swallow, or sprinkle in applesauce, pudding, or yogurt
Vyvanse	1 / day	AM, 60 minutes before class or activity	Swallow, or sprinkle in applesauce, pudding, or yogurt, or dissolve in liquid
ATOMOXETINE			
Strattera	1 / day	AM OR PM	Swallow
GUANFACINE			
Tenex	2 / day	AM AND PM	Swallow whole or CRUSH to put in food
Intuniv	1 / day	AM OR PM *	Swallow ONLY

* Take pill in the morning, or at night if causing drowsiness.
It takes 2 to 3 weeks for medicine to reach beneficial level.

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SIDE EFFECTS

WHAT SHOULD I WATCH FOR?

Medication Type	Most Common	Less Common	Least Common
METHYLPHENIDATES			
Ritalin Metadate CD Concerta Ritalin LA Focalin Focalin XR Quillivant XR	• Decreased appetite • Weight loss • Trouble falling asleep • Stomach aches • Headaches • Increased crabbiness • Irritability • Mood swings • Increased anxiety and/or crying • Rebound of ADHD symptoms • Grumpiness as medication wears off • Social withdrawal or overly focused on tasks	• Dry mouth • Fatigue • Tics (nervous twitches or vocalizations)	• Increased heart rate and/or blood pressure • Growth suppression or delay • Hallucinations (seeing or hearing something that is not real)
Daytrana (Methylphenidate patch)	Same as above, • Also skin irritation or rash at the site of application • Pain (stinging/burning) when removed	Same as above	Same as above
AMPHETAMINE SALTS			
Dexedrine Adderall Dexedrine Spansule Adderall XR Vyvanse	Same as above	Same as above	Same as above
ATOMOXETINE			
Strattera	• Nausea • Vomiting • Fatigue • Decreased appetite • Abdominal pain • Drowsiness	• Headaches • Irritability • Weight loss	• Increased heart rate and/or blood pressure, • Growth suppression or delay
GUANFACINE			
Tenex Intuniv	• Drowsiness • Headaches • Fatigue • Sedation • Dizziness • Irritability • Stomach aches • Nausea		

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ADHD Medication Guide*

Revised: December 2017

Amphetamine Derivatives – Long Acting/Extended Release**

(Medications in this section are shown at actual size)

Adzenys XR-ODT®¶ (d- & l-amphetamine) (orange flavor)	6–12 Yrs: 3.1–18.8mg; SD: 6.3mg 12–17 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 12–17 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		G 5mg	G 10mg	G 15mg	G 20mg	G 25mg	G 30mg	
Vyvanse®¥ (capsules) (lisdexamfetamine)	6 Yrs–Adults: 10–70mg; SD: 30mg	10mg	20mg	30mg	40mg	50mg	60mg	70mg	
Vyvanse®§ (chewables) (lisdexamfetamine) (strawberry flavor)	6 Yrs–Adults: 10–60mg; SD: 30mg	10mg	20mg	30mg	40mg	50mg	60mg		
Dyanavel® XR (d- & l-amphetamine sulfate) 2.5mg/mL (bubblegum flavor)	6–17 Yrs: 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	
Dexedrine Spansule® (d-amphetamine sulfate)	6-17 Yrs: 10–60mg; SD: 5mg 1-2x/day		G♦ 5mg	G♦ 10mg	G 15mg				

Amphetamine Derivatives – Short Acting/Immediate Release**

(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				
Zenzedi® (d-amphetamine sulfate)	3–5 Yrs: SD: 2.5mg 1x/day 6–17 Yrs: 5-40mg divided BID; SD: 5mg 1-2x/day	2.5mg	G 5mg	7.5mg	G 10mg		15mg	20mg	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						

♦ **Discontinued ADHD Medications:** The following FDA-approved proprietary formulations are no longer available (though, in some cases, branded or generic equivalents are still available): 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).

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

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 Target dose is weight-based: .05-0.12mg/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 3d, then 1.2mg/kg (max:1.4mg/kg, not to exceed 100mg) ≥70 kg: 40mg/kg x 3d, then 80mg (max:100mg)	G 10mg	G 18mg	G 25mg	G 40mg	G 60mg	G 80mg	G 100mg	

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ADHD Medication Guide*

Revised: December 2017

Methylphenidate Derivatives – Long Acting/Extended Release**

(Capsules and tablets in this section are shown at 90% of actual size)

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	10mg	15mg	20mg	30mg	40mg	50mg	60mg	
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	G 72mg			
Quillivant XR® 25mg/5mL (5mg/mL) (banana flavor)	6 Yrs–Adult: 20–60mg; SD: 20mg	10mg 2mL	1 Bottle: 300mg 60mL	20mg 4mL	1 Bottle: 600mg 120mL	30mg 6mL	1 Bottle: 900mg 180mL	40mg 8mL	2 Bottles: 600mg 120mL
		50mg 10mL	2 Bottles: 750mg 150mL	60mg 12mL	2 Bottles: 900mg 180mL				
Quillichew ER™§ (cherry flavor)	6 Yrs–Adult: 20–60mg; SD: 20mg			20mg	30mg	40mg			
Focalin® XR‡ (dexmethylphenidate)	6-17 Yrs: 5–30mg; SD: 5mg 18 Yrs-Adult: 5–30mg; SD: 5mg	G 5mg		G 10mg	G 15mg	G 20mg	G 25mg	G 30mg	G 35mg	G 40mg
Ritalin® LA‡	6-12 Yrs: 10–60mg; SD: 20mg	G 10mg		G 20mg	G 30mg	G 40mg		G◆ 60mg		
Metadate® CD‡	6-17 Yrs: 10–60mg; SD: 20mg	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					

Daytrana® 6-17 Yrs: 10–30mg; SD: 10mg

(Patches are shown at 60% of actual size)

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 applesauce

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 comparison; dosing equivalence cannot be assumed.

Methylphenidate Derivatives – Short Acting/Immediate Release**

(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	

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

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

*Disclaimer: The ADHD Medication Guide was created by Dr. Andrew Adesman of Northwell Health, Inc. Northwell Health is not affiliated with the owner of any of the brands referenced in this Guide.

The ADHD Medication Guide is a visual aid for professionals caring for individuals with ADHD. The Guide includes only medications indicated by the FDA for the treatment of ADHD. In clinical practice, this guide may be used to assist patients in identifying medications previously tried, and may allow clinicians to identify ADHD medication options for the future. Medications have been arranged on the card for ease of display and comparison, but dosing equivalence cannot be assumed. Practitioners should refer to the FDA-approved product information to learn more about each medication. Although every effort has been made to depict the size and color of each medication, we cannot guarantee that there are not minor distortions in the final image.

This Guide should not be used as an exclusive basis for decision-making. The user understands and accepts that if Northwell Health were to accept the risk of harm to the user from use of this Guide, it would not be able to make the Guide available because the cost to cover the risk of harm to all users would be too great. Thus, use of this ADHD Medication Guide is strictly voluntary and at the user's sole risk.

This Guide is accurate as of December 31, 2017.

Cohen Children's Medical Center
Northwell Health

6. Common pitfalls

1. Choosing non-stimulants to start

   - Remember effect size of stimulants vs. non-stimulants
   - Don’t be afraid to start a stimulant medication
   - Stimulants are safe and effective

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6. Common pitfalls

2. Changing medication too soon

- Usual scenario: Parent complains about medication
  Solution: Get more history and analyze / troubleshoot (not change medication immediately)

" Medication not effective"

Possible Reason	Troubleshoot / Solution
- Low dose / under dosed	- Titrate up
- When is it not effective – afternoon?	- Add short acting or change to long acting medication
- Inappropriate expectations (parents want tantrums or ODD symptoms to disappear)	- Explain goals of treatment and set appropriate expectations
- Medication truly not effective	- Try a different medication in the same or different class (MPH-AMP)
- Not ADHD	- Reevaluate (Learning disability? Anxiety? Tantrums?)

Common pitfalls

3. Adding another medication too soon

* Maximize 1st medication first before adding another

"Only partially effective"

Possible Reason	Solution
- Low dose / under dosed	- Titrate up
- Inappropriate expectations (parents want tantrums or ODD symptoms to disappear) or patient has Learning disability	- Explain goals of treatment - Set appropriate expectations
- Truly a partial responder	- Try adding a non-stimulant as adjunct/additive

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7. Side effects

Complaint	Troubleshoot
- Loss of appetite	- Counsel on how to increase caloric intake - Option of drug holidays (weekends and summer off)
- Headache / stomachache	- Common, usually gets better after a few days - Observe
- Insomnia	- What's the baseline sleep status? - Too high dose? Given too late in the day? - May try Melatonin - Ensure good sleep hygiene
- "Moody"	- Wait, wait, wait - Explore other possible reasons/ explanation (do a functional behavior analysis)

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Side effects

Complaint	Troubleshoot
- “very hyperactive: afternoon/evening” – rebound hyperactivity	** NOT a TRUE side effect– needs more medication - Add short acting medication or switch to long acting medication
- True intolerable side effect	- Try a different medication in a different class (MPH-AMP) - If unable to tolerate stimulant at all – switch to non-stimulant
- Unable to tolerate more stimulants	- Add non-stimulant - Discuss pros and cons / risk and benefits

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8. Newsflash!

- Novel, non-invasive device
- FDA approved: prescription treatment for children 7-12 with ADHD who are not on meds
- Neurostimulator device – delivers Trigeminal Nerve stimulation (TNS) worn across forehead
- Hypothesized to work on Trigeminal nerve's projections to regions of brain involved in attention

4 McGough JJ, et.al. Double-Blind Sham-Controlled Pilot Study of Trigeminal Nerve Stimulation for ADHD. *JAACAP* (2019).

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Results of the research study:

NeuroSigma

FDA APPROVED

- Final sample analyzed:

Active Treatment Group	Sham Group
N = 30	N = 26
SE: headache, fatigue, increased HR, Increased appetite	
Improvement of ADHD symptoms (effect size= 0.5)	
Effects sustained after 1 week post-treatment, and continued to improve over 4 weeks	After 1 week post-treatment, effects leveled off

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Do we start recommending this?

- Only 1 study
- "Probably efficacious treatment (Level 2)"
- Study must be replicated by at least 2 independent teams of evaluators to be Level 1 (Well-established treatment)
- Nowhere near the track record of established treatments:
  - psychostimulant medication
  - parent management training
- Promising study, but much more work needs to be done

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- **Thank you for your time and attention!**

- Questions and comments ?

  rsuy@cnmc.org

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