Bio-Behavioral Assessment and Support for ADHD in Autism: Part 2

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Speaker Disclosures

- I have no financial disclosures, no associations with pharmaceutical companies.
- •There will be discussion of psychotropic medications, both FDA approved for children and off-label uses.





Disclaimer

Information offered in this presentation includes general information and resources regarding potential treatment options for youth with ASD. This information does not constitute medical or professional advice or services, and does not constitute a formal therapeutic or consultant-consultee relationship. The information is not specific to any individual or child. Discuss these resources or guidelines with your child's health care team to determine what treatments may be most beneficial.





Learning Objectives

- 1. Review **best practices** in assessment and treatment of ADHD in individuals with ASD
- 2. Describe *Shared Decision Making* and resources to guide selection of interventions.
- 3. Identify **common ADHD medications** used to address hyperactivity, inattention and impulsivity
- 4. Identify **resources** for youth with co-occurring ASD/ADHD and their families for safe and informed treatments

MEDICINE of the Highest Order



ASD and co-occurring conditions

- 1. Educational and behavioral interventions: mainstay of intervention in ASD
- 2. Medication: no medication to target or treat the core features of ASD (social communication/interaction; restricted repetitive patterns)
- **3. Challenging behavior concerns:** assess and treat for common medical issues; consider common co-occurring diagnoses (ADHD, anxiety, mood)
- **4. Clinical diagnoses:** both ADHD and ASD require gathering comprehensive medical and behavioral symptom data; each diagnosis guide best treatments
- 5. Evidence base: research trial data regarding ADHD treatments in children without ASD is more robust than it is in children with ASD.

More research needed re: best treatments, medication safety, short and long term efficacy, tolerability, and outcomes in youth with ADHD and ASD.



Clinical Practice Guidelines-

- Recommendations from experts in professional organizations including evaluation of the available evidence
- Goal: identify best practices and improve clinical decision-making and patient outcomes



ADHD Practice Guidelines American Academy of Pediatrics (AAP)	2019 Wolraich, et al; AAP Clinical Practice Guidelines for Diagnosis, Evaluation and Treatment of Attention-deficit/Hyperactivity Disorder in Children and Adolescents https://publications.aap.org/pediatrics/article/144/4/e20192528/81590/Clinic al-Practice-Guideline-for-the-Diagnosis
ASD Clinical Report American Academy of Pediatrics (AAP)	2020 Hyman, S. et al; AAP Clinical Report Identification, Evaluation, and Management of Children With Autism Spectrum Disorder https://publications.aap.org/pediatrics/article/145/1/e20193447/36917/Ident ification-Evaluation-and-Management-of
Complex ADHD and ASD Algorithm Society for Developmental and Behavioral Pediatrics (SBDP)	2020 Barbaresi, W. et al; SDBP -Clinical Practice Guideline for the Assessment and Treatment of Children and Adolescents with Complex Attention-Deficit/Hyperactivity Disorder: Process of Care Algorithms. <u>https://pubmed.ncbi.nlm.nih.gov/31996578/</u>

Clinical assessments

Consider common medical co-morbidities seen in youth with ASD:

genetic considerations, gastrointestinal symptoms; feeding, sleep, constipation concerns; seizures.

Complete Medical History:

birth; past medical; developmental milestones, screening; body systems review; complete physical exam; hearing/vision screening, growth; nutrition/dietary history; current treatments, medications, supplements, over the counter products.

Family Medical History

learning, developmental differences, genetic conditions; medical conditions, cardiovascular history; medications; ADHD, anxiety, depression, treatments, medications; other family mental health concerns.



Clinical assessments (cont'd)

Behavioral History

 Strengths and interests; when is there NOT challenging behavior; early behavioral history; early adversity; temperament; signs of hyperactivity, impulsivity, aggression, inattention, anxiety, mood concerns.

Academic History

• Services: Early Intervention; pre-school; school; setting, history, learning issues; progress; reports/records; consider language and academic ability.

Social History

 Insurance, resources, services; family/household constellation, caretakers, stressors; parenting style, family belief systems, culture, ethnicity; trauma or violence exposures; displacement.



When considering medication intervention--

- Educational and behavioral interventions are mobilized: evidence based behavior strategies, communication therapies, special education, school behavior supports.
- Medical stability: treatable medical conditions are addressed, sleep, growth/appetite and side effect profiles of medications are considered.
- Persistent impairment and risks: to safety, health; social/peer relationships; family, school or community engagement; and of sufficient intensity to warrant treatment.
- Associated condition or symptom for which there is evidence based treatment: specific and measurable, intense enough to be impairing, with increased severity, frequency, and/or duration.
- Child/Family Factors: agreement among caregivers, and the family context supports safe medication use and effect monitoring.
- ✓ Quality of life: reduction in child distress, reduction in symptoms; risk of losing services or placement; child and family function.
- ✓ Improvement in functional outcomes: reduce chronic stress; avoid further delays in skill acquisition; improve engagement in therapies.



Shared Decision Making (SDM)

- A model of care where clinicians and patients work together to make decisions, select treatments and care plans, based on best available clinical evidence
- Particularly important when research evidence is less clear
- Goal is to balance risks and expected outcomes with patient/family preferences and values.

Using a SDM approach is a best practice when balancing the risks and benefits of psychotropic medication use in an individual child/family.





Medication Decision Aid: Tool kit for families and clinicians





This too. Not is funded in part by cooperative agreement GAU MIC 11054 through the U.S.

www.autismspeaks.org

Key points:

- Medications may reduce specific challenging behaviors, to some degree.
- No medication eliminates challenging behaviors
- There are potential side effects, as well as costs and responsibilities for families and clinician
- Parent/child/clinician have a working relationship
- Measuring and rating symptoms is a key component of effectively evaluating benefits and effects
- Some medicines are FDA approved, some are used "off label"
- Medications for challenging behavior are rarely used as needed
- Start only one new treatment or agent at a time for an adequate trial



Selecting a target behavior for medication treatment



	 Mark behaviors that are a problem for your child 		
Be	Behaviors and Symptoms that might get better with medicines		
	Hyperactivity (high activity level, "on the go", restless, fidgety)		
	Short attention span		
	Impulsivity (acts without thinking)		
	Irritability (testy, grouchy, oversensitive)		
	Aggression		
	Hurts himself or herself		
	Tantrums		
	Repeating thoughts (thinks about the same thing over and over)		
	Repeating behaviors		
	Sleep problems		
	Tics		
	Anxiety (too many fears, worries a lot)		
	Depression (low mood, sad)		

Behaviors and Symptoms that are not usually helped

Does not follow directions

Refusing behaviors (flopping, running)

Slow learning

Not talking, low communication skills

Poor social skills



Common ADHD medications

ATN/AIR-P Autism and Medication: Safe and Careful Use | Autism Speaks

Medicine Type	Target Behaviors	Possible Comm	on Side Effects
 Stimulant Medicines methylphenidate (Ritalin, Metadate, Concerta, Methylin, Daytrana) dexmethylphenidate (Focalin) mixed amphetamine salts (Adderall) dextroamphetamine (Dexedrine) lisdexamfetamine (Vyvanse) 	Hyperactivity (high activity level) Short attention span Impulsive behaviors	Common: Problems falling asleep Less appetite Irritability/emotional outbursts	Less common: Tics Anxiety, depression Repeating behaviors and thoughts Headaches Diarrhea Social withdrawal Changes in heart rate or rhythm*
Atomoxetine (Strattera)	Hyperactivity (high activity level) Short attention span Impulsive behaviors	Common: Sleepiness GI problems (nausea, vomiting, constipation, low appetite)	Less common: Thoughts of harming self, suicide*
 Alpha Agonists Medicines guanfacine (Tenex, Intuniv) clonidine (Catapres, Catapres TTS, Kapvay) 	Hyperactivity (high activity level) Short attention span Impulsive behaviors Sleep problems Tics	Common: Sleepiness Low blood pressure Irritability	Less common: Constipation High blood pressure if stopped quickly

Autism and Medication: Tool Kit for Families and Clinicians

Autism and Medication: Safe and Careful Use







These materials are the product of on-going activities of the Autism Speak Autism Treatment Network, a funded program of Autism Speaks. It is supp cooperative agreement UA3 MC 11054 through the U.S. Department of He Human Services, Health Resources and Services Administration, Maternal and Child Health Research Program to the Massachusetts General Hospita Its contents are solely the responsibility of the authors and do not necessa represent the official views of the MCHB, HRSA, HHS, or Autism Speaks."

ATN/AIR-P Autism and Medication: Safe and Careful Use | Autism Speaks

- Starting meds
- Target symptoms
- Tracking tools
- Side effect monitoring
 Side effect management
- Behavior monitoring
- Pill swallowing
 - Resources

Autism and Medication: Safe and Careful Use - An Autism Speaks ATN/AIR-P Tool Kit				
Managing Side Effects – Low Appetite				
Recommended Foods for children not growing or not gaining enough weight due to medicines (These foods are high in calories, protein, and other nutrients)				
Milk and milk products	 Whole milk, cream, half and half Whole milk yogurt, pudding, cheese, cottage cheese Powdered nonfat dry milk (added to other foods/drinks) 	 Sweetened condensed milk Sour cream Ice cream 		
Meat and protein foods	 Any meat, fish, seafood or poultry, but especially high-fat options (chicken or turkey with skin, dark meat, bacon, sausage, 80% or less lean ground beef, bologna, salmon) 	 Eggs (scrambled, fried, hard-boiled, and added to other foods) Nuts and nut butters Dried beans and pea, hummus 		
Grains	 Breads and rolls with butter, cream cheese, peanut butter or other high calorie toppings Muffins Hot cereals made with whole milk or cream 	 Pancakes, French toast with butter and syrup Cheese-flavored crackers, club crackers, other crackers made with fat Ready to eat cereals with whole milk or cream 		
Vegetables	Avocados and olives	 All vegetables prepared with oil, butter, cream or cheese sauces 		
Fruits	 All fruits (serve with sugar or cream on top, or with yogurt for dipping) 			
Fats and Oils	Butter, margarine, oil, mayonnaise (use in generous amounts)			
Drinks	 Whole milk and flavored milks (chocolate, strawberry) Powdered breakfast drinks added to whole milk 	 Milk shakes, eggnog Hot chocolate made with whole milk Yogurt drinks, especially if made with whole milk yogurt 		
Other	 Barbecue, tartar, or sweet-and-sour sauce Ketchup Maple syrup Cheese spread 	HummusGuacamoleCreamed soups		

Initiating an effective ADHD medication trial in youth with ASD

- **Start with stimulants**: most guidelines advise start with a methylphenidate product (exceptions: medical contraindications; youth/family preferences)
 - Lower response rate; co-occurring conditions likely to see less of a robust response
- Assess sleep, appetite concerns: potential for side effects; individualize selection
- Start at lower end of dosing range: increase in step-wise fashion and only if tolerated
- Select a likely target dose: plan for dose increases, many trials are ineffective
- Optimize one medication: if tolerated, move to target dose; collect data and monitor
- One change at a time: allows careful evaluation of effects
- Consider trial off medication: annually, or lower dose; consider ongoing need
- Daily coverage: more likely utilized when there are co-occurring conditions, vs weekends off
- Second agent: for evening hours and/or for sleep onset may be utilized
- Close follow up is required for an effective trial: follow up with prescriber, home-school collaboration; data collection and monitoring across settings to evaluate benefits

Stimulant Medications

lisdexamfetamine (Vyvanse)

Medicine Type	Target Behaviors	Possible Comm	on Side Effects
 Stimulant Medicines methylphenidate (Ritalin, Metadate, Concerta, Methylin, Daytrana) dexmethylphenidate (Focalin) mixed amphetamine salts (Adderall) dextroamphetamine 	Hyperactivity (high activity level) Short attention span Impulsive behaviors	Common: Problems falling asleep Less appetite Irritability/emotional outbursts	Less common: Tics Anxiety, depression Repeating behaviors and thoughts Headaches Diarrhea Social withdrawal Changes in heart rate or rhythm* 16

What do stimulants do?

- Stimulants primarily act on two neurotransmitters: dopamine and norepinephrine.
- These chemical messengers send information between neurons in the brain.
- This communication is important in attention, focus concentration, impulse control, and behavior.
- There are no other mental health medications with as robust a response rate as stimulants. Effects are seen promptly.





Stimulant Medication—methylphenidates (MPH) and amphetamines (AMP)

"First line" ADHD medications: generally selected first (unless medically contraindicated, or family/patient preference), FDA approved for youth 6+; generally methylphenidate (MPH) first in children; then possibly an amphetamine (AMP) product

"Second line": non-stimulant options; generally 70% of typically developing youth will respond to either MPH or AMP. Non stimulants can be elected first based on individual assessment.

Multiple formulations: brand and generic; chew, tablet, liquid, capsule; patch

Duration of action: ranges 3-12 hours

Actions: stabilize levels of dopamine and norepinephrine in the spaces between neurons, allowing more efficient connection and transmission of signals.

Side effects: common decreased appetite and sleep onset; many can be managed

****Preschoolers:** <u>behavioral treatment should be initiated before medication</u>; then consider MPH or nonstimulants; stimulants may be less well tolerated in preschoolers

ADHD Meds Approved (chadd.org) Useful chart of products, strengths and duration.



Non-stimulant medication-atomoxetine

Medicine Type	Target Behaviors	Possible Common Side Effects	
Atomoxetine (Strattera)	Hyperactivity (high activity level) Short attention span Impulsive behaviors	Common: Sleepiness GI problems (nausea, vomiting, constipation, low appetite)	Less common: Thoughts of harming self, suicide*

Selective norepinephrine reuptake inhibitor (SNRI)



- "Second line" ADHD
- Brand and generic
- Formulation: capsules
- FDA approval: 6 +
- Duration of action: 24 hrs
- How it works: primarily
 norepinephrine actions



atomoxetine (ATX)- considerations for use in ADHD and ASD

In this 10 week clinical trial, there was significant improvement in ADHD symptoms in those receiving ATX. Decreases in appetite were noted, otherwise well tolerated.

May be considered first line in ASD, or conditions where stimulants are contraindicated.

Other studies indicate 40% of children with ASD and ADHD show improvement with ATX and may be better tolerated than stimulants.

Effect better on inattention than hyperactivity or impulsivity; potentially some benefit to anxiety symptoms

Atomoxetine, Parent Training, and Their Combination in Children With Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder

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Objective: Impairments associated with attention-deficit/ hyperactivity disorder (ADHD) and noncompliance are prevalent in children with autism spectrum disorder (ASD). However, ADHD response to stimulants is well below rates in typically developing children, with frequent side effects. Group studies of treatments for noncompliance are rare in ASD. We examined individual and combined-effectiveness of atomoxetine (ATX) and parent training (PT) for ADHD symptoms and noncompliance.

Method: In a 3-site, 10-week, double-blind, 2 × 2 trial of ATX and PT, 128 children (ages 5–14 years) with ASD and ADHD symptoms were randomized to ATX, ATX+PT, placebo+PT, or placebo. ATX was adjusted to optimal dose (capped at 1.8 mg/kg/day) over 6 weeks and maintained for 4 additional weeks. Nine PT sessions were provided. Primary outcome measures were the parent-rated *DSM* ADHD symptoms on the Swanson, Nolan and Pelham (SNAP) scale and Home Situations Questionnaire (HSQ).

Results: On the SNAP, ATX, ATX+PT and placebo+PT were each superior to placebo (effect sizes 0.57–0.98;

p values of .0005, .0004, and .025, respectively). For noncompliance, ATX and ATX+PT were superior to placebo (effect sizes 0.47–0.64; *p* values .03 and .0028, respectively). ATX was associated with decreased appetite but was otherwise well tolerated.

Conclusion: Both ATX and PT resulted in significant improvement on ADHD symptoms, whereas ATX (both alone and combined with PT) was associated with significant decreases on measures of noncompliance. ATX appears to have a better side effects profile than psychostimulants in the population with ASD.

Clinical Trial Registration Information—Atomoxetine, Placebo and Parent Management Training in Autism; http://clinicaltrials.gov/; NCT00844753.

Key Words: atomoxetine, parent training, ADHD, autism spectrum disorder, clinical trial

J Am Acad Child Adolesc Psychiatry 2015;54(11):905-915.

Non-stimulant medications- guanfacine and clonidine

Medicine Type	Target Behaviors	Possible Co	mmon Side Effects
 Alpha Agonists Medicines guanfacine (Tenex, Intuniv) clonidine (Catapres, Catapres TTS, Kapvay) 	Hyperactivity (high activity level) Short attention span Impulsive behaviors Sleep problems Tics	Common: Sleepiness Low blood pressure Irritability	Less common: Constipation High blood pressure if stopped quickly

- Clonidine and guanfacine: both available in short and long acting forms
- Second line ADHD medications: useful with stimulants for after school or coverage or sleep; useful for those who cannot take or tolerate stimulants
- Generic and brand: available
- **Options**: may be used as a single agent, or as a second agent for ADHD
- "Off label": for outbursts, aggression, sleep onset
- Long acting guanfacine-must be swallowed whole; short-acting tab can be crushed
- Long acting clonidine- capsule can be opened; short-acting tab can be crushed





Summary

- Medications may be useful in addressing impairing ADHD symptoms in youth with ASD, in combination with educational and behavioral interventions which are the mainstay of treatment for ASD.
- Medication decisions should be made by the health care team in partnership with youth and families considering individual and family preferences, beliefs and goals, as well as risks, benefits, side effects, medical considerations.
- Optimal engagement in family, school and community requires a multi-pronged approach
- Family, school, medical, behavioral and community collaboration optimizes safe monitoring and evaluation of medication options, safety and possible medication benefits or side effects.
- Multiple valuable resources are available for individuals, families, school professionals and clinicians to inform best and safest practices for medication use in children/youth/individuals with ASD.
- Research is needed to further identify safest, most effective treatments for youth with ASD, and cooccurring conditions



ADHD National Resources- Professional, Parent and/or School

- ADHD HealthyChildren.org
 - AAP Parenting Website
- ADHD Resource Center (aacap.org)
 - American Academy of Child and Adolescent Psychiatry --consumer education
- <u>Learn About Attention-Deficit / Hyperactivity Disorder (ADHD) | CDC</u>
 - Centers for Disease Control and Prevention (CDC); professional, parent, school resources
- Learning Disabilities Association of America Support. Educate. Advocate. (Idaamerica.org)
 - Learning Disability Association; support, education and advocacy
- <u>CHADD Improving the lives of people affected by ADHD</u>
 - Children and Adults with Attention Deficit/Hyperactivity Disorder (CHADD). Professional resources as well as parent, school, adult resources.
- <u>Understood For learning and thinking differences</u>
 - What Is ADHD | Understood
 - What Are Learning Disabilities? | Understood
- <u>NIMH » Attention-Deficit/Hyperactivity Disorder (nih.gov)</u>
 - Links to research studies, multimedia, shareable resources
- ADHD MH Booklet (ny.gov)
 - \circ ~ New York State: resource finder, support groups, parent skills



Autism Specific Resources

Medication Decision Aid

• ATN/AIR-P Medication Decision Aid | Autism Speaks

Medicines and ASD: Safe and Careful Use

• <u>ATN/AIR-P Autism and Medication: Safe and Careful Use | Autism Speaks</u>

American Academy of Child and Adolescent Psychiatry Autism Resource Center

 <u>https://www.aacap.org/aacap/Families and Youth/Resource Centers/Autism Re</u> <u>source Center/Home.aspx</u>

Autism Speaks

ADHD

 <u>https://www.autismspeaks.org/attention-deficit-and-hyperactivity-disorder-</u> adhd?topic[1931]=1931&resource type[606]=606&topic[1931]=1931&state[321

<u>]=321</u>



Medication Resources

ADHD Meds FDA Approved -CHADD 2021

Free printable medication chart, brand, generic, duration, strengths; from Children and Adults with Attention Deficit/Hyperactivity Disorder (CHADD).

ADHD Medication Guide-web.pdf (aacap.org)

American Academy of Child and Adolescent Psychiatry (AACAP) Consumer guidelines, assessment, treatments options, 2020

Child Mind.org/article/autism-and-medication/

Child Mind Institute

<u>Pill Swallowing: An Educational Website to Improve Pill Swallowing Skills</u> Cohen Children's Medical Center, Northwell Health

Autism Speaks-- Medication Decisions and Pill Swallowing Video

https://youtu.be/c8NnZdi7DmA

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Educational Accommodations and Resources

- <u>ADHD-School-Toolkit.pdf (chadd.org)</u>
- <u>Classroom Accommodations CHADD</u>
- <u>Accommodations to Help Students With ADD and ADHD</u>
 <u>Understood</u>
- <u>National Association of School Psychologists (NASP)</u> (nasponline.org)





Thank you!!

