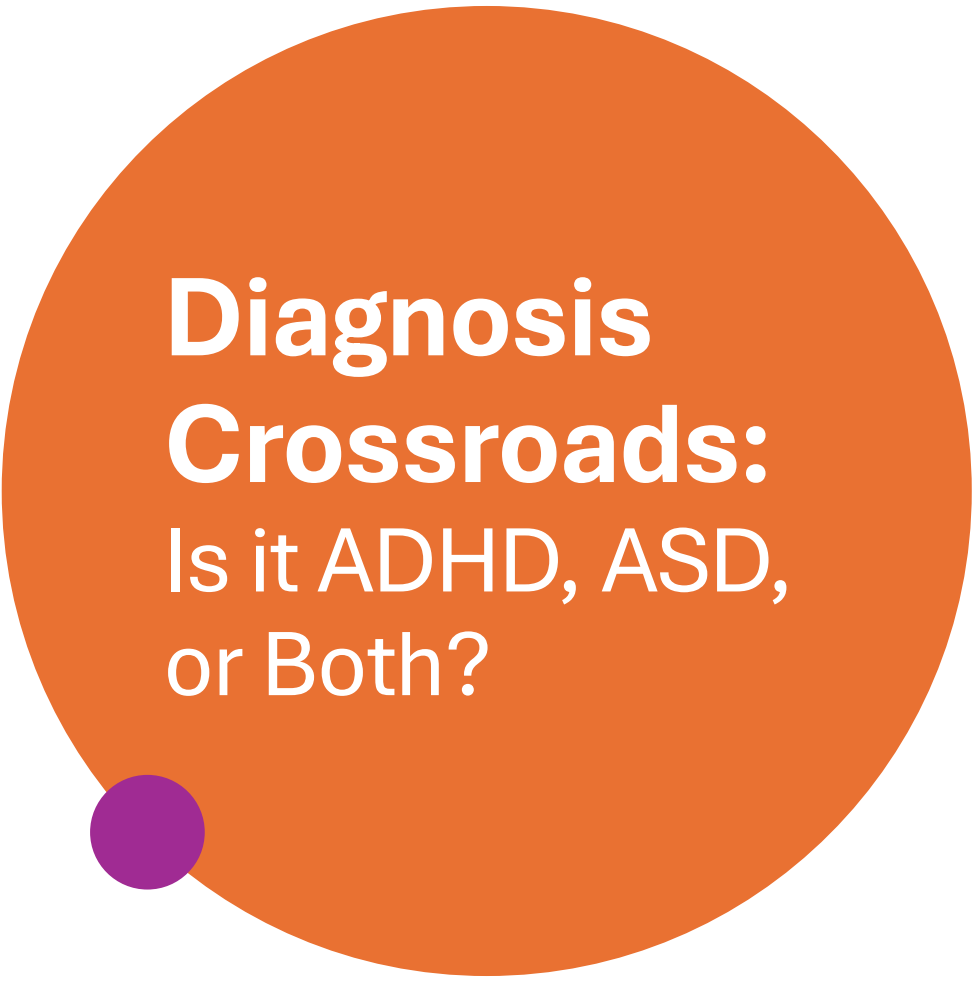




Diagnosis Crossroads: Is it ADHD, ASD, or Both?

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- No disclosures



Agenda



SHARED FEATURES
AND DISTINCTIONS



APPROACH TO
DIAGNOSIS



THERAPEUTIC OPTIONS

ADHD vs. Autism: What's the Difference?

Are **both neurodevelopmental disorders**.

ADHD and ASD share some common traits, but they're distinct conditions.

50% to 70% of autistic kids also experience ADHD traits.

The term AuDHD – used within the neurodivergent community to describe the dual diagnosis

Back in history

DSM-IV (until 2013)	DSM-5 (from 2013)
Concurrent diagnosis ADHD and autism could not be diagnosed together	Concurrent diagnosis ADHD and ASD can be diagnosed together
Separate criteria ADHD: inattention, hyperactivity and impulsivity Autism: social interaction, communication and stereotyped behaviors	Clinical assessment Clinicians can evaluate and record both conditions in the same patient

➡ **DSM-5 permits concurrent ADHD and ASD diagnoses.**

Difficulties for clinicians when attempting to
establish a diagnosis

Share traits

Both conditions involve:

- Executive dysfunction
- Sensory processing differences
- Emotional dysregulation
- Hyperfocus on specific interest
- Social challenges

Contrasting Traits

- ADHD: drives a search for quick impulse
- ASD: craves routine, predictability and order

Executive Function

Definition: Consists of the cognitive skills that

- Allow individuals to self-regulate and perform self-directed behaviors



Enabling them to plan, execute ideas, and achieve goal

- Allows inhibition of one's responses and permits cognitive flexibility



Critical component of daily functioning

- Responsible for working memory



Ability to retain and manipulate new information

Executive Dysfunction

	ADHD	ASD
Areas of impairment	• Inhibition • Sustained attention (leading to hyperactivity and inattention)	• Deficits in cognitive flexibility (need for cognitive predictability)
	Minimal improved with the age Hallmark of ADHD	May improved with the age

Individuals with both ADHD and ASD may exhibit worse executive function impairments than those with either condition alone.

Social Functioning

ADHD

ASD

Hallmark of ASD

Social Behaviors

Behaviors which are seen negatively and hinder social relationships

Examples:

- Interrupting
- Rule violation
- Inattention during socialization

Lack of behaviors that are seen positively and strengthen social relationships

Examples:

- Eye contact
- Social smile
- Engaging in play

Social Knowledge

They need to make friendships and develop socially .

However, they have a “**poor performance**” when interacting with peers . So, although individuals with ADHD might know what to do, they are often unable to execute socially correct behaviors

- Deficits and don't understand how or have the skills needed to make friends

May benefit more from social skills training

Emotional intelligence

Emotions in ADHD and ASD

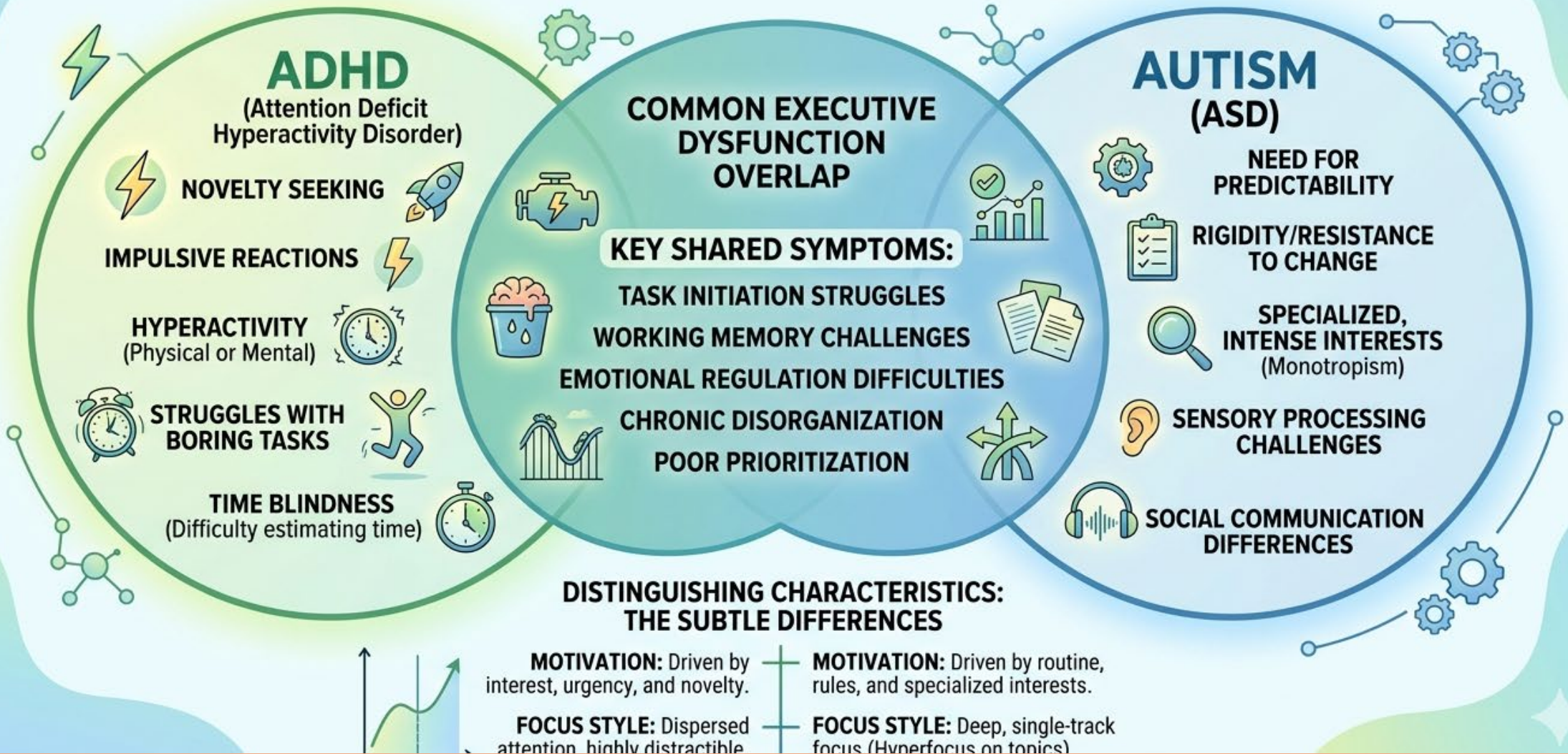
- Both conditions can impair emotion recognition
- ASD shows greater emotion recognition difficulties than ADHD
- ADHD particularly affects recognition of anger and fear
- ASD can alter physiological responses to others' emotions
- Emotion regulation difficulties can undermine social functioning
- About half of children with ADHD experience dysregulation
- ASD features can mask separate emotion regulation difficulties

Attention

Feature	Inattention in ADHD	Decrease Joint Attention
Core mechanism	Deficit in attention regulation to internal distractibility or external stimuli	Deficit in the instinct to share experiences or social focus with others
Gaze and eye contact	Eye contact is typically intact but intermittent or brief.	Difficulties in eye gaze to coordinate attention between a person and an object
Response to Prompts	May response briefly when prompted but quickly pull away by a competing distraction	Often fails to follow someone pointing or looking at an objects
Social intent	Social motivation is there, but disrupts sustained engagements	No show or sharing behaviors

EXPLORING THE NEURODIVERGENT OVERLAP: ADHD vs. ASD

Common and Unique Executive Function Challenges



When inattention, social and emotional behaviors are what my patient presents with...

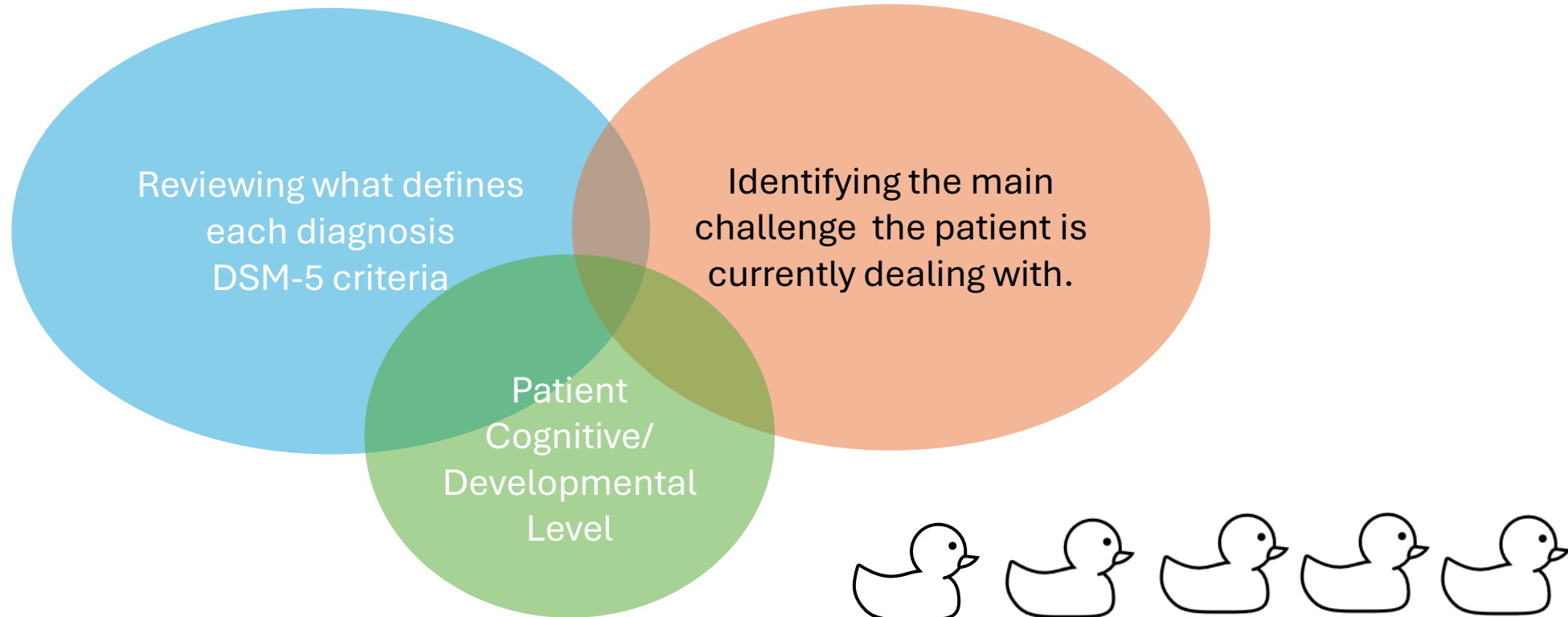
Every kid is different , and so is their development



How should I differentiate the two diagnoses with clarity?

Return to core principles

Revisit the defining features of each diagnosis /Place the presenting challenge in context

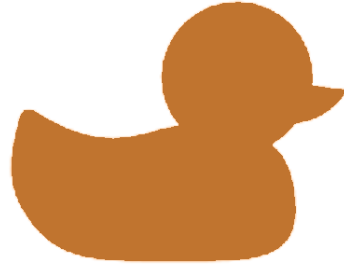


Assessing behavior in context



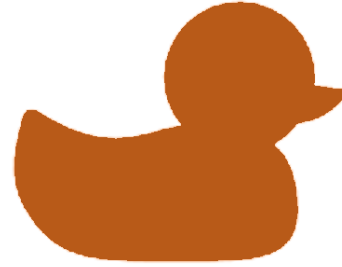
Medical causes

Is the behavior caused by an acute medical condition?



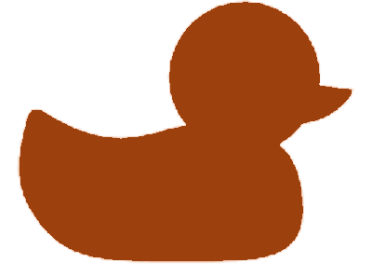
Developmental fit

Is the behavior inappropriate for the developmental age?



Task demands

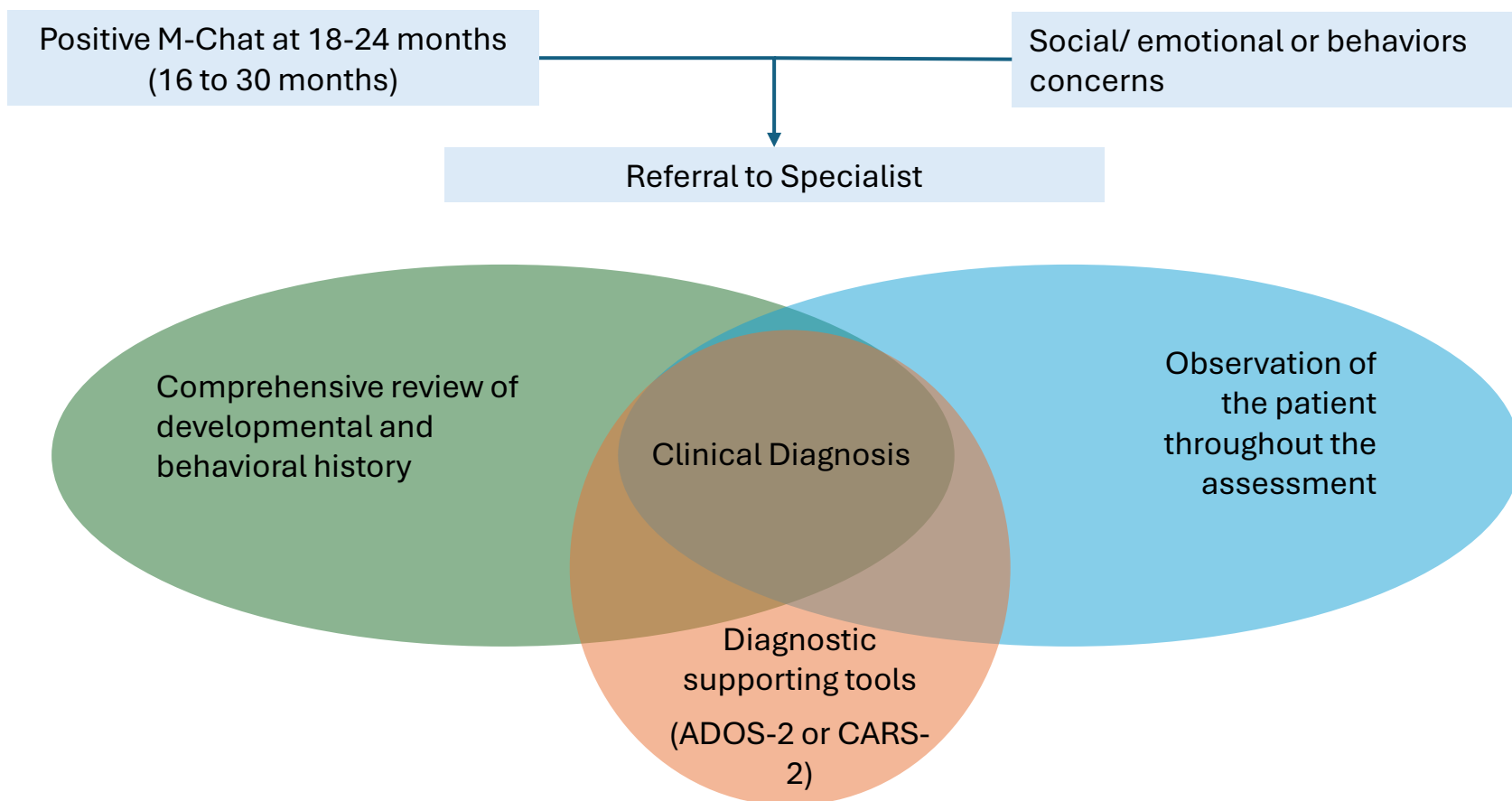
Is behavior secondary to demands and expectations that exceed developmental abilities?



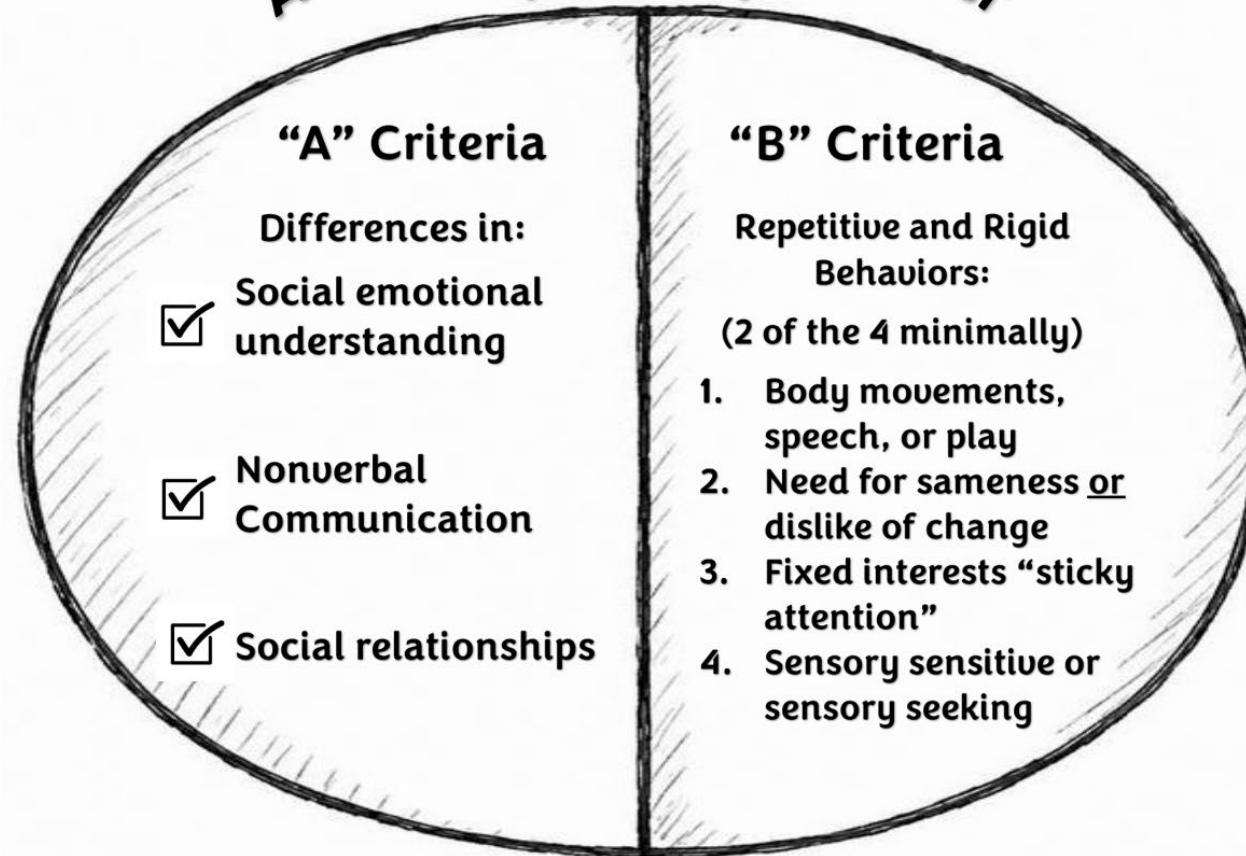
Functional impact

Is behavior impairing across the setting?

Autism Spectrum disorder (ASD) diagnosis



Autism Spectrum Disorder (Autism)



Describes pattern of traits with strengths and weaknesses that cluster together.

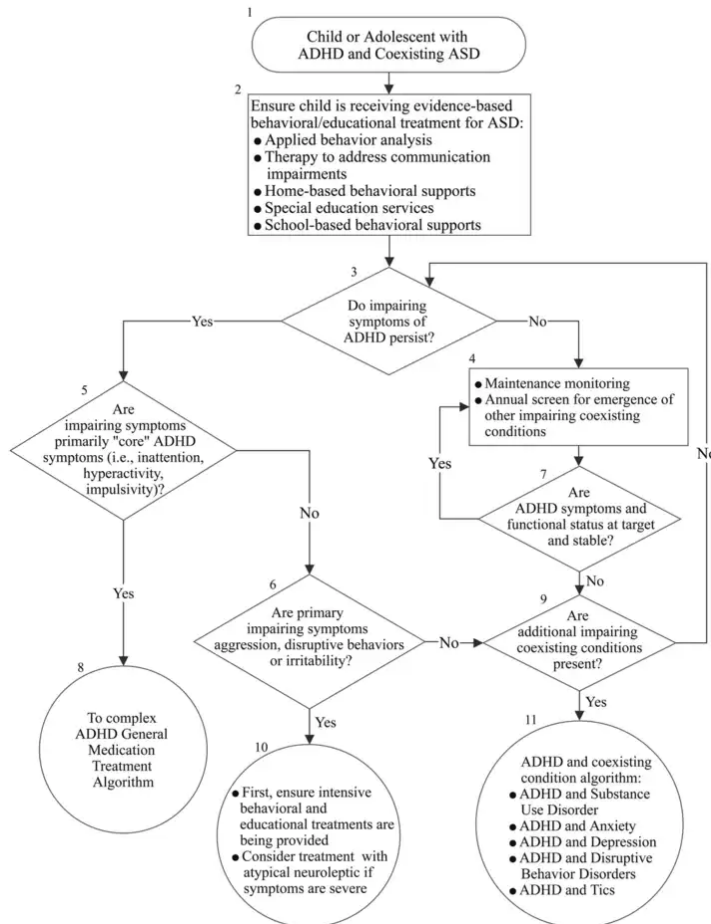
ADHD diagnosis

- 1-PCP should initiate evaluation
- 2-Asses whether DSM-5 criteria are met
- 3-asses for coexisting conditions

- A persistent demonstration of inattention and/or hyperactivity-impulsivity symptoms for at least 6 months in two or more settings with functional or developmental impairment. (Six or more symptoms for children age <17 years and five or more symptoms for older adolescents and adults.)
- The symptoms must be present before age 12.

Symptoms of Inattention	Symptoms of Hyperactivity-Impulsivity
Careless mistakes in academic work or other activities	Restlessness demonstrated through body movements such as squirming, tapping, etc.
Difficulty paying attention	Difficulty remaining seated
Difficulty with listening when spoken to directly	Running and climbing in situations where it is inappropriate (such as in classrooms)
Difficulty following instructions and completing tasks	Difficulty with engaging in tasks quietly
Difficulty with organizational skills	Uncomfortable being still for an extended time
Difficulty with tasks that require significant mental effort	Excessive or unnecessary talk (for example, in classrooms)
Losing things needed for work or activities	Answering abruptly
Easily distracted by stimuli unrelated to work or task	Difficulty waiting for turn
Forgetful in daily activities and following schedules	Interrupting others

ADHD and Coexisting Autism Spectrum Disorder (ASD)



- Guidelines
- The Society for Developmental and Behavioral Pediatrics Clinical Practice Guideline for the Assessment and Treatment of Children and Adolescents with Complex Attention-Deficit/Hyperactivity Disorder: Process of Care Algorithms

1

Child or Adolescent with
ADHD and Coexisting ASD

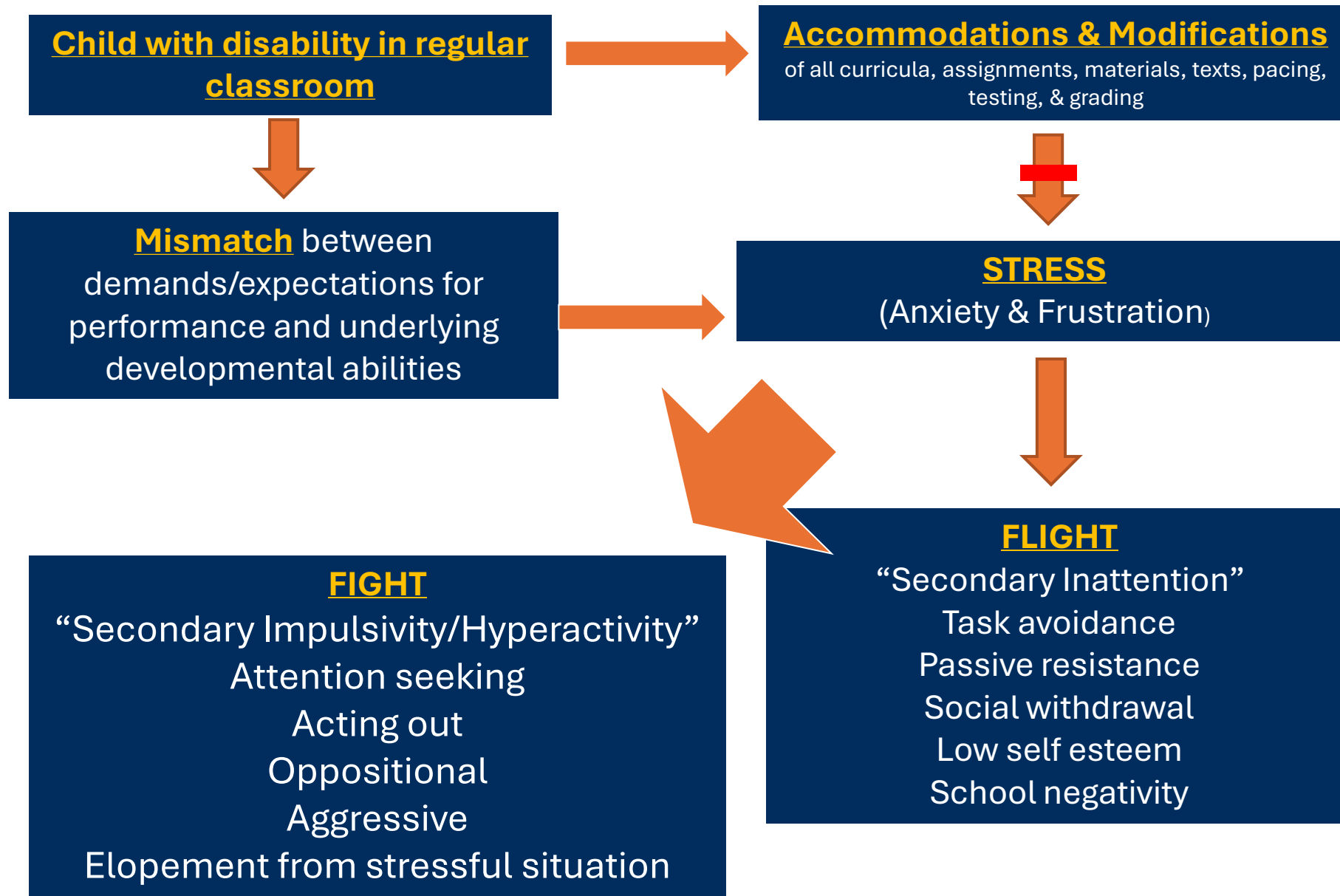


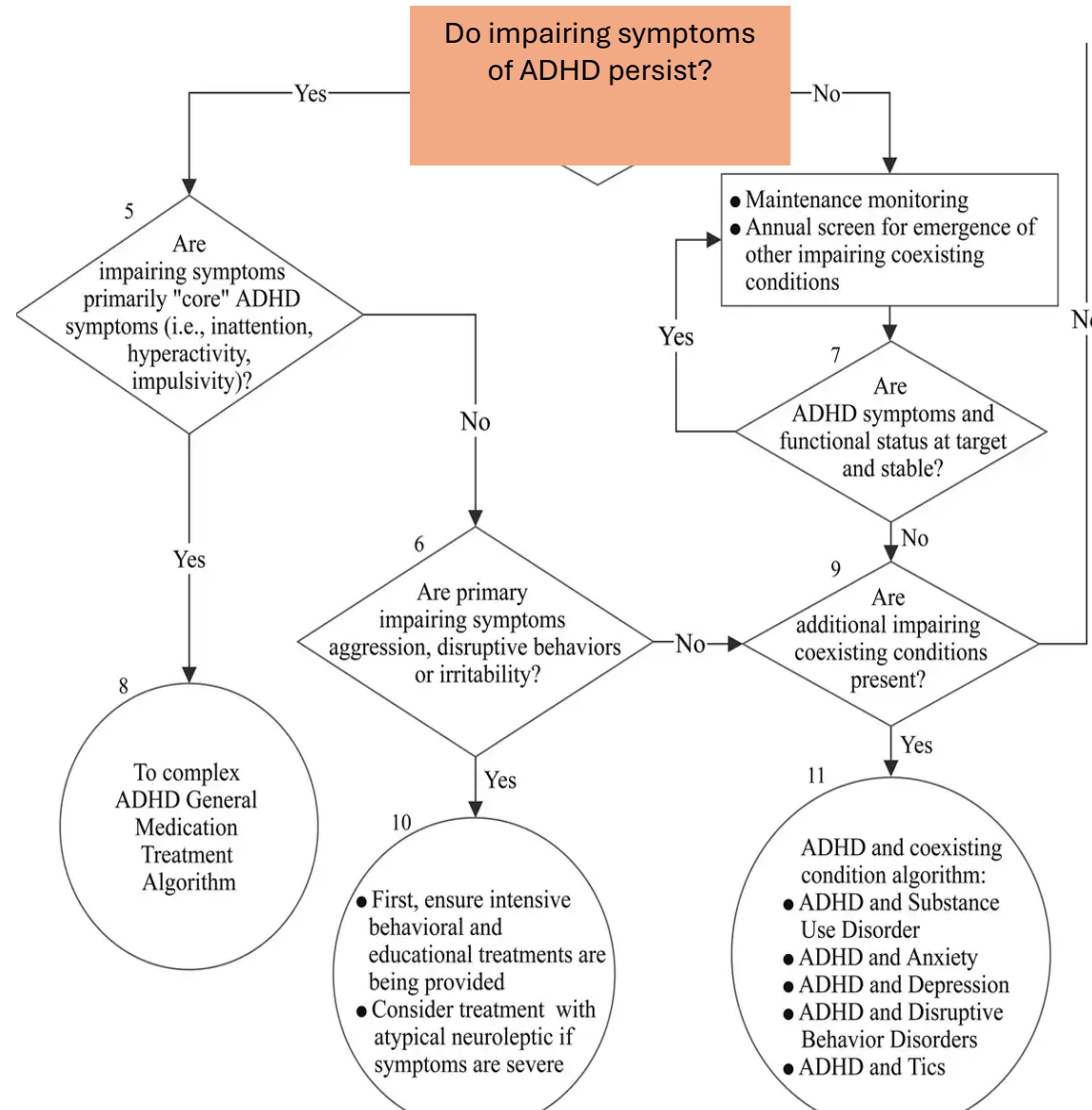
2

Ensure child is receiving evidence-based
behavioral/educational treatment for ASD:

- Applied behavior analysis
- Therapy to address communication impairments
- Home-based behavioral supports
- Special education services
- School-based behavioral supports







Attention-Deficit/Hyperactivity Disorder and Coexisting Autism Spectrum Disorder

ADHD and ASD Treatment

- Combine treatments across settings to build everyday skills
- Medications lack proven benefits for core ASD deficits
- Consider medication when behavioral interventions inadequately control ADHD symptoms
- Methylphenidate (MPH) has been shown to be effective in improving ADHD symptoms in children with ASD, (although offers lower response and poorer tolerability in ASD)
- Evidence for amphetamines and nonstimulants remains limited
- Expert consensus recommends trying stimulants before nonstimulants
- Consider α 2-adrenergic agonists or atomoxetine next

Methylphenidate

CONTROLLED MEDICATION STUDIES IN ASD

Anti-ADHD agent: Methylphenidate (Ritalin) • Target: Hyperactivity / impulsivity • FDA status: B, approved in youth for ADHD (>6 years)

Trial	Participants	Duration	Dose (mg/day)	Response	Side effects (SEs)	Serious SEs
RUPP, 2005	Children 5–14 years	Short term 4 weeks	7.5–50 mg 3 divided doses daily	Yes	Decreased appetite (18%) Insomnia (16%) Irritability (16%) Emotional outbursts (10%)	18% withdrew from study medication due to adverse effects Irritability (8%)
RUPP, 2005	Children 5–14 years	Long term 8 weeks	—	Yes	—	1 participant discontinued study medication due to adverse effects
Ghuman et al., 2009	Preschoolers 3–5 years	Short term 1–2 weeks	14 ± 4 mg Range: 5–20 mg 2 divided doses daily	Yes	50% experienced adverse effects Increased stereotypy (21%) Upset stomach (21%) Sleep difficulties (14%) Emotional lability (7%)	Dysphoria (N = 1)

Autism Parents' Medication Guide Work Group. (2016). *Autism spectrum disorder: Parents' medication guide*. American Academy of Child and Adolescent Psychiatry. https://www.aacap.org/App_Themes/AACAP/Docs/resource_centers/autism/Autism_Spectrum_Disorder_Parents_Medication_Guide.pdf

Atomoxetine

Study detail	Arnold et al., 2006	Harfterkamp et al., 2012
Target symptom	ADHD	ADHD
Medication	Atomoxetine (Strattera)	Atomoxetine (Strattera)
Participants	Children, ages 5-15 yo	Youth, ages 6–17
Study duration	Short term – 6 weeks	Short term, 8 weeks
Dose and schedule	1.4 mg/kg/day	1.2 mg/kg/day
Target symptom response	Yes, as reported in source	Yes, as reported in source
Side effects	Mood swings,/ irritability (44%)Decreased appetite (38%), nausea/vomiting (31%), racing heart (19%) insomnia (19%), restlessness, constipation, diarrhea, dry mouth	81% experience a AEs Nausea/vomiting (29%), decreased appetite (27%), fatigue (23%), early morning awakening
Serious side effects	Violence and hospitalization (n:1)/ tiredness (n:1)	Fatigue (n:1)
FDA approval status	ADHD in youth Exact age threshold > 6yo	ADHD in youth Exact age threshold>6 yo

Guanfacine

Study detail	Handen et al. Year: Needs verification	Scahill et al., 2015
Target symptom	ADHD	ADHD
Medication	Guanfacine (Tenex)	Guanfacine (Intuniv)
Participants	Children, ages 5-8 yo	Children, ages 5–14
Study duration	Short term, 4 weeks	Short term, 8 weeks
Dose and schedule	2.8 mg (2-3) in 3 doses/day	1–4 mg/day
Target symptom response	Yes, as reported in source	Yes, as reported in source
Side effects	Drowsiness (50%), enuresis(14%)	Drowsiness (86%), fatigue (63 %), decreased appetite (43%), emotional/tearful (40%), dry mouth (40%) irritability (37%), anxiety (30%)
Serious side effects	None, as reported in source	Increased verbal /physical aggression (n:1)
FDA approval status	ADHD, ages 6–17, as reported in source	ADHD, ages 6–17, as reported in source

Clonidine

Study detail	1992 study (author: Needs verification)
Target symptom	ADHD symptoms
Medication	Clonidine (Catapres)
Participants	Children (age range:5-13 yo)
Study duration	Short term (6 weeks)
Dose and schedule	0.15-0.2 mg – 3 doses per day
Target symptom response	No, as reported in source.
Side effects	Drowsiness (86%), hypotension (25%), decreased activity
Serious side effects	None, as reported in source
FDA approval status	Needs verification

* Clinical experience supports its effectiveness in young children with sleep difficulties and hyperactivity

Risperidone (Irritability)

Study	Participants / duration	Dose	Reported response	Side effects / serious events
RUPP, 2002	Youth, 5–17 8 weeks	1.8 mg (0.5-3.5) in 2 doses daily	Yes Hyperactivity, stereotypies, repetitive behaviors	Increased appetite(73%), fatigue (59%), sedation(49%), drooling (27%), dizziness (16%), weight gain Serious events: None reported
Shea et al., 2004	Children Age range: Needs verification 8 weeks	1.2 mg Once daily	Yes Anxiety, hyperactivity, inappropriate speech, social withdrawal, stereotypies	All participants Somnolence (73%), EPS (28%), increased appetite(23%), headache(13%), constipation(13%), weight gain (10%) Serious events: None reported
RUPP, 2005 Open-label continuation	6 months	2.1mg (up to 4.5)	Yes Repetitive behaviors, stereotypies Other response details: Needs verification	Increased appetite (6%), drowsiness (2%), weight gain (2%) Serious event: Constipation (n:1)

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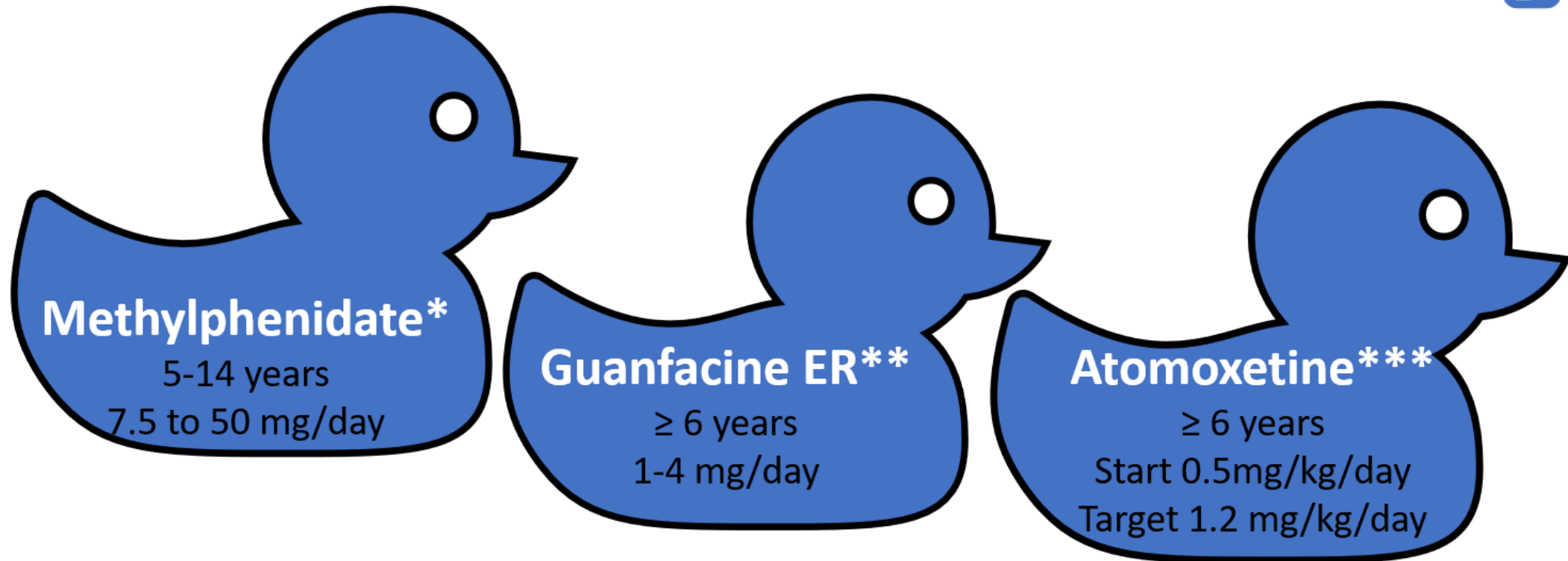
Aripiprazole (Abilify : for Irritability)

FDA approved
in ASD

Irritability (6-17
yo)

Study detail	Marcus et al., 2009	Owen et al., 2009	Marcus et al., 2011a Marcus et al., 2011b
Participants / duration	Youth, ages 6–17 8 weeks	Youth, ages 6–17 8 weeks	Long-term (52-week)
Dose	5–15 mg/day	8.5mg (2-5 mg)	10mg (1–15)
Reported response	Yes Hyperactivity, stereotypies at higher dose, inappropriate speech, repetitive behaviors	Yes Hyperactivity, inappropriate speech, stereotypies, repetitive behaviors	YES Hyperactivity , Inappropriate speech , Stereotypies , Repetitive behaviors
Side effects	88% on study medication experienced AEs: • Sedation (24%) • Fatigue (15%) • Vomiting (13%) • Increased appetite (12%) • Tremors (10%) • Drooling (9%) • EPS (7%) • Weight gain (4%)	Weight gain (29%) • Fatigue (21%) • Somnolence (17%) • Vomiting (15%) • EPS (15%) • Increased appetite (15%) • Sedation (11%) • Drooling (9%) • Diarrhea (9%) • Pyrexia (9%)	87% on study medication experienced AEs: • Decrease in BP (33%) • Weight gain (23%) • Vomiting (19%) • EPS (15%) • Increased appetite (13%) • Pyrexia (12%) • URI (12%) • Insomnia 10%)
Treatment discontinuation (adverse events)	10% on study medication terminated treatment due to AEs: • Sedation (N=7) • Drooling (N=4) • Tremor (N=4)	11% on study medication terminated treatment due to AEs: • Fatigue • Vomiting • Weight gain • SIB • Agitation	11% on study medication terminated treatment due to AEs: • Aggression (2%) • Weight gain (2%) • Suicidal ideation (N=1)

ADHD Meds in Autism



*Research Units on Pediatric Psychopharmacology (RUPP) Autism Network: *Arch Gen Psychiatry*. 2005;62:1266-1274.

**RUPP. *Am J Psychiatry* 2015;172:1197-206.

Psychotropic Medication Side Effects in Autism



Atypical Antipsychotics

Sedation, weight gain, dry mouth, constipation, EPS, NMS, gynecomastia

Guanfacine ER

Sleepiness, lethargy, irritability, mood lability, dizziness, fainting, dry mouth, constipation, low BP, rebound HTN

Methylphenidate

Appetite suppression, insomnia, irritability, ↑perseveration or repetitive/stereotypic

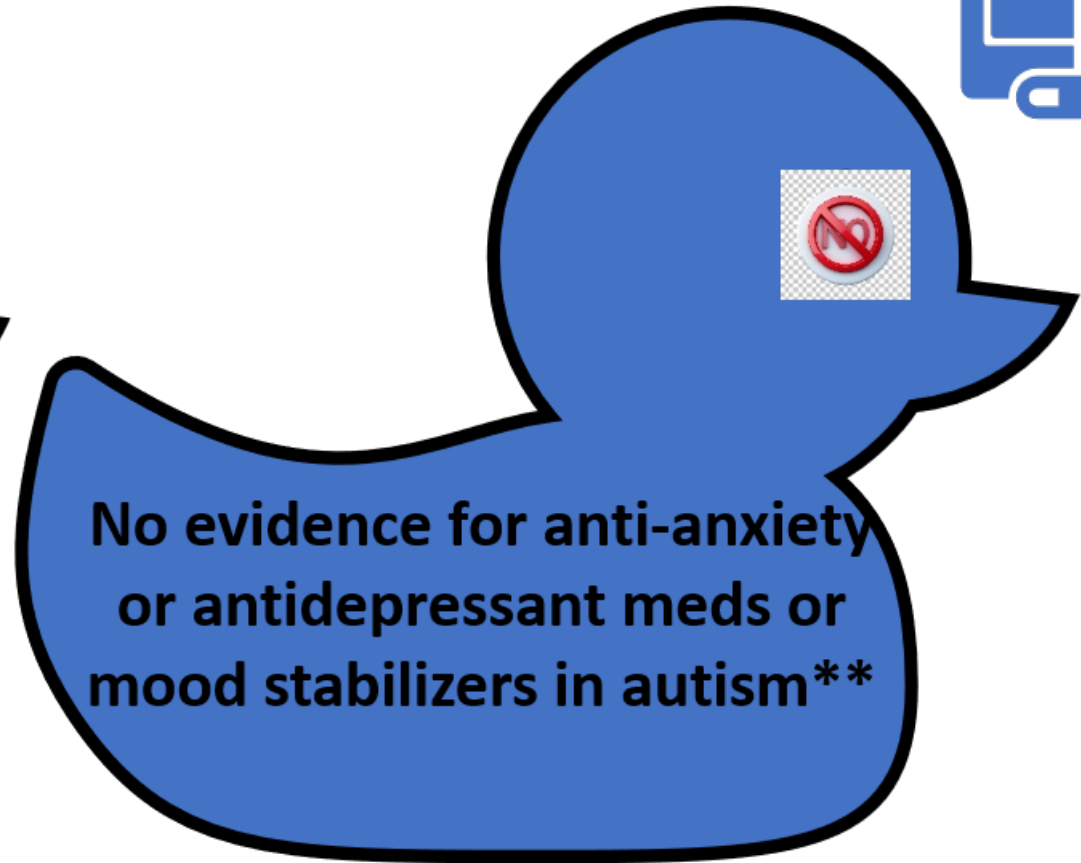
Atomoxetine

Black box suicidal ideation, GI (N/V, ↓ appetite), insomnia, early morning awakening, fatigue, irritability, ↑ HR/BP, hepatotoxicity

Adverse events reported in 81% of children with ASD taking Atomoxetine*

*Hagerkamp M. *J Am Acad Child Adolesc Psychiatry* 2012 Jul;51(7):733-41. doi: 10.1016/j.jaac.2012.04.011. Epub 2012 May 25.

Systematic Reviews of RCTs



FDA-Approved for Irritability* in Autism Atypical Antipsychotics



	Starting Dose	Maximum Dose
Risperidone (> 5 years)	0.25 mg	3 mg
Aripiprazole (> 6 years)	2 mg	15 mg

***Irritability = Aggression, Self-Injury, Tantrums**



Understanding Placebo Effects

- Families and clinicians naturally hope medications will help
 - Placebo groups report significant improvement in 25–33% of cases
 - Placebo responses can obscure a medication's true benefit
 - Assess child's medication response as objectively as possible
 - Seek observations from teachers, therapists, or family members
 - Discuss school disclosure while considering side effect monitoring
 - Use standardized rating scales to track changes
- 

Stopping Medication Safely

1

Remind parents to consult their prescriber before stopping medication

2

Create a plan : gradual dose reductions could prevent withdrawal

3

Clarify target symptoms before starting a new medication

4

Define personal treatment goals with you parents

5

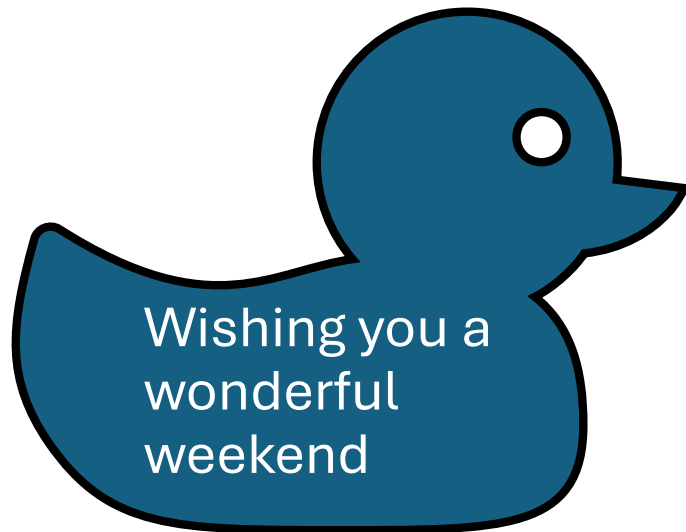
Review progress and stopping criteria at follow-up visits

6

Discuss side effects, lack of improvement, or affordability

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Thank you for your patience

- What questions do you have?