# Unique Paths, Shared Journeys: Early Identification and Management of ADHD and Anxiety in Young Children with X and Y Chromosome Variations

EXTRAORDINARY KIDS CLINIC
CHILDREN'S HOSPITAL COLORADO
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# Objectives

Audience learns the
various symptom
presentations and
prevalence of anxiety and
ADHD in young children
with X and Y chromosome
variations

Audience learns about different evidence-based treatment modalities used to treat anxiety and ADHD in young children with X and Y chromosome variations





# Disclosures/Disclaimers

- 1. We are not endorsing any specific medication, brand, or company
- 2. We cannot make specific recommendations without evaluation an individual patient
- 3. All medications should be discussed with your child's provider
- 4. We will be discussing off label use of ADHD and anxiety medications







**INCREASED RISK FOR:** 

Cognitive / Learning Differences

Developmental Delay Learning Disability (LD) Intellectual Disability (ID) Short Attention Span
Distractibility
Hyperactivity
Impulsivity
Anxiety
Depression
Irritability / Aggression
Meltdowns / Tantrums
Obsessive-Compulsive Behaviors (OCD)
Repetitive / Stereotypic Behaviors

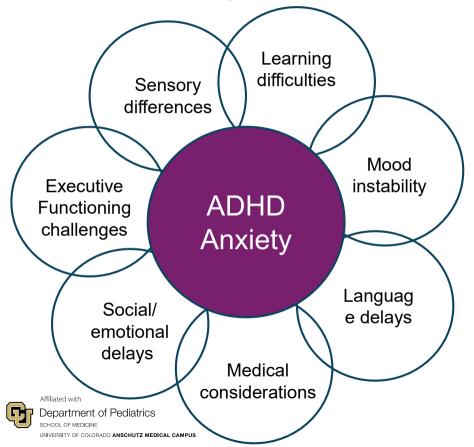
Social Development Differences
Social immaturity
Autism Spectrum Disorder (ASD)



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# ADHD and Anxiety are complex in X&Y





# What is ADHD?

# Attention Deficit Hyperactivity Disorder







# **ADHD**

# Hyperactive/Impulsive Subtype





# Combined presentation



# Inattentive Subtype









# ADHD Prevalence in X & Y Variations

	XXY	XXX	XYY	XXYY
Prevalence	~35%	~50%	~75%	~70%
Common symptom presentation	Inattention	Inattention	Hyperactivity + Impulsivity + Inattention	Hyperactivity + Impulsivity + Inattention

Takeaway: Across X and Y chromosome variations, ADHD is **more prevalent** than in general pediatric populations





# Real world parent concerns

hyperactivity/impulsivity

"He's constantly running out of the classroom at school"



"Sitting for circle time at school is really hard"

> "He walks around the house while he eats his dinner and will not sit in his chair"

"She's getting in trouble a lot for hitting and pushing at school"

'He climbs

on

everything

and is very

unsafe"

"It's like he's running on a motor"

"She has a really hard time waiting her turn when playing games"

"She runs into the street and does not stop when I say NO"

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# Real world parent concerns -inattention

"I have to remind her 10 times to put on her shoes"

"He is constantly bouncing from activity to activity"

"It's like he's in la-la land, he never listens"

"He gets distracted by the smallest things"

"She can only focus on a task for 10 seconds at a time"

at school 4 days out of









# Making a diagnosis

Frequency of symptoms

Intensity of symptoms

Impairment/causing problems

Happening in multiple contexts







# Other Medical Diagnostic Considerations



**HEARING** 



**VISION** 





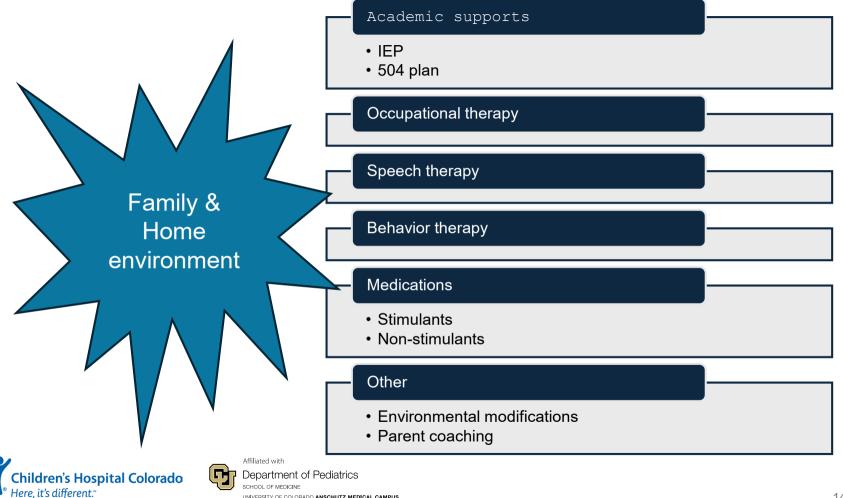






SEIZURE DISORDERS





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# At Home Strategies



Special time



Movement

Setting up the environment for success

Setting clear expectations and predictability



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Rewards

My Reward Chart



# **School Modifications**

- Preferential Seating / Decreased distractions
- Extra time
- Support for organization / planning
- 1:1 Aide or other supports
- Breaking down tasks / assignments
- Planning support
- EF "Homework periods"
- Visual schedules
- Movement breaks







# When should medications be considered? Dr. T's 5 Reasons

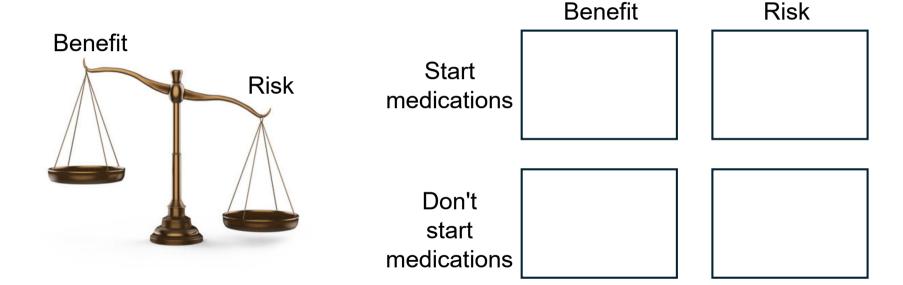
When behavioral/emotional difficulty is significantly impacting / causing impairment in:

- 1. Health and Safety (self or others)
- 2. Academics / Learning / Therapies / School Attendance
- 3. Participation in the family / Community / Family functioning
- 4. Social development / Friendships
- 5. Self-esteem / Individual is expressing distress





# Medications – Risk vs Benefit







# Ask Questions!



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- What symptoms will the medication help with?
- When should I expect the medication to start working?
- What side effects should I be watching for?
- If they experience a side effect, what should I do?
- Should they take the medication with food?
- What time of day should I give the medicine?
- What is the best way to contact you if things are not going well? After hours/weekends?
- Are there interactions with other medications?
- Is it dangerous to stop in abruptly?
- What do I do if they miss a dose?
- Do they have to take it every day?

# **Initiating Medications**

- Start low, go slow
- Team players your child is the team captain!
- Target symptoms
  - Identify and describe all behaviors and concerns
  - Figure out which is causing the most problems
- Timing







# **Stimulants**

# Mechanism of action

 Increase brain dopamine action primarily in the frontal lobe

# Target behaviors

 Attention, distractibility, hyperactivity, impulsivity, fidgeting

# 2 Main Categories





# Methylphenidate products

- Concerta
- Ritalin
- Metadate
- Quillivant
- Focalin
- Etc

# Amphetamine products

- Adderall
- Vyvanse
- Dynavel
- Etc





## **Benefits**

- Work the day you give them
- Miss a dose = miss the effects
- Long and short acting formulation
  - May take "as needed"
- Many formulations
  - o Capsules some can be opened
  - Tablets some can be crushed
  - Liquid
  - o Chewable



- Appetite suppression
- Sleep disruption
- Irritability
- Emotionally "flat"
- Headaches rare
- May lead to exacerbation of tremor
- Cardiac concerns (if underlying abnormalities)





# Non-Stimulants – Alpha Agonists

# Guanfacine Clonidine

### Mechanism of action

 Target the Alpha-2 adrenergic receptors in the brain

# Target behaviors

Hyperactivity, hyperarousal, impulsivity

### **Benefits**

- Can also be helpful for sleep, behavioral dysregulation, and tics
- Long and short acting formulations available

### Risks

- Potential side effects including fatigue, dizziness, or constipation
- Cannot be stopped abruptly due to blood pressure effects

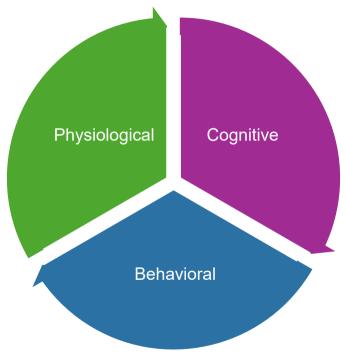






What is anxiety?

# Components of anxiety







# What are kids worried about?

### **Social Anxiety**

Worry about what others think
Fear of social rejection
Fear of being teased/bullied
Fear of unwanted social attention

### **Chronic Worry**

School performance, death/dying, the future, being just right

### **Separation**

Worrying about self or caregiver's safety when apart

### **Specific Fears**

Animals, bugs, the dark, crowds





# Real world parent concerns - anxiety

"He has to have a lot of preparation before an activity"

> "She won't speak in certain situations"

"She refuses to go to the playground at school"

"He has major tantrums any time we're outside the home"

"She's sensitive to transitions"

"Every time we go out he asks over and over again when we're going home"

> "He hides his face or will cling"



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# Parental Protection

(Reaven & Hepburn, 2006)



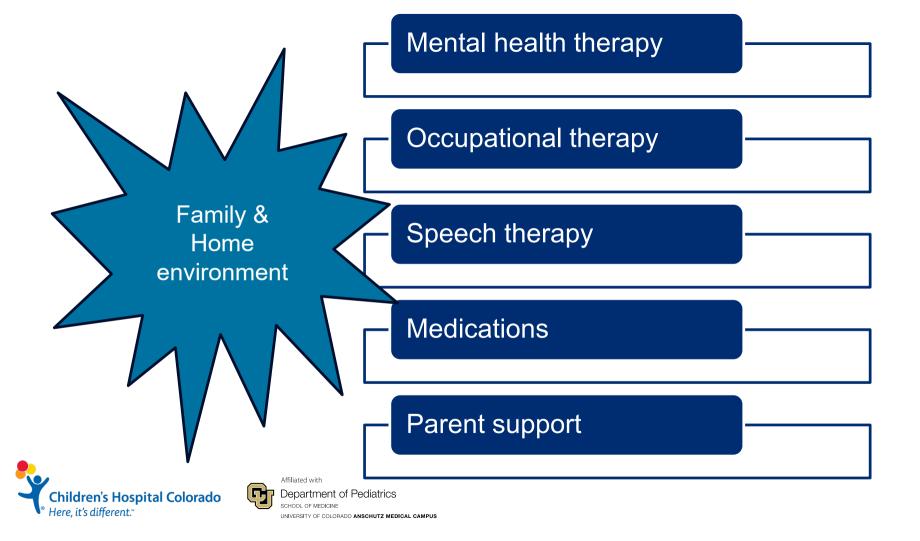
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# Tackling Anxiety: Cognitive-Behavioral Therapy for Anxiety

Psychoeducation Cognitive Restructuring **Graded Exposure** Relapse Prevention















# Calm your body













# **Daily Strategies**

# In the Moment Strategies







# Calm your Mind

- I can do this!
- I am brave
- It will be okay
- I've done this before and it wasn't so bad
- I'm safe







# Modifications for X and Y Variations

- Plain language
- Visual supports
- Multisensory and experiential
- Repetition
- Parent involvement
- Coaching around parental modeling
- Strategic self-disclosure
- Emphasis on emotion education
- Address skill deficits
- Strengths based approach



# Medication considerations



Remember the 5 reasons!





# SSRIs – Selective Serotonin Reuptake Inhibitors

# Mechanism of action

Increase brain serotonin levels

# Target symptoms

 Anxiety, shyness/withdrawal, worries/fears, panic attacks, irritability, depression

# Examples

- Citalopram (Celexa)
- Escitalopram (Lexapro)
- Sertraline (Zoloft)
- Fluoxetine (Prozac)
- Others





## **Benefits**

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- Less irritability, improved mood, fewer outbursts with anxiety trigger
- Easier transitions
- Less skin picking, nail biting
- Fewer worries or perseverations
- Able to tolerate change/frustrations more easily
- Able to be more comfortable in social settings
- Increased speech if selective mutism or other speech impairment impacted by anxiety
- Less tearfullness/emotional sensitivity
- Less fixations and compulsive behaviors



# Risks/Side Effects

- Usually well tolerated
- Agitation
- Insomnia
  - Usually improves or can change to morning administration
- Nausea/stomach upset



# Other Anxiety Medications

### Propranolol

- Benefits
  - Both short and long acting formulations – can be used scheduled or as needed
  - Prevention of panic-like symptoms and helps to calm anxiety
- Side effects
  - Dizziness, low rate heart

### Mirtazapine

- Benefits
  - Helpful for sleep and appetite stimulation
  - May help with irritability and aggressive behaviors
- · Side effects
  - Drowsiness, weight gain, constipation, recommended lab monitoring

# Hydroxyzine

- Benefits
  - Helpful for sleep, particularly if there is an anxiety component
  - Can be scheduled or as needed
  - May also be used as needed for situational anxiety
- Side effects
  - Drowsiness, constipation





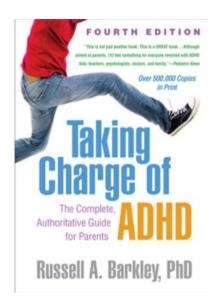


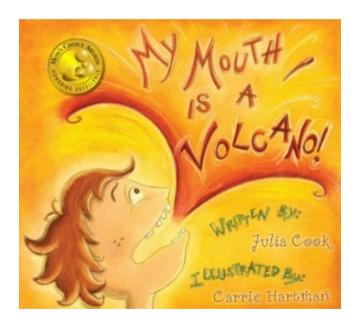
# STRENGTHS!

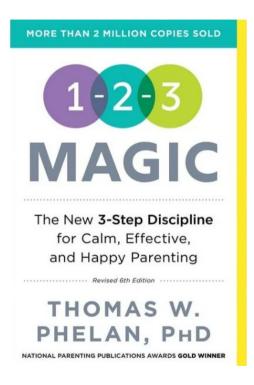




# Resources - ADHD











# Resources - Anxiety

