

# **PAY ATTENTION!**

## **DIAGNOSING AND MANAGING ADHD**

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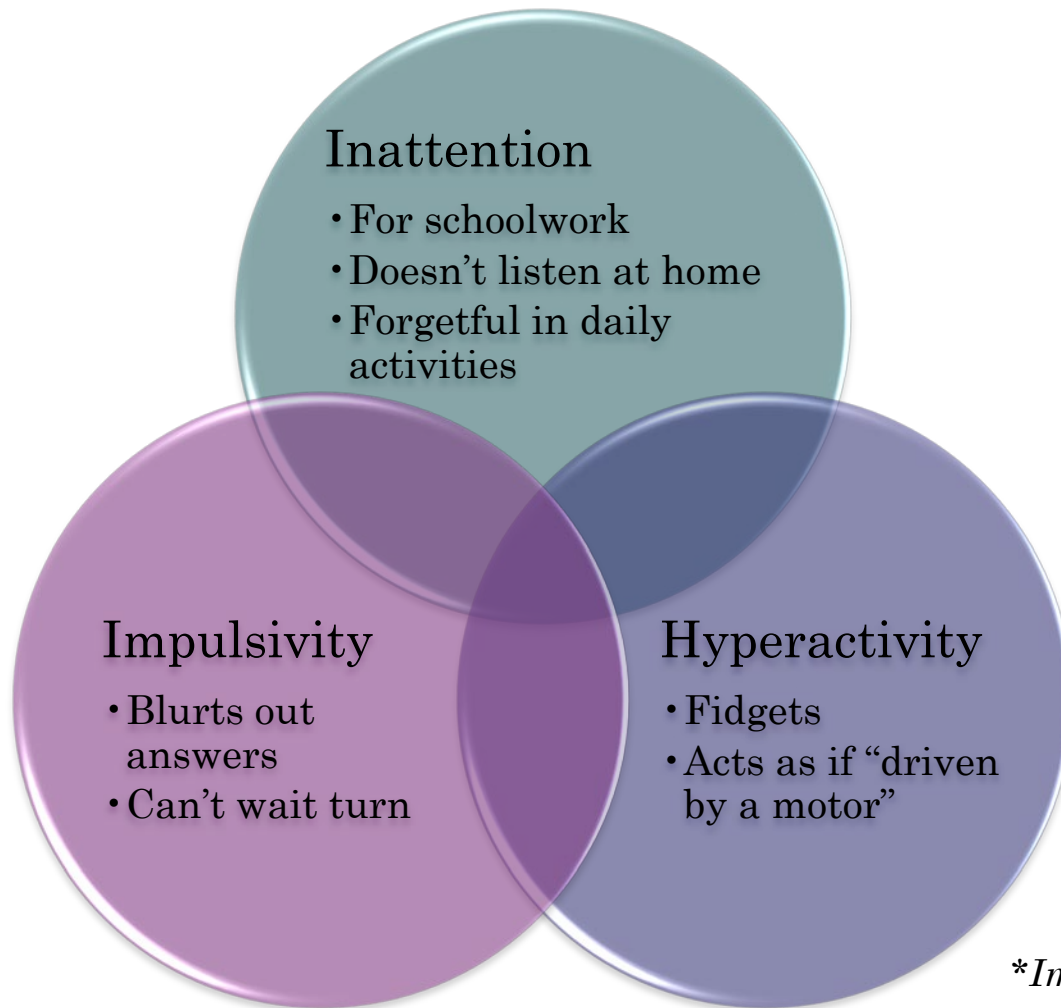


The slide features a dark blue background. On the left side, there are several vertical stripes of varying shades of gray and blue. A cluster of five blue circles of different sizes is positioned to the left of the text. The largest circle is at the top left, with four smaller circles arranged below and to its right.

# DISCLOSURES

I have nothing to disclose

# FEATURES OF ADHD



*\*Impairment seen in multiple settings*



# EVALUATING AND DIAGNOSING ADHD

- History
  - Medical
    - Developmental
  - Social
  - Family
- How is the child doing in school/nursery?
- Use of a rating scale



# RATING SCALE EXAMPLES

## Broadband

- Conners' Rating Scale (long)
- Behavior assessment system for children
- Child behavior checklist/teacher report form

*\*Broadband scales assess general behavior and aren't ADHD specific*

## Narrow-band

- Vanderbilt
- Conners' Rating Scale (short)
- ADHD rating scale



# VANDERBILT ASSESSMENT SCALE

## NICHO Vanderbilt Assessment Scale—PARENT Informant

Today's Date: \_\_\_\_\_ Child's Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_  
 Parent's Name: \_\_\_\_\_ Parent's Phone Number: \_\_\_\_\_

**Directions:** Each rating should be considered in the context of what is appropriate for the age of your child. When completing this form, please think about your child's behaviors in the past 6 months.

Is this evaluation based on a time when the child  was on medication  was not on medication  not sure?

Symptoms	Never	Occasionally	Often	Very Often
1. Does not pay attention to details or makes careless mistakes with, for example, homework	0	1	2	3
2. Has difficulty keeping attention to what needs to be done	0	1	2	3
3. Does not seem to listen when spoken to directly	0	1	2	3
4. Does not follow through when given directions and fails to finish activities (not due to refusal or failure to understand)	0	1	2	3
5. Has difficulty organizing tasks and activities	0	1	2	3
6. Avoids, dislikes, or does not want to start tasks that require ongoing mental effort	0	1	2	3
7. Loses things necessary for tasks or activities (toys, assignments, pencils, or books)	0	1	2	3
8. Is easily distracted by noises or other stimuli	0	1	2	3
9. Is forgetful in daily activities	0	1	2	3
10. Fidgets with hands or feet or squirms in seat	0	1	2	3
11. Leaves seat when remaining seated is expected	0	1	2	3
12. Runs about or climbs too much when remaining seated is expected	0	1	2	3
13. Has difficulty playing or beginning quiet play activities	0	1	2	3
14. Is "on the go" or often acts as if "driven by a motor"	0	1	2	3
15. Talks too much	0	1	2	3
16. Blurts out answers before questions have been completed	0	1	2	3
17. Has difficulty waiting his or her turn	0	1	2	3
18. Interrupts or intrudes in on others' conversations and/or activities	0	1	2	3
19. Argues with adults	0	1	2	3
20. Loses temper	0	1	2	3
21. Actively defies or refuses to go along with adults' requests or rules	0	1	2	3
22. Deliberately annoys people	0	1	2	3
23. Blames others for his or her mistakes or misbehaviors	0	1	2	3
24. Is touchy or easily annoyed by others	0	1	2	3
25. Is angry or resentful	0	1	2	3
26. Is spiteful and wants to get even	0	1	2	3
27. Bullies, threatens, or intimidates others	0	1	2	3
28. Starts physical fights	0	1	2	3
29. Lies to get out of trouble or to avoid obligations (ie, "cons" others)	0	1	2	3
30. Is truant from school (skips school) without permission	0	1	2	3
31. Is physically cruel to people	0	1	2	3
32. Has stolen things that have value	0	1	2	3

The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.

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 Adapted from the Vanderbilt Rating Scales developed by Mark L. Wolraich, M.D.  
 Revised - 11/02

## D4 NICHO Vanderbilt Assessment Scale—TEACHER Informant

Teacher's Name: \_\_\_\_\_ Class Time: \_\_\_\_\_ Class Name/Period: \_\_\_\_\_  
 Today's Date: \_\_\_\_\_ Child's Name: \_\_\_\_\_ Grade Level: \_\_\_\_\_

**Directions:** Each rating should be considered in the context of what is appropriate for the age of the child you are rating and should reflect that child's behavior since the beginning of the school year. Please indicate the number of weeks or months you have been able to evaluate the behaviors: \_\_\_\_\_.

Is this evaluation based on a time when the child  was on medication  was not on medication  not sure?

Symptoms	Never	Occasionally	Often	Very Often
1. Fails to give attention to details or makes careless mistakes in schoolwork	0	1	2	3
2. Has difficulty sustaining attention to tasks or activities	0	1	2	3
3. Does not seem to listen when spoken to directly	0	1	2	3
4. Does not follow through on instructions and fails to finish schoolwork (not due to oppositional behavior or failure to understand)	0	1	2	3
5. Has difficulty organizing tasks and activities	0	1	2	3
6. Avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort	0	1	2	3
7. Loses things necessary for tasks or activities (school assignments, pencils, or books)	0	1	2	3
8. Is easily distracted by extraneous stimuli	0	1	2	3
9. Is forgetful in daily activities	0	1	2	3
10. Fidgets with hands or feet or squirms in seat	0	1	2	3
11. Leaves seat in classroom or in other situations in which remaining seated is expected	0	1	2	3
12. Runs about or climbs excessively in situations in which remaining seated is expected	0	1	2	3
13. Has difficulty playing or engaging in leisure activities quietly	0	1	2	3
14. Is "on the go" or often acts as if "driven by a motor"	0	1	2	3
15. Talks excessively	0	1	2	3
16. Blurts out answers before questions have been completed	0	1	2	3
17. Has difficulty waiting in line	0	1	2	3
18. Interrupts or intrudes on others (eg, butts into conversations/games)	0	1	2	3
19. Loses temper	0	1	2	3
20. Actively defies or refuses to comply with adult's requests or rules	0	1	2	3
21. Is angry or resentful	0	1	2	3
22. Is spiteful and vindictive	0	1	2	3
23. Bullies, threatens, or intimidates others	0	1	2	3
24. Initiates physical fights	0	1	2	3
25. Lies to obtain goods for favors or to avoid obligations (eg, "cons" others)	0	1	2	3
26. Is physically cruel to people	0	1	2	3
27. Has stolen items of nontrivial value	0	1	2	3
28. Deliberately destroys others' property	0	1	2	3
29. Is fearful, anxious, or worried	0	1	2	3
30. Is self-conscious or easily embarrassed	0	1	2	3
31. Is afraid to try new things for fear of making mistakes	0	1	2	3

The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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 Revised - 03/03

# VANDERBILT ASSESSMENT SCALE

## Scoring Instructions for the NICHQ Vanderbilt Assessment Scales

These scales should NOT be used alone to make any diagnosis. You must take into consideration information from multiple sources. Scores of 2 or 3 on a single Symptom question reflect *often-occurring* behaviors. Scores of 4 or 5 on Performance questions reflect problems in performance.

The initial assessment scales, parent and teacher, have 2 components: symptom assessment and impairment in performance. On both the parent and teacher initial scales, the symptom assessment screens for symptoms that meet criteria for both inattentive (items 1–9) and hyperactive ADHD (items 10–18).

To meet *DSM-IV* criteria for the diagnosis, one must have at least 6 positive responses to either the inattentive 9 or hyperactive 9 core symptoms, or both. A positive response is a 2 or 3 (often, very often) (you could draw a line straight down the page and count the positive answers in each subsegment). There is a place to

record the number of positives in each subsegment, and a place for total score for the first 18 symptoms (just add them up).

The initial scales also have symptom screens for 3 other co-morbidities—oppositional-defiant, conduct, and anxiety/depression. These are screened by the number of positive responses in each of the segments separated by the “squares.” The specific item sets and numbers of positives required for each co-morbid symptom screen set are detailed below.

The second section of the scale has a set of performance measures, scored 1 to 5, with 4 and 5 being somewhat of a problem/problematic. To meet criteria for ADHD there must be at least one item of the Performance set in which the child scores a 4 or 5; ie, there must be impairment, not just symptoms to meet diagnostic criteria. The sheet has a place to record the number of positives (4s, 5s) and an Average Performance Score—add them up and divide by number of Performance criteria answered.

Parent Assessment Scale	Teacher Assessment Scale
<p><b>Predominantly Inattentive subtype</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 6 out of 9 items on questions 1–9 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 48–55</li> </ul> <p><b>Predominantly Hyperactive/Impulsive subtype</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 6 out of 9 items on questions 10–18 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 48–55</li> </ul> <p><b>ADHD Combined Inattention/Hyperactivity</b></p> <ul style="list-style-type: none"> <li>Requires the above criteria on both inattention and hyperactivity/impulsivity</li> </ul> <p><b>Oppositional-Defiant Disorder Screen</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 4 out of 8 behaviors on questions 19–26 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 48–55</li> </ul> <p><b>Conduct Disorder Screen</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 3 out of 14 behaviors on questions 27–40 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 48–55</li> </ul> <p><b>Anxiety/Depression Screen</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 3 out of 7 behaviors on questions 41–47 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 48–55</li> </ul>	<p><b>Predominantly Inattentive subtype</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 6 out of 9 items on questions 1–9 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 36–43</li> </ul> <p><b>Predominantly Hyperactive/Impulsive subtype</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 6 out of 9 items on questions 10–18 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 36–43</li> </ul> <p><b>ADHD Combined Inattention/Hyperactivity</b></p> <ul style="list-style-type: none"> <li>Requires the above criteria on both inattention and hyperactivity/impulsivity</li> </ul> <p><b>Oppositional-Defiant/Conduct Disorder Screen</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 3 out of 10 items on questions 19–28 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 36–43</li> </ul> <p><b>Anxiety/Depression Screen</b></p> <ul style="list-style-type: none"> <li>Must score a 2 or 3 on 3 out of 7 items on questions 29–35 <b>AND</b></li> <li>Score a 4 or 5 on any of the Performance questions 36–43</li> </ul>

The parent and teacher follow-up scales have the first 18 core ADHD symptoms, not the co-morbid symptoms. The section segment has the same Performance items and impairment assessment as the initial scales, and then has a side-effect reporting scale that can be used to both assess and monitor the presence of adverse reactions to medications prescribed, if any.

Scoring the follow-up scales involves only calculating a total symptom score for items 1–18 that can be tracked over time, and

the average of the Performance items answered as measures of improvement over time with treatment.

### Parent Assessment Follow-up

- Calculate **Total** Symptom Score for questions 1–18.
- Calculate **Average** Performance Score for questions 19–26.

### Teacher Assessment Follow-up

- Calculate **Total** Symptom Score for questions 1–18.
- Calculate **Average** Performance Score for questions 19–26.

The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

- Tells you subtype of ADHD
- Screens for ODD/Conduct disorder
- Screens for anxiety/depression



# COMORBID CONDITIONS

Almost ½ of ADHD kids will have a comorbid condition

- Oppositional Defiant Disorder (ODD)
  - Defiant/hostile behavior towards authority
- Conduct disorder
  - Really, really bad ODD
  - Hurts animals
  - Destroys property
  - Steals
- Depression
- Learning disabilities
  - Dyslexia
  - Language deficiencies
  - Visual-spatial problems
- Developmental delay/  
Mental retardation
- Tics
- Sleep Apnea



# LABORATORY EVALUATION

- Blood lead level
- TSH
- CT of brain
- EEG
- Genetic testing
- Psychometric testing for ADHD



**NOT  
INDICATED**





# TREATMENT OPTIONS

# BEHAVIORAL INTERVENTIONS VS MEDICATION

- Multimodal Treatment Study of Children with ADHD (MTA)
  - Showed that stimulants are effective in treating ADHD
  - Behavioral therapy alone or in combination is not as effective
    - Can be more helpful with co-morbid conditions



# BEHAVIORAL INTERVENTIONS

- Keep daily routine
- Limit distractions
  - No TV/computer
  - Have quiet study area
  - Move to front of classroom
- Reward good behavior
- Find activities where child can excel
  - Sports: consider tae kwon do



# EDUCATIONAL INTERVENTIONS

- ADHD is considered a disability under the Individuals with Disabilities Education Act
- Students should get 504 accommodations (if appropriate)
  - More time on tests
  - Special seating
  - Allowing child to tape record lessons
  - Provide assignments in writing (student may copy from blackboard)
- Individualized Educational Plan
  - Should include educational testing



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# MEDICATIONS

Stimulants vs Non-stimulants

Probably the most effective drug I could recommend for your child's problems is Ritalin.

Mum! Dad said that if strange men offer me drugs, I should just say 'No'.



# THE MAJOR PLAYERS: STIMULANTS

- Stimulants have been shown to reduce hyperactivity and increase attention span (70% of kids)
  - Even helps behavior in normal kids!
- If one doesn't work, try a different one based on the needs of the patient
- Stimulants don't make kids smarter
- Won't fix co-morbid conditions



# THE MAJOR PLAYERS: METHYLPHENIDATE

- Available as quick release & sustained release
- Focalin (dexmethylphenidate)
  - Lasts 5-6 hours
- Daytrana (methylphenidate patch)
  - Approved for kids 6 years old and up
  - Multiple doses
  - Lasts 9-12 hours (worn for 9 hrs)
- Concerta
- Ritalin (reg, LA & SR)



# THE MAJOR PLAYERS: AMPHETAMINES

- Dexedrine/ProCentra (dextroamphetamine)
  - Can be given 3 years and older
- Adderall (mixed amphetamine salt)
  - Short acting lasts up to 6 hours (avg 3-4 hrs)
  - XR may last 6-10 hours
  - Can be given 3 years and older
- Vyvanse (lisdexamfetamine)
  - Designed to discourage abuse
  - Ok for kids 6 years old and older



# SIDE EFFECTS: STIMULANTS

- Decreased appetite (80%)
  - Encourage child to eat breakfast prior to taking med
- Sleep problems (3-85%)
  - Good sleep hygiene
  - Melatonin
- Weight loss (10-15%)
- Headache
- Increased HR/BP
- Stomach pain
- Moodiness
- Acute onset psychosis/mania
- Tics
  - Common but usually transient
  - Less noticed at lower doses of meds



# THE MAJOR PLAYERS: NON- STIMULANT

## ○ Strattera (atomoxetine)

- Selective norepinephrine reuptake inhibitor
- Ok for kids 6 years old and older
- Not a controlled substance
  - Less risk for abuse
  - Can give refills
- Once or twice daily dosing
  - Don't give drug holidays
- More expensive than most stimulants



## SIDE EFFECTS: STRATTERA

- In general, same as with stimulants
- Cardiac warning
  - Because stimulates CNS
- Liver injury/ hepatitis
  - Metabolized by cytochrome P450 pathway
  - Exact cause or direct linkage not established



# OTHER NON-STIMULANTS

- To be used in limited situations
  - Poor response to stimulants/atomoxetine
  - Bad side effects
  - Patient has significant co-morbid conditions
- Strongly consider referring these patients to a specialist!



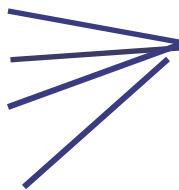
# OTHER NON-STIMULANTS

- Clonidine (Kapvay)
  - Extended release (twice daily dosing)
  - Can be used 6 years and up
  - May be used alone or in combo with stimulant
- Guanfacine (Intuniv)
  - Extended release (once daily)
  - Also approved for 6 years and up
- Antidepressants
  - TCAs and Bupropion



# BUT MY CHILD CAN'T SWALLOW PILLS

- Dexedrine Spansules
- Adderall XR
- Focalin XR
- Ritalin LA



Sprinkle

- Daytrana



Patch

- Procentra
- Methylin Solution



Liquid

- Methylin Chewable



Chewable



# HOW TO START MEDICINES

- Start low and go slow
- Check in frequently about side effects and compliance
  - How is appetite? Weight loss?
  - How long is medicine lasting? Does the child make it through homework time?
- Consider using teacher/parent rating scales to track efficacy
- Medication holidays?



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## HOT TOPIC

Cardiac evaluations of children with ADHD is a debated topic by many pediatricians/ pediatric specialists

# IS CARDIAC WORKUP NEEDED?

- Take a good, CV focused patient and family history
  - Cardiac disease, rheumatic disease, murmur, HTN, chest pain, SOB
  - Other meds patient in on (include OTC and CAM)
  - Family history of sudden cardiac death
    - WPW
    - Long QT syndrome
    - Marfan
- Physical exam
  - Look at HR and BP
  - Heart auscultation
  - Signs of genetic disease like Marfan



# IS CARDIAC WORKUP NEEDED?

- Do healthy kids on stimulant medication need a cardiac workup?
- No!
- Current evidence shows that children on stimulants are **NOT** at increased risk for CV events.
  - Supported by the FDA and a large cohort study
- Routine EKG is not needed



# IS CARDIAC WORKUP NEEDED?

- Known cardiac side effects of stimulants
  - Increase in pulse (3-10 bpm)
  - Increase in systolic pressure (3-8 mmHg)
  - Increase in diastolic pressure (2-14 mmHg)
- If something is abnormal with the Hx or PE, consultation with a cardiologist and/or EKG is appropriate



# WHEN TO REFER



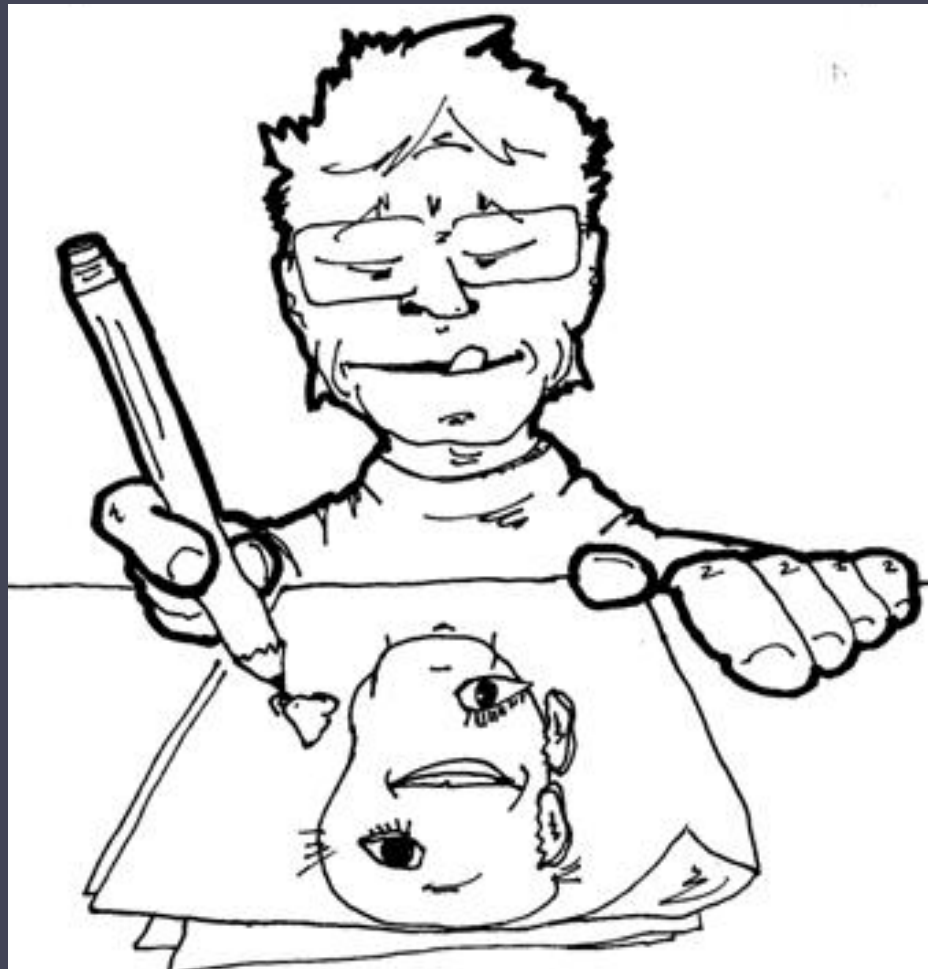
- Young age
- Co-morbid conditions
  - Psychiatric
    - ODD
    - Conduct disorder
    - Depression
  - Medical
    - Autism
    - Seizures
- Poor response to stimulant therapy
  - Does patient need multiple meds?
  - Not tolerating meds/ Too many side effects



# RESOURCES

- National Initiative for Children's Healthcare Quality (NICHQ)
  - Free ADHD tool kit online
- Parents' med guide
  - By the American Psychiatric Association and AACAP
  - [www.parentsmedguide.org](http://www.parentsmedguide.org)
- [healthychildren.org](http://healthychildren.org)
- Some communities have support groups for parents of children with ADHD
  - Meetup.com





Martin wondered if he had ADHD.  
No matter how hard he tried,  
he just couldn't plan a  
head.