



**62<sup>nd</sup> Annual Greenville Postgraduate Seminar**  
**Spotlight: Primary Care**

Wifi: Greenville ONE Center  
Login: Conference1

# PRISMA HEALTH<sup>SM</sup>

## Management of ADHD

Megan Zappitelli, MD

Child and Adolescent Psychiatry

Department of Psychiatry, Prisma Health—Upstate

August 17, 2019

# Objectives

- Overview
- Case Review
- Review ADHD diagnostic strategies in primary care setting
- Review treatment algorithms for ADHD in primary care setting
- Adding to your primary care “toolbox”

# Poll the Audience

- Assessment/Diagnosis

- Comorbidities
- Differential Diagnosis
- Evaluation

- Treatment

- Medication
- Dosing
- Follow up
- Managing side effects
- Medication management of comorbid conditions

# Overview

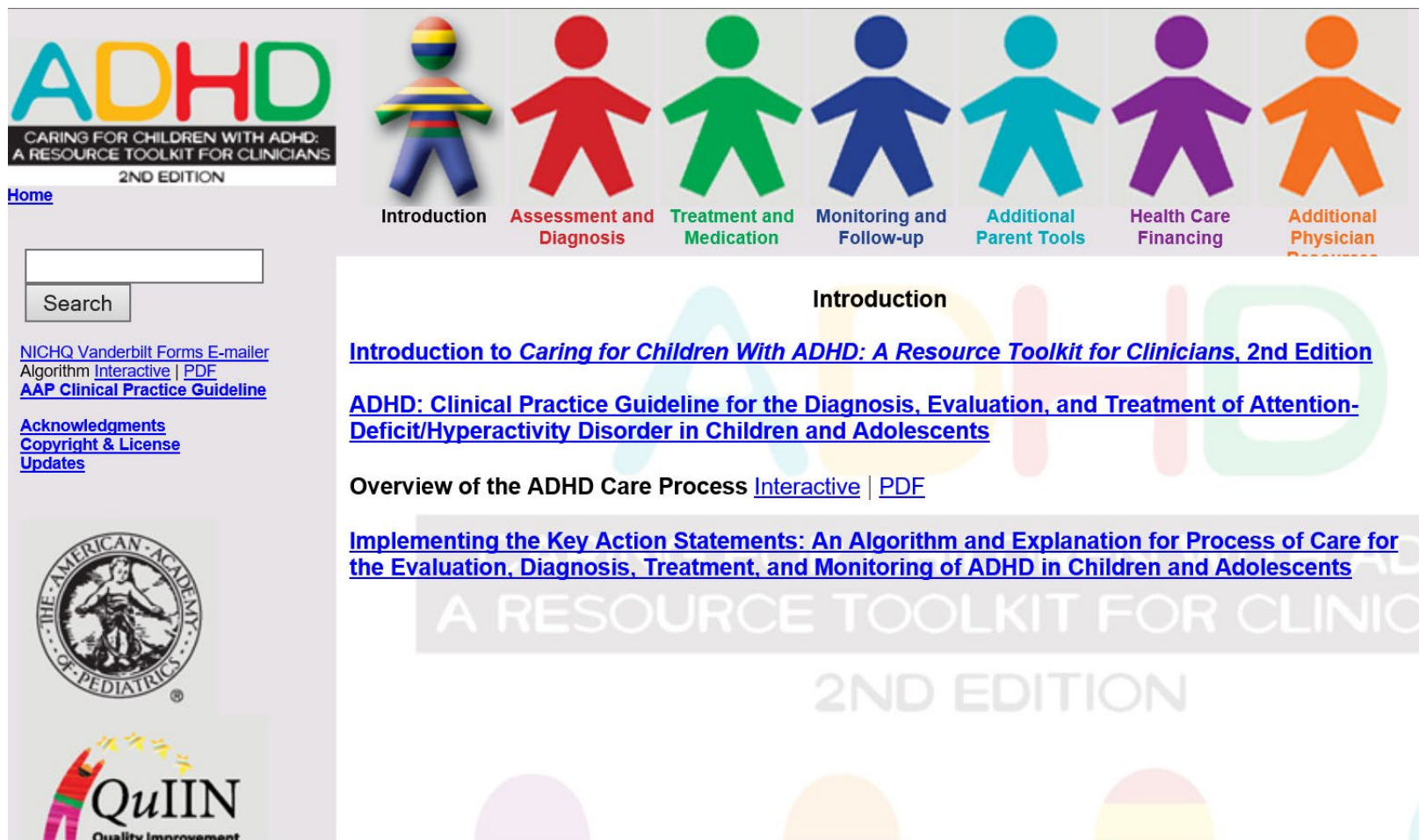
- As of 2011, about 11% of children ages 4-17 have been diagnosed with ADHD
- Boys (13.2%) are more likely to be diagnosed with ADHD than girls (5.6%) and are more likely to be diagnosed with hyperactive-impulsive type ADHD.
- Children with untreated ADHD have increased rates of :
  - ER visits and self-inflicted injuries
  - Falling behind in school
  - Social difficulties
  - Parent-child conflict
- Adolescents with untreated ADHD have increased rates of:
  - Risky behavior
  - Drinking and driving
  - Motor Vehicle Accidents (2x more likely)

FDA.gov 2016

# Case Review

# Differential Diagnosis

# American Academy of Pediatrics



The screenshot displays the website for the ADHD toolkit. At the top left is the 'ADHD' logo in large, colorful letters, with the subtitle 'CARING FOR CHILDREN WITH ADHD: A RESOURCE TOOLKIT FOR CLINICIANS' and '2ND EDITION' below it. A navigation bar features seven colorful stick figures, each representing a different section: Introduction (rainbow), Assessment and Diagnosis (red), Treatment and Medication (green), Monitoring and Follow-up (blue), Additional Parent Tools (cyan), Health Care Financing (purple), and Additional Physician Resources (orange). Below the navigation bar is a search box with a 'Search' button. To the left of the search box are links for 'Home', 'NICHQ Vanderbilt Forms E-mailer Algorithm Interactive | PDF', 'AAP Clinical Practice Guideline', 'Acknowledgments', 'Copyright & License', and 'Updates'. The main content area is titled 'Introduction' and contains several links: 'Introduction to Caring for Children With ADHD: A Resource Toolkit for Clinicians, 2nd Edition', 'ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents', and 'Overview of the ADHD Care Process Interactive | PDF'. Below these links is a large, semi-transparent banner that reads 'A RESOURCE TOOLKIT FOR CLINICIANS' and '2ND EDITION'. At the bottom left of the screenshot are the logos for 'THE AMERICAN ACADEMY OF PEDIATRICS' and 'QuIIN Quality Improvement'.

**ADHD**  
CARING FOR CHILDREN WITH ADHD:  
A RESOURCE TOOLKIT FOR CLINICIANS  
2ND EDITION

[Home](#)

Search

[NICHQ Vanderbilt Forms E-mailer Algorithm Interactive | PDF](#)  
[AAP Clinical Practice Guideline](#)

[Acknowledgments](#)  
[Copyright & License](#)  
[Updates](#)

**Introduction**

[Introduction to Caring for Children With ADHD: A Resource Toolkit for Clinicians, 2nd Edition](#)

[ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents](#)

Overview of the ADHD Care Process [Interactive](#) | [PDF](#)

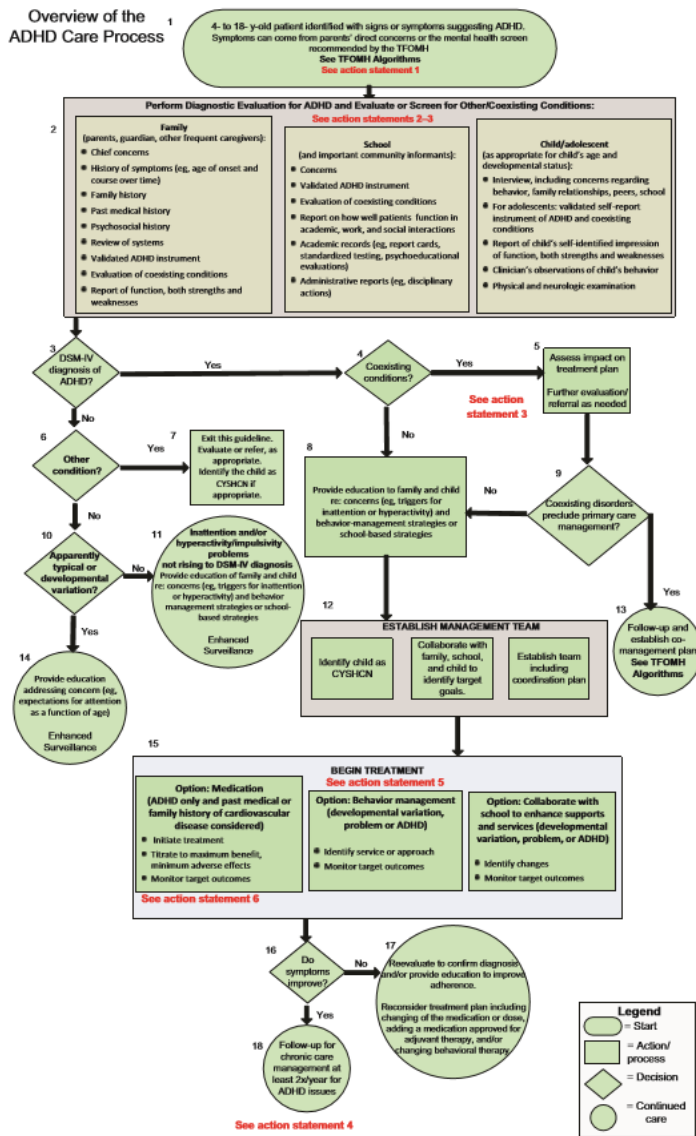
[Implementing the Key Action Statements: An Algorithm and Explanation for Process of Care for the Evaluation, Diagnosis, Treatment, and Monitoring of ADHD in Children and Adolescents](#)

A RESOURCE TOOLKIT FOR CLINICIANS  
2ND EDITION

THE AMERICAN ACADEMY OF PEDIATRICS  
QuIIN  
Quality Improvement

<https://www.aap.org/en-us/pubserv/adhd2/Pages/kit/data/introframe.html>

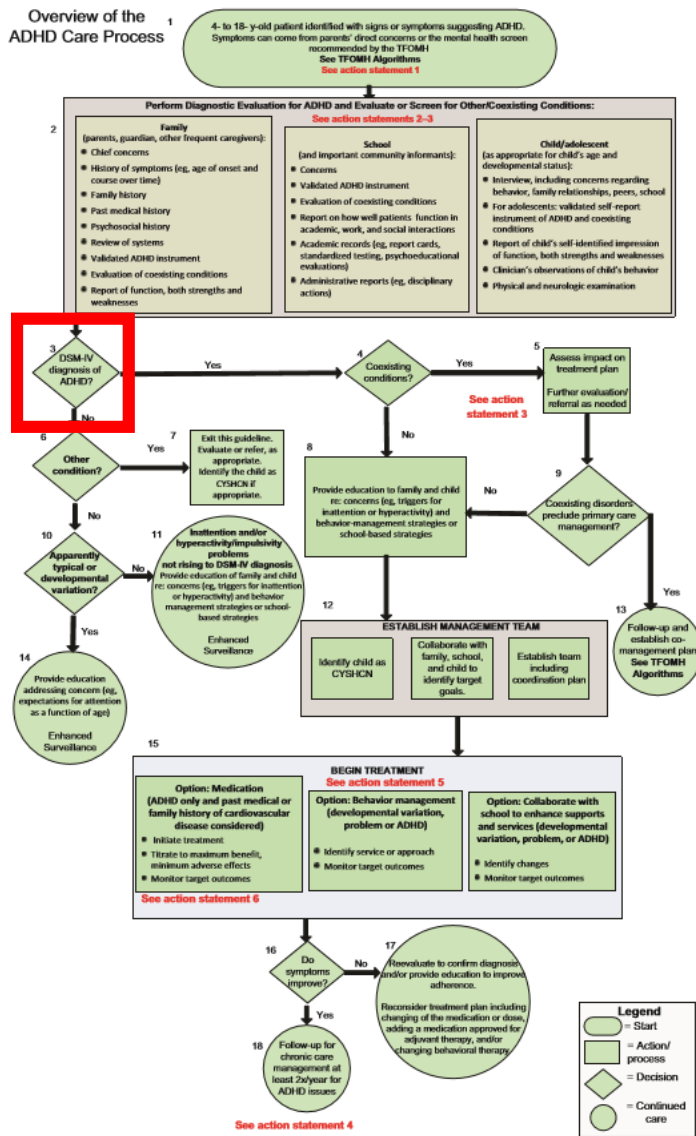
# American Academy of Pediatrics ADHD Care Algorithm



SUPPLEMENTAL APPENDIX FIGURE 2

ADHD process-of-care algorithm. TFOMH indicates Task Force on Mental Health; CYSHCN, child/youth with special health care needs.<sup>1</sup>

# American Academy of Pediatrics ADHD Care Algorithm



SUPPLEMENTAL APPENDIX FIGURE 2

ADHD process-of-care algorithm. TFOMH indicates Task Force on Mental Health; CYSHCN, child/youth with special health care needs.<sup>1</sup>

# Assessment and Diagnosis

- Everything that is “inattentive” is NOT ADHD!
- Consider Comorbidities/Alternative Diagnoses:
  - Behavioral Disorders
    - Oppositional Defiant Disorder (ODD)
    - Conduct Disorder (CD)
    - Disruptive Mood Dysregulation Disorder (DMDD)
    - Intermittent Explosive Disorder (IED)
  - Anxiety disorders
    - DON'T FORGET TRAUMA!!
  - Mood disorders
    - Major Depressive Disorder (MDD)
    - Bipolar Disorder
  - Substance use disorders
  - Learning Disorders
  - Developmental Disabilities

# Assessment and Diagnosis

## Easily Available Screening Tools

Screening Tool	Disorder(s)
NICHQ Vanderbilt	ADHD ODD CD Anxiety Depression
PHQ-9	Depressive Disorders
SCARED	Anxiety Disorders
CRAAFT	Substance Use Disorders

# NICHQ Vanderbilt Assessment Scale—Parent

## D3 NICHQ Vanderbilt Assessment Scale—PARENT Informant

Today's Date: 8/12/19 Child's Name: Benji Date of Birth: 14 yrs ago  
 Parent's Name: Benji's mom 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.

Copyright ©2002 American Academy of Pediatrics and National Initiative for Children's Healthcare Quality  
 Adapted from the Vanderbilt Rating Scales developed by Mark L. Wolraich, MD.  
 Revised - 1102



HE0350

## D3 NICHQ Vanderbilt Assessment Scale—PARENT Informant, continued

Today's Date: 8/12/19 Child's Name: Benji Date of Birth: 14 yrs ago  
 Parent's Name: Benji's mom Parent's Phone Number: \_\_\_\_\_

Symptoms (continued)	Never	Occasionally	Often	Very Often
33. Deliberately destroys others' property	0	1	2	3
34. Has used a weapon that can cause serious harm (bat, knife, brick, gun)	0	1	2	3
35. Is physically cruel to animals	0	1	2	3
36. Has deliberately set fires to cause damage	0	1	2	3
37. Has broken into someone else's home, business, or car	0	1	2	3
38. Has stayed out at night without permission	0	1	2	3
39. Has run away from home overnight	0	1	2	3
40. Has forced someone into sexual activity	0	1	2	3
41. Is fearful, anxious, or worried	0	1	2	3
42. Is afraid to try new things for fear of making mistakes	0	1	2	3
43. Feels worthless or inferior	0	1	2	3
44. Blames self for problems, feels guilty	0	1	2	3
45. Feels lonely, unwanted, or unloved; complains that "no one loves him or her"	0	1	2	3
46. Is sad, unhappy, or depressed	0	1	2	3
47. Is self-conscious or easily embarrassed	0	1	2	3

Performance	Somewhat of a Problem				
	Excellent	Above Average	Average	Problem	Problematic
48. Overall school performance	1	2	3	4	5
49. Reading	1	2	3	4	5
50. Writing	1	2	3	4	5
51. Mathematics	1	2	3	4	5
52. Relationship with parents	1	2	3	4	5
53. Relationship with siblings	1	2	3	4	5
54. Relationship with peers	1	2	3	4	5
55. Participation in organized activities (eg, teams)	1	2	3	4	5

Comments:

### For Office Use Only

Total number of questions scored 2 or 3 in questions 1-9: \_\_\_\_\_  
 Total number of questions scored 2 or 3 in questions 10-18: \_\_\_\_\_  
 Total Symptom Score for questions 1-18: \_\_\_\_\_  
 Total number of questions scored 2 or 3 in questions 19-26: \_\_\_\_\_  
 Total number of questions scored 2 or 3 in questions 27-40: \_\_\_\_\_  
 Total number of questions scored 2 or 3 in questions 41-47: \_\_\_\_\_  
 Total number of questions scored 4 or 5 in questions 48-55: \_\_\_\_\_  
 Average Performance Score: \_\_\_\_\_



11-19rev1102

# NICHQ Vanderbilt Assessment Scale—Teacher

## NICHQ Vanderbilt Assessment Scale—TEACHER Informant

Teacher's Name: Benji's teacher Class Time: all day Class Name/Period: all subjects  
 Today's Date: 9/13/19 Child's Name: Benji Grade Level: 9th

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: 2 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. 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.

Copyright ©2002 American Academy of Pediatrics and National Initiative for Children's Healthcare Quality

Adapted from the Vanderbilt Rating Scales developed by Mark L. Wolraich, MD.

Revised - 1102



## NICHQ Vanderbilt Assessment Scale—TEACHER Informant

Teacher's Name: Benji's teacher Class Time: all day Class Name/Period: all subjects  
 Today's Date: 9/13/19 Child's Name: Benji Grade Level: 9th

Symptoms (continued)	Never	Occasionally	Often	Very Often
32. Feels worthless or inferior	0	(1)	2	3
33. Blames self for problems; feels guilty	0	(1)	2	3
34. Feels lonely, unwanted, or unloved; complains that "no one loves him or her"	0	1	(2)	3
35. Is sad, unhappy, or depressed	0	(1)	2	3

Performance	Above Average			Somewhat of a Problem	
	Excellent	Average	Above Average	Problem	Problematic
36. Reading	1	2	3	4	(5)
37. Mathematics	1	2	3	(4)	5
38. Written expression	1	2	3	4	(5)

Classroom Behavioral Performance	Above Average			Somewhat of a Problem	
	Excellent	Average	Above Average	Problem	Problematic
39. Relationship with peers	1	2	(3)	4	5
40. Following directions	1	2	3	(4)	5
41. Disrupting class	1	2	(3)	4	5
42. Assignment completion	1	2	3	4	(5)
43. Organizational skills	1	2	3	4	(5)

Comments:

Please return this form to: \_\_\_\_\_  
 Mailing address: \_\_\_\_\_  
 \_\_\_\_\_  
 Fax number: \_\_\_\_\_

### For Office Use Only

Total number of questions scored 2 or 3 in questions 1-9: \_\_\_\_\_  
 Total number of questions scored 2 or 3 in questions 10-18: \_\_\_\_\_  
 Total Symptom Score for questions 1-18: \_\_\_\_\_  
 Total number of questions scored 2 or 3 in questions 19-28: \_\_\_\_\_  
 Total number of questions scored 2 or 3 in questions 29-35: \_\_\_\_\_  
 Total number of questions scored 4 or 5 in questions 36-43: \_\_\_\_\_  
 Average Performance Score: \_\_\_\_\_



# NICHQ Vanderbilt Assessment Scale—SCORED

## D3 NICHQ Vanderbilt Assessment Scale—PARENT Informant

Today's Date: 8/12/19 Child's Name: Benji Date of Birth: 14 yrs ago  
 Parent's Name: Benji's mom 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

Symptoms (continued)	Never	Occasionally	Often	Very Often
33. Deliberately destroys others' property	0	1	2	3
34. Has used a weapon that can cause serious harm (bat, knife, brick, gun)	0	1	2	3
35. Is physically cruel to animals	0	1	2	3
36. Has deliberately set fires to cause damage	0	1	2	3
37. Has broken into someone else's home, business, or car	0	1	2	3
38. Has stayed out at night without permission	0	1	2	3
39. Has run away from home overnight	0	1	2	3
40. Has forced someone into sexual activity	0	1	2	3
41. Is fearful, anxious, or worried	0	1	2	3
42. Is afraid to try new things for fear of making mistakes	0	1	2	3
43. Feels worthless or inferior	0	1	2	3
44. Blames self for problems, feels guilty	0	1	2	3
45. Feels lonely, unwanted, or unloved; complains that "no one loves him or her"	0	1	2	3
46. Is sad, unhappy, or depressed	0	1	2	3
47. Is self-conscious or easily embarrassed	0	1	2	3

Performance	Excellent	Above Average	Average	Somewhat of a Problem	Problematic
48. Overall school performance	1	2	3	4	5
49. Reading	1	2	3	4	5
50. Writing	1	2	3	4	5
51. Mathematics	1	2	3	4	5
52. Relationship with parents	1	2	3	4	5
53. Relationship with siblings	1	2	3	4	5
54. Relationship with peers	1	2	3	4	5
55. Participation in organized activities (eg, teams)	1	2	3	4	5

Comments:

## NICHQ Vanderbilt Assessment Scale—TEACHER Informant

Teacher's Name: Benji's teacher Class Time: all day Class Name/Period: all subjects  
 Today's Date: 8/12/19 Child's Name: Benji Grade Level: 9th

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: 2 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. 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

Symptoms (continued)	Never	Occasionally	Often	Very Often
32. Feels worthless or inferior	0	1	2	3
33. Blames self for problems; feels guilty	0	1	2	3
34. Feels lonely, unwanted, or unloved; complains that "no one loves him or her"	0	1	2	3
35. Is sad, unhappy, or depressed	0	1	2	3

Performance	Excellent	Average	Above Average	Somewhat of a Problem	Problematic
36. Reading	1	2	3	4	5
37. Mathematics	1	2	3	4	5
38. Written expression	1	2	3	4	5

Classroom Behavioral Performance	Excellent	Above Average	Average	Somewhat of a Problem	Problematic
39. Relationship with peers	1	2	3	4	5
40. Following directions	1	2	3	4	5
41. Disrupting class	1	2	3	4	5
42. Assignment completion	1	2	3	4	5
43. Organizational skills	1	2	3	4	5

Comments:

# Making the Diagnosis—DSM-5

60

Neurodevelopmental Disorders

## Attention-Deficit/Hyperactivity Disorder

### Attention-Deficit/Hyperactivity Disorder

#### Diagnostic Criteria

A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):

1. **Inattention:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:  
**Note:** The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.
  - a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).
  - b. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).
  - c. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).
  - d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).
  - e. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).
  - f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).
  - g. Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
  - h. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).
  - i. Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

2. **Hyperactivity and impulsivity:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:  
**Note:** The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or a failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.
  - a. Often fidgets with or taps hands or feet or squirms in seat.
  - b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).
  - c. Often runs about or climbs in situations where it is inappropriate. (**Note:** In adolescents or adults, may be limited to feeling restless.)
  - d. Often unable to play or engage in leisure activities quietly.
  - e. Is often "on the go," acting as if "driven by a motor" (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).
  - f. Often talks excessively.
  - g. Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).
  - h. Often has difficulty waiting his or her turn (e.g., while waiting in line).
  - i. Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).
- B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.
- C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).
- D. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.
- E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal).

Specify whether:

**314.01 (F90.2) Combined presentation:** If both Criterion A1 (inattention) and Criterion A2 (hyperactivity-impulsivity) are met for the past 6 months.

**314.00 (F90.0) Predominantly inattentive presentation:** If Criterion A1 (inattention) is met but Criterion A2 (hyperactivity-impulsivity) is not met for the past 6 months.

**314.01 (F90.1) Predominantly hyperactive/impulsive presentation:** If Criterion A2 (hyperactivity-impulsivity) is met and Criterion A1 (inattention) is not met for the past 6 months.

Specify if:

**In partial remission:** When full criteria were previously met, fewer than the full criteria have been met for the past 6 months, and the symptoms still result in impairment in social, academic, or occupational functioning.

Specify current severity:

**Mild:** Few, if any, symptoms in excess of those required to make the diagnosis are present, and symptoms result in no more than minor impairments in social or occupational functioning.

**Moderate:** Symptoms or functional impairment between "mild" and "severe" are present.

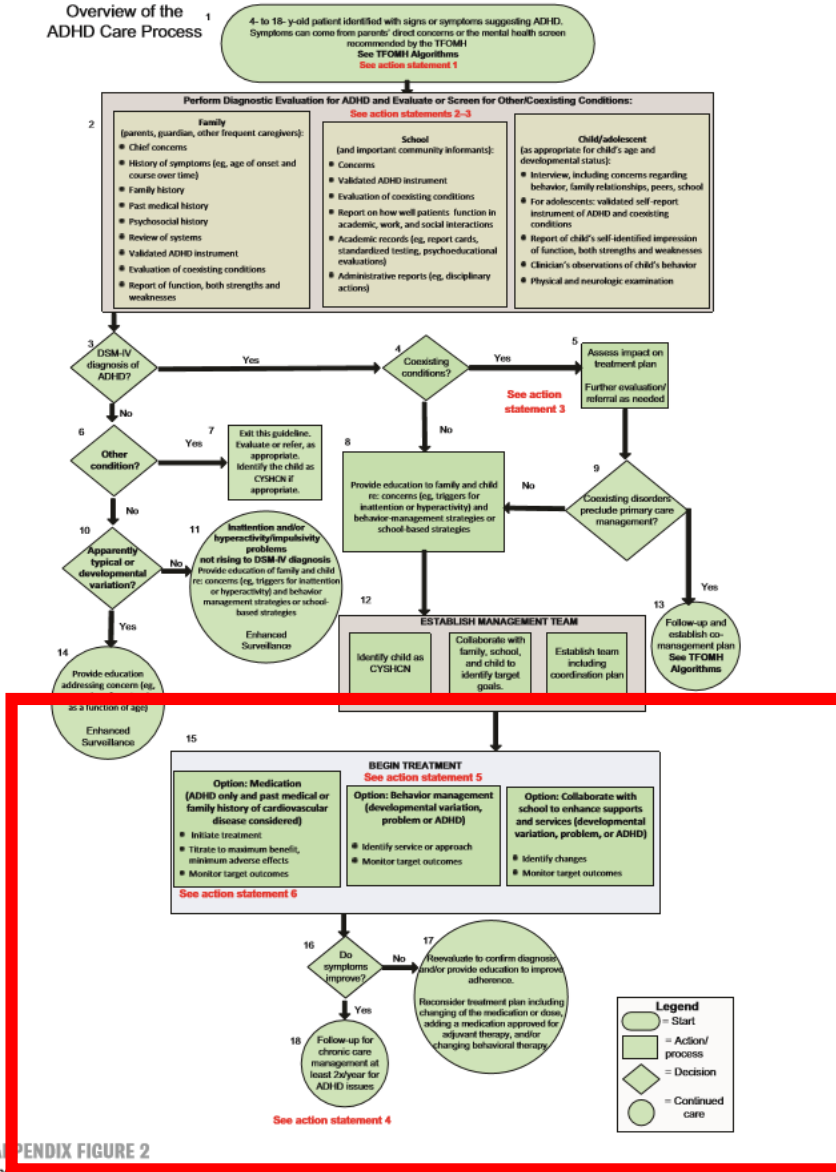
# DSM-5 Changes\*

	DSM-5	DSM-IV
Criterion A (ADHD symptoms)	Only 5 criteria needed for adults and adolescents	6 criteria needed for diagnosis in all age groups
Criterion B (age of onset)	Onset of <b>symptoms</b> before age <b>12</b>	Onset of symptoms <b>and impairments</b> before age <b>7</b>
Criterion C (pervasiveness)	Evidence of <b>impairment</b> in 2+ settings	Evidence of <b>symptoms</b> in 2+ settings
Criterion D (impairment)	Functional impairment: <b>“reduce the quality of social, academic or occupational functioning”</b>	Functional impairment: <b>“clinically significant”</b>
Criterion E (exclusionary conditions)	No longer includes Autism Spectrum Disorder	ASD is exclusionary
Nosology changes	ADHD <b>“presentations”</b>	ADHD <b>“types”</b>
Modifiers added	Mild, moderate, severe, in partial remission, etc	

\*Epstein and Loren 2013

# American Academy of Pediatrics ADHD Care Algorithm

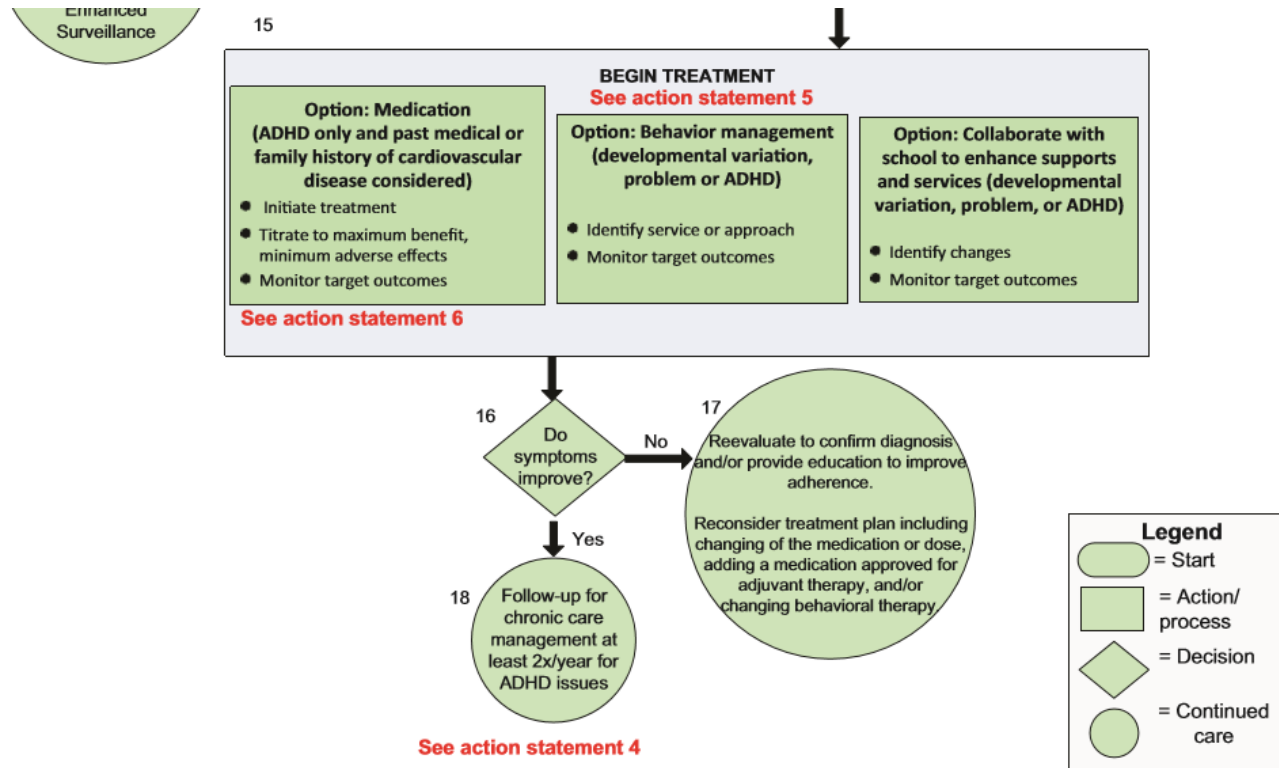
## Overview of the ADHD Care Process



SUPPLEMENTAL APPENDIX FIGURE 2

ADHD process-of-care algorithm. 4- to 18-year-old patient with signs or symptoms of ADHD. Screened by mental health professional. Children, adolescents, and young adults with special health care needs.

# American Academy of Pediatrics ADHD Care Algorithm



## SUPPLEMENTAL APPENDIX FIGURE 2

ADHD process-of-care algorithm. TFOMH indicates Task Force on Mental Health; CYSHCN, child/youth with special health care needs.<sup>1</sup>

# Treatment and Management

Age Range	First Line	Second Line/ Supplemental
Pre-school-aged (4-5 yrs)	Evidence-based parent and or teacher-administered behavioral therapy	Methylphenidate if no improvement with therapy
Elementary school-aged (6-11 yrs)	FDA-approved medications for ADHD (and/or therapy) <ul style="list-style-type: none"> <li>• Strong evidence for stimulants</li> <li>• Sufficient but less strong for atomoxetine&gt; guanfacine ER&gt; clonidine ER</li> </ul>	Behavioral therapy Non-FDA approved medications
Adolescents (12-18 yrs)	FDA-approved medications for ADHD	Behavioral therapy Non-FDA approved medications

# Treatment—Medication

## ADHD Medication Guide\*

Revised: March 2019

### Methylphenidate Derivatives – Long Acting/Extended Release\*\*

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

Cotempla XR-ODT™ <sup>§</sup> (grape flavor)	6-17 Yrs: 8.6–51.8mg; SD: 17.3mg	8.6mg		17.3mg	25.9mg	34.6mg	51.8mg			
Aptensio® XR <sup>‡</sup>	6 Yrs–Adult: 10–60mg; SD: 10mg	10mg	15mg	20mg	30mg	40mg	50mg	60mg		
Concerta® <sup>†</sup>	6-12 Yrs: 18-54mg; SD: 18mg 13-17 Yrs: 18-72mg; SD: 18mg ≥18 Yrs: 18-72mg; SD: 18mg or 36mg	18mg	27mg	36mg	54mg	72mg				
Quilivant XR® 25mg/5mL (5mg/mL) (banana flavor)	6 Yrs–Adult: 20–60mg; SD: 20mg	10mg 2mL		20mg 4mL	30mg 6mL	40mg 8mL	50mg 10mL	60mg 12mL		
Quillichew ER™ <sup>§</sup> (cherry flavor)	6 Yrs–Adult: 20–60mg; SD: 20mg			20mg	30mg	40mg				
Focalin® XR <sup>‡</sup> (dexmethylphenidate)	6-17 Yrs: 5–30mg; SD: 5mg 18 Yrs-Adult: 5–30mg; SD: 5mg	5mg		10mg	15mg	20mg	25mg	30mg	35mg	40mg
Ritalin® LA <sup>‡</sup>	6-12 Yrs: 10–60mg; SD: 20mg	10mg		20mg	30mg	40mg				
Metadate® CD <sup>‡</sup>	6-17 Yrs: 10–60mg; SD: 20mg	10mg		20mg	30mg	40mg	50mg	60mg		
Metadate® ER <sup>†</sup>	6 Yrs-Adult: 20–60mg; SD: 20mg	10mg		20mg						

Daytrana® 6-17 Yrs: 10–30mg; SD: 10mg  
(Patches are shown at 60% of actual size)



### 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	2.5mg	5mg	10mg
Ritalin®	6-12 Yrs: Daily: 10–60mg; divided BID or TID; SD: 5mg BID Adults: Daily: 10–60mg, divided BID or TID	5mg	10mg	20mg
Methylphenidate Chewable <sup>§</sup> (grape flavor)	6-12 Yrs: Daily: 10–60mg; divided BID or TID; SD: 5mg BID Adults: Daily: 10–60mg, divided BID or TID	2.5mg	5mg	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	5mg/5mL	10mg/5mL	

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

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

\*Disclaimer: The ADHD Medication Guide was created by Dr. Andrew Adelman 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.

Copyright 2006, 2016, 2017, 2018, 2019 by Northwell Health, Inc., Great Neck, New York. All rights reserved. Reproduction of the ADHD Medication Guide or the creation of derivative works is not permitted without the written permission of Northwell Health. The sale of this Guide is strictly forbidden. Send inquiries to Office of Legal Affairs, Northwell Health, Inc., 2000 Marcus Avenue, Lake Success, NY 11042. This Guide is accurate as of March 1, 2019.

#### Administration Key:

- Chewable
- Orally disintegrating tablet
- Must be swallowed whole
- 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.

# Treatment—Medication

## ADHD Medication Guide\*

Revised: March 2019

Amphetamine Derivatives – Long Acting/Extended Release**														
(Medications in this section are shown at actual size)														
Adzenys XR-ODT <sup>®</sup> † (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 <sup>®</sup> (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 <sup>®</sup> ‡ (mixed amphetamine salts)	6–17 Yrs: 5–30mg; SD: 10mg Adults: 5–30mg; SD: 20mg	G	5mg		10mg		15mg		20mg		25mg		30mg	
Vyvanse <sup>®</sup> ‡ (capsules) (lisdexamfetamine)	6 Yrs–Adults: 10–70mg; SD: 30mg		10mg		20mg		30mg		40mg		50mg		60mg	
Vyvanse <sup>®</sup> ‡ (chewables) (lisdexamfetamine) (strawberry flavor)	6 Yrs–Adults: 10–60mg; SD: 30mg		10mg		20mg		30mg		40mg		50mg		60mg	
Dyanavel <sup>®</sup> 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	
Mydayis <sup>™</sup> ‡ (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 <sup>®</sup> (d-amphetamine sulfate)	6-17 Yrs: 10–60mg; SD: 5mg 1-2x/day	G†	5mg		10mg		15mg							

Amphetamine Derivatives – Short Acting/Immediate Release**														
(Medications in this section are shown at actual size)														
Evekeo <sup>®</sup> (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 <sup>®</sup> (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	5mg		7.5mg		10mg		15mg		20mg		30mg	
Adderall <sup>®</sup> (mixed amphetamine salts)	3–5 Yrs: SD: 2.5mg 1x/day 6–17 Yrs: 5–40mg divided BID; SD: 5mg 1-2x/day		5mg		7.5mg		10mg		12.5mg		15mg		20mg	
ProCentra <sup>®</sup> (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		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); LiguADD solution (5mg/5mL), and Cylert (pemoline).

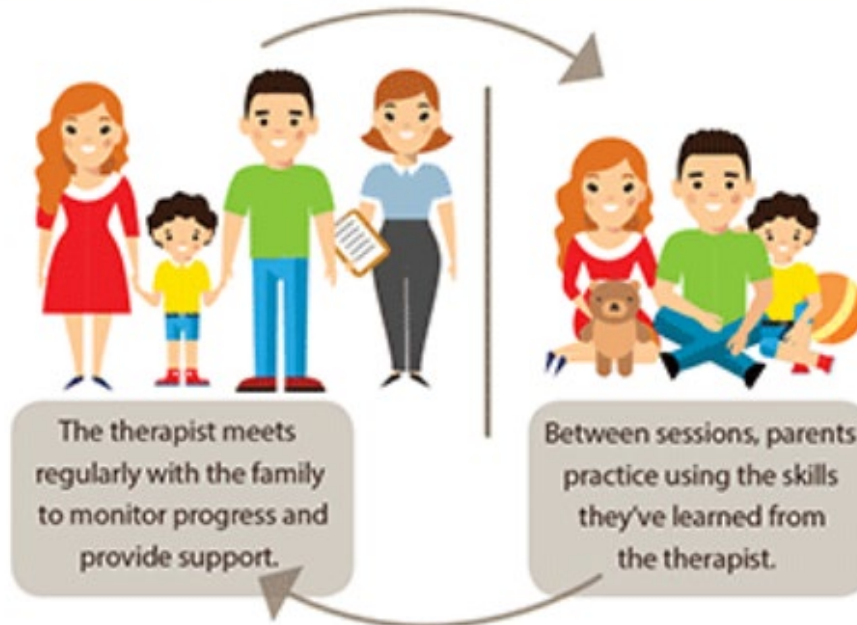
• Updated versions of the ADHD Medication Guide can be viewed at [www.ADHDMedicationGuide.com](http://www.ADHDMedicationGuide.com)  
 • Laminated copies of the ADHD Medication Guide can be obtained at: [www.ADDWarehouse.com](http://www.ADDWarehouse.com)  
 • Contact Dr. Andrew Adesman with any comments or suggestions: [ADHDMedGuide@Northwell.edu](mailto:ADHDMedGuide@Northwell.edu)

Non-Stimulants**														
(Medications in this section are shown at actual size)														
Intuniv <sup>®</sup> † (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		2mg		3mg		4mg					
Kapvay <sup>®</sup> † (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 <sup>®</sup> † (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		18mg		25mg		40mg		60mg		80mg	
									100mg					

# Treatment—Therapy

## What parents can expect in behavior therapy

Parents typically attend 8-16 sessions with a therapist and learn strategies to help their child. Sessions may involve groups or individual families.



After therapy ends, families continue to experience improved behavior and reduced stress.

#VitalSigns

  
www.cdc.gov/vitalsigns/adhd



# Treatment—Therapy

## 1<sup>st</sup> line for ages 4-5

**ADHD Treatments**  
For Preschoolers (ages 4-5)  
*Be sure they get what's best!*

**Where we have been:**  
*(Treatment practices, 2009-2010)*

Almost **1 in 2** preschool children with ADHD got **no behavioral therapy**.  
About **1 in 4** were treated **only with medication**.

**Where we need to go:**  
*(Treatment guidance, 2011)*

Provide **behavioral therapy first**, before medication.

**What can you do?**

**Parents:**  
Talk to your doctor about behavioral therapy for your preschool child's treatment.

**Healthcare professionals:**  
Be aware of the psychological resources in your community and be prepared to refer children, particularly preschoolers, for behavioral therapy as recommended by the American Academy of Pediatrics (AAP).

**FOR MORE INFORMATION:**  
[www.cdc.gov/adhd](http://www.cdc.gov/adhd)  
Twitter: @CDC\_NCBDDD

Centers for Disease Control and Prevention  
National Center on Birth Defects and Developmental Disabilities

# Now what?

- Medication titration
  - “Start low, go slow”
  - Increase every 1-3 weeks
  - Frequent Vanderbilt rating tools
  - Monitor for side effects
- Failed stimulant trial
  - Ensure adequate dose
  - Change classes of stimulants
  - Re-evaluate diagnosis
- Partial response
  - Increase dose
  - Add short acting stimulant in afternoon (or AM for Concerta)
  - Add alpha-2 agonist for hyperactivity/impulsivity
  - Re-evaluate for co-morbid diagnoses and treat
- Consider referral or outpatient consultation

# Other considerations

- Involve schools
- Involve parents
- Consultation with psychiatry or psychology
- 504 plans and/or IEPs
- Consider ADHD as a chronic condition—  
Children and Youth with Special Health  
Needs (CYSHN)
- Cardiac history—WPW, Hypertrophic  
cardiomyopathy, family hx sudden death
- Adult patients with ADHD



# Questions?

# References

- Adesman, A 2019. ADHD Medication Guide: [www.ADHDMedicationGuide.com](http://www.ADHDMedicationGuide.com)
- AACAP 2007. Practice Parameter for the Assessment and Treatment of Children and Adolescents with Attention-Deficit/Hyperactivity Disorder.
- American Academy of Pediatrics. Introduction to Caring for Children with ADHD: a resource toolkit for clinicians, 2<sup>nd</sup> edition. <https://www.aap.org/en-us/pubserv/adhd2/Pages/kit/data/introframe.html>.
- Center for Disease Control. [www.cdc.gov](http://www.cdc.gov)
- Epstein, JN, Loren, RE. Changes in the Definition of ADHD in DSM-5: Subtle but important. *Neuropsychiatry (London)*. 2013 October 1; 3(5): 455–458. doi:10.2217/npv.13.59.
- Diagnostic and Statistical Manual of Mental Disorders Fifth Edition 2013. American Psychiatric Association.
- FDA.gov. October 2016. Dealing with ADHD: What You Need to Know. <https://www.fda.gov/consumers/consumer-updates/dealing-adhd-what-you-need-know>.

# PRISMA HEALTH<sup>SM</sup>

[PrismaHealth.org](https://PrismaHealth.org)

