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## Evidence-Based Best Practices for the Management of Attention-Deficit/Hyperactivity Disorder (ADHD) in Pediatric Primary Care in South Carolina

The SCORxE best practices for the management of ADHD offers South Carolina providers unbiased, evidence-based clinical information to assist in making optimal treatment decisions about medication and behavioral therapy.

### **A**ssess input from both home and school before diagnosing ADHD in children and adolescents

- In addition to behavioral symptoms, diagnosis requires functional impairment in more than one setting (e.g., home and school) with clinically significant impairment of social, academic, or occupational functioning.
- A detailed social, family, and medical history is crucial to accurately diagnose ADHD, identify comorbidities, and provide insight into the family dynamics and mental health status.
- Response to stimulants does not confirm diagnosis—stimulants can positively impact children who do not have ADHD.

### **D**iscuss strengths/weaknesses of pharmacotherapy and behavioral therapy while considering comorbidities to individualize treatment plan

- Stimulants, or atomoxetine as an alternative, are usually considered first-line treatment for school-age children with ADHD.
- Initiate stimulants at low doses and titrate based on response and side effects—optimal dose does not correlate closely with age, weight or symptom severity.
- Psychoeducation (i.e., general advice and education about ADHD for patients and parents) is recommended along with pharmacotherapy.
- Behavioral therapy alone may be considered for initial treatment of mild ADHD symptoms, uncertain diagnosis of ADHD, or based on parental preferences.
- Adding behavioral interventions to pharmacotherapy is beneficial for patients with comorbid conditions.

### **H**ave functional and symptomatic improvements included in negotiated treatment goals with parents and teachers

- Functional goals do not just include improved schoolwork; for example, they also include improved social skills, relationships, and/or impulse control.
- Frequent medication holidays may hinder progress towards goals such as improved self-esteem, social interactions, relationships, behavioral problems, and safety in the community such as riding bicycles or teen driving.

### **D**o monthly follow-up in early phases of care for each new ADHD patient or ADHD medication

- Rating scales (e.g., Vanderbilt Assessment Follow-Up scales) can be useful for providers, parents and teachers to assess improvement and side effects.
- Once patients are stable, visits may be scheduled every 3–6 months.
- Regular follow-ups allow for ongoing evaluation of: treatment response; need for long-term treatment; medication adherence (including medication holidays); and diversion concerns.

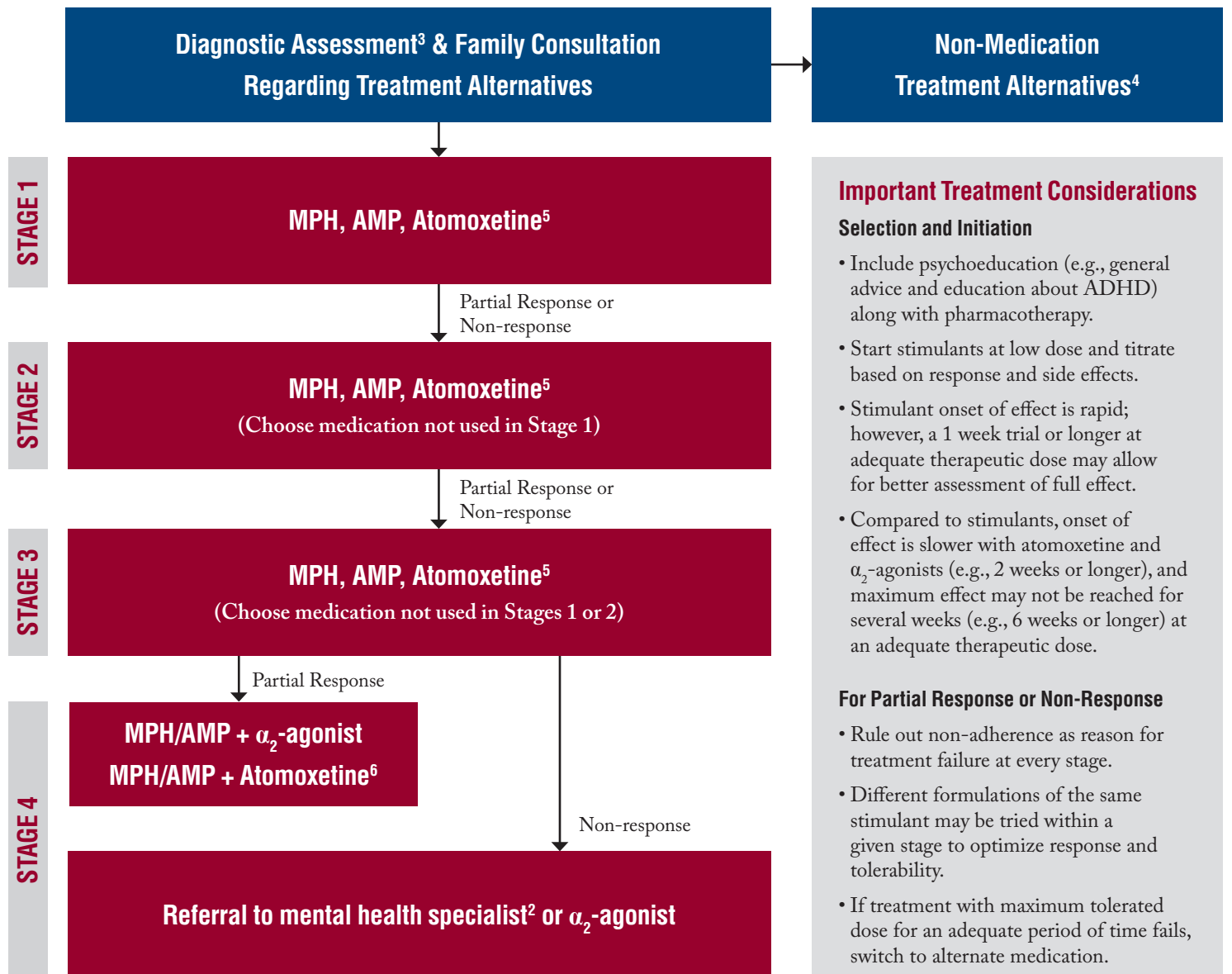
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The information contained in this summary is intended to supplement the knowledge of clinicians regarding best practices and drug therapy to treat ADHD in children and adolescents in a primary care setting. This information is advisory only and is not intended to replace sound clinical judgment, nor should it be regarded as a substitute for individualized diagnosis and treatment. Special considerations are needed when treating some populations with certain conditions (e.g., pregnancy/breast-feeding, cardiac disease, liver and renal impairment).

**References:** Refer to the SCORxE Evidence-Based Best Practices for the Management of Attention-Deficit/Hyperactivity Disorder (ADHD) in Pediatric Primary Care in South Carolina 16-page Summary March 2011 available at: <http://www.sccp.sc.edu/SCORxE>.

# Algorithm for the Treatment of ADHD<sup>1,2</sup>



## Important Treatment Considerations

### Selection and Initiation

- Include psychoeducation (e.g., general advice and education about ADHD) along with pharmacotherapy.
- Start stimulants at low dose and titrate based on response and side effects.
- Stimulant onset of effect is rapid; however, a 1 week trial or longer at adequate therapeutic dose may allow for better assessment of full effect.
- Compared to stimulants, onset of effect is slower with atomoxetine and  $\alpha_2$ -agonists (e.g., 2 weeks or longer), and maximum effect may not be reached for several weeks (e.g., 6 weeks or longer) at an adequate therapeutic dose.

### For Partial Response or Non-Response

- Rule out non-adherence as reason for treatment failure at every stage.
- Different formulations of the same stimulant may be tried within a given stage to optimize response and tolerability.
- If treatment with maximum tolerated dose for an adequate period of time fails, switch to alternate medication.
- If adequate trials of stimulants and atomoxetine monotherapy fail to produce satisfactory response, evaluate accuracy of original diagnosis and possibility of undiagnosed comorbid conditions.

**For further management of a non-responsive patient, refer to a mental health specialist<sup>2</sup>**

<sup>1</sup>This algorithm is for the management of children 6 years of age or older and does not address the management of ADHD with comorbidities (see opposite page).

<sup>2</sup>Consider referral to mental health specialist at any stage if: 1) clear adverse behavioral response to medications (e.g., psychosis, mania, severe dysphoria), particularly prior to puberty; 2) comorbid substance use disorder, conduct disorder, or bipolar disorder.

<sup>3</sup>Parent and teacher rating scales (e.g., Vanderbilt Assessment scales) are helpful to assess ADHD symptoms, psychiatric comorbidities, and functioning.

<sup>4</sup>Behavioral therapy is an option: 1) before starting medication, especially if ADHD symptoms are mild, the diagnosis is uncertain, or parents oppose pharmacotherapy; 2) in combination with pharmacotherapy, especially with comorbid conditions.

<sup>5</sup>Consider atomoxetine as an alternative to stimulants: 1) in the presence of comorbidities such as anxiety, active substance abuse problems, or tics; 2) if patient experiences severe side effects to stimulants; 3) based on parent and child preferences.

<sup>6</sup>Stimulant in combination with atomoxetine is based on clinical consensus of SCORxE writing group.

## Abbreviations Key

### AMP

dextroamphetamine  
lisdexamfetamine  
mixed amphetamine salts

### MPH

methylphenidate  
dexmethylphenidate

### $\alpha_2$ -agonist

clonidine  
guanfacine

## Medication Considerations for ADHD with Comorbidities

| Comorbidity   | Treatment  |
|---|--|
| Physical Aggression—may be associated with Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD) | Stimulants often beneficial for physical aggression; atomoxetine may be less beneficial. If aggression persists despite first-line ADHD medications in combination with behavioral therapy, then may consider adding an $\alpha_2$ -agonist or a second generation antipsychotic. Consider reassessing diagnosis or referral to mental health specialist if above suggestions are ineffective. |
| Anxiety   | Stimulants may increase or decrease anxiety; use slow titration. Atomoxetine may be beneficial. Consider adding an SSRI if good response of ADHD symptoms to stimulants or atomoxetine but persistent anxiety despite nonpharmacologic interventions.  |
| Bipolar Disorder (BPD)  | Refer to mental health specialist for management with standard BPD treatments.   |
| Depression  | Treat the condition causing most impairment first (comorbid disorder will often improve); then reassess.   |
| Insomnia  | Stimulants unlikely beneficial and may exacerbate initial insomnia. Give stimulant dose earlier in day. Consider adjunctive insomnia treatment or switch to atomoxetine.   |
| Substance Use Disorder <sup>1</sup>   | Refer to mental health specialist and consider atomoxetine or stimulant formulations with lower abuse potential (e.g., Concerta <sup>®</sup> , Vyvanse <sup>®</sup> ).   |
| Swallowing Difficulties   | Can open and sprinkle: Focalin XR <sup>®</sup> , Metadate CD <sup>®</sup> , Ritalin LA <sup>®</sup> , Adderall XR <sup>®</sup> , Dexedrine <sup>®</sup> spansules.<br>Can dissolve contents in water: Vyvanse <sup>®</sup> .   |
| Tic Disorder  | Stimulants usually do not worsen tics and may improve tics. Consider adding an $\alpha_2$ -agonist if good response of ADHD symptoms to stimulants but persistent tics. Consider atomoxetine if tics worsen with stimulants.   |

<sup>1</sup>Stimulant medications should not be prescribed to patients with significant active substance abuse and dependence except by an expert in both disorders.

**Key:** SSRI = selective serotonin reuptake inhibitors

Adapted from Rx Files 2008

## Select Resources on ADHD

| Resources   | Web Link  | Provider Resources | Teacher Resources | Parent Tools | Teens | Online Support | Local Information | Local Support, Chapters or Networking | Training, Conferences, or Workshops | Newsletter | Spanish | Educational Accommodations/Rights | Prescription Assistance or Insurance Information |
|---|---|--------------------|-------------------|--------------|-------|----------------|-------------------|---------------------------------------|-------------------------------------|------------|---------|-----------------------------------|--|
| ADDitude Magazine for People with ADHD  | <a href="http://www.additudemag.com">www.additudemag.com</a>  |                    | x                 | x            | x     | x              | x                 |                                       |                                     | x          |         | x                                 | x  |
| ADDvance Online Resource and National Center for Girls and Women with AD/HD                             | <a href="http://www.addvance.com">www.addvance.com</a><br><a href="http://www.ncgiadd.org">www.ncgiadd.org</a>            | x                  |                   | x            | x     | x              |                   |                                       |                                     | x          |         |                                   |  |
| ALLIANCE National Parent Technical Assistance Center (NPTAC)  | <a href="http://www.parentcenternetwork.org">www.parentcenternetwork.org</a>  |                    |                   |              |       |                |                   | x                                     | x                                   | x          | x       | x                                 |  |
| Children and Adults with Attention Deficit/ Hyperactivity Disorder (CHADD) and National Resource Center | <a href="http://www.chadd.org">www.chadd.org</a><br><a href="http://www.help4adhd.org">www.help4adhd.org</a> <sup>1</sup> | x                  | x                 | x            | x     | x              | x                 | x                                     | x                                   | x          | x       | x                                 | x  |
| Family Connection South Carolina 1-800-578-8750   | <a href="http://www.familyconnections.org">www.familyconnections.org</a>  | x                  |                   | x            |       |                |                   | x                                     | x                                   | x          | x       | x                                 | x  |
| Federation of Families of South Carolina 1-866-779-0402   | <a href="http://fedfamsc.org">fedfamsc.org</a>  |                    |                   | x            | x     |                |                   | x                                     | x                                   | x          | x       | x                                 | x  |
| National Alliance on Mental Illness (NAMI)  | <a href="http://www.nami.org">www.nami.org</a>  | x                  |                   | x            | x     | x              | x                 | x                                     | x                                   | x          | x       | x                                 | x  |
| National Initiative for Children's Healthcare Quality   | <a href="http://www.nichq.org">www.nichq.org</a>  | x                  |                   | x            |       | x              |                   |                                       |                                     | x          |         | x                                 |  |

<sup>1</sup>A medication guide from North Shore–Long Island Jewish Health System provides a visual aid that includes images of FDA-approved ADHD medications.

## Stimulant ADHD Medication Dosing Guidelines

| Medication*<br>(Brand Name)                     | Onset<br>(Minutes) | Duration<br>(Hours)       | Initial Dose<br>(Titration every 7 days)  | Doses<br>per Day | Maximum<br>Daily Dose  | Comments   |
|---|--------------------|---------------------------|---|------------------|--|--|
| <b>Methylphenidate</b>                          |                    |                           |   |                  |  |  |
| <b>Short-Acting</b>                             |                    |                           |   |                  |  |  |
| <b>Methylphenidate</b> (Ritalin®, Methylin™)    | 20–30              | 3–4                       | 5 mg BID or TID<br>(5–10 mg/day)  | 1–3              | 60 mg  | Take 30–45 min before meals.   |
| <b>Dexmethylphenidate</b> (Focalin®)            | 30                 | 3–6                       | 2.5 mg BID<br>(2.5–5 mg/day)  | 2                | 20 mg  | High fat meal will delay absorption by ~ 1.5 hours.                                      |
| <b>Intermediate-Acting</b>                      |                    |                           |   |                  |  |  |
| <b>Methylphenidate</b> (Ritalin SR®)            | 60–90              | 3–8<br>(highly variable)  | 10–20 mg AM<br>(20 mg/day)  | 1–2              | 60 mg  | Take 30–45 min before meals.   |
| (Metadate ER™)                                  | 60–180             |                           |   |                  |  | Wax matrix tablet.   |
| (Methylin ER™)                                  | 60–90              |                           |   |                  |  | Wax matrix tablet.   |
|   |                    |                           |   |                  |  | Hydrophilic polymer tablet.  |
| <b>Long-Acting</b>                              |                    |                           |   |                  |  |  |
| <b>Methylphenidate</b> (Ritalin LA®)            | 100                | 7–9                       | 10–20 mg AM<br>(10 mg/day)  | 1                | 60 mg  | Capsule is 50% IR & 50% DR beads. Mimics BID dosing.                                     |
| <b>Methylphenidate</b> (Metadate CD®)           | 90                 | 7–9                       | 20 mg AM<br>(10–20 mg/day)  | 1                | 60 mg  | Capsule is 30% IR & 70% DR beads. Mimics BID dosing.                                     |
| <b>Methylphenidate</b> (Concerta®)              | 30–60              | 10–12                     | 18 mg AM<br>(18 mg/day)   | 1                | <b>6–12 years:</b> 54 mg<br><b>13–17 years:</b> 72 mg<br><b>NTE:</b> 2 mg/kg/day | Nonabsorbable tablet is 22% IR & 78% CR.   |
| <b>Methylphenidate transdermal</b> (Daytrana®)  | 120–240            | 10–12                     | 10 mg AM<br>(next patch size)   | 1                | 30 mg  | Remove after 9 hours; absorption may continue for several hours after removal.           |
| <b>Dexmethylphenidate</b> (Focalin XR®)         | 30                 | 9–12                      | 5 mg AM<br>(5 mg/day)   | 1                | 30 mg  | Capsule is 50% IR & 50% DR beads. Mimics BID dosing.                                     |
| <b>Amphetamines</b>                             |                    |                           |   |                  |  |  |
| <b>Short-Acting</b>                             |                    |                           |   |                  |  |  |
| <b>Dextroamphetamine</b> (generic only)         | 20–60              | 4–6                       | <b>3–5 years:</b> 2.5 mg AM<br>(2.5 mg/day)<br><b>≥ 6 years:</b> 5 mg AM or BID<br>(5 mg/day) | 1–3              | 40 mg  |  |
| <b>Mixed amphetamine salts</b> (Adderall®)      | 30                 | 5–8                       | <b>3–5 years:</b> 2.5 mg AM<br>(2.5 mg/day)<br><b>≥ 6 years:</b> 5 mg AM or BID<br>(5 mg/day) | 1–3              | 40 mg  | Duration increases with higher doses.  |
| <b>Intermediate-Acting</b>                      |                    |                           |   |                  |  |  |
| <b>Dextroamphetamine</b> (Dexedrine Spansules®) | 60–90              | 6–10<br>(highly variable) | 5 mg AM or BID<br>(5 mg/day)  | 1–2              | 40 mg  | Capsule of IR & DR beads.  |
| <b>Long-Acting</b>                              |                    |                           |   |                  |  |  |
| <b>Mixed amphetamine salts</b> (Adderall XR®)   | 30                 | 10–12                     | 5–10 mg AM<br>(5–10 mg/day)   | 1                | 30 mg  | Capsule is 50% IR & 50% DR beads. Mimics BID dosing.                                     |
| <b>Lisdexamfetamine</b> (Vyvanse®)              | 90–120             | 10–12                     | 20–30 mg AM<br>(10–20 mg/day)   | 1                | 70 mg  | Continuous release capsule. A pro-drug. High fat meal will delay absorption by ~ 1 hour. |

\*All medications are FDA-approved for the treatment of ADHD in children 6 years of age or older, except for short-acting dextroamphetamine and short-acting mixed amphetamine salts which are approved for use in children 3 years of age or older. **Key:** CR = controlled release; DR = delayed release; IR = immediate release; NTE = not to exceed

## Nonstimulant ADHD Medication Dosing Guidelines

| Medication (i)<br>(Brand Name)                    | Onset        | Duration   | Initial Dose<br>(Titration)  | Doses<br>per Day                                   | Maximum Daily Dose  | Comments   |
|---|--------------|--|--|--|---|--|
| <b>Atomoxetine</b><br>(Strattera®) (ii)           | 2–4<br>weeks | 24 hrs   | ≤ 70 kg: 0.5 mg/kg/day QD<br>(↑ to 1.2 mg/kg/day) (iii)<br>> 70 kg: 40 mg QD<br>(↑ to 80 mg QD or divided BID) (iii)   | 1–2  | 1.4 mg/kg/day<br>NTE: 100 mg  |  |
| <b>Clonidine ER</b><br>(Kapvay™) (iv)             | ~2<br>weeks  | 12 hrs   | 0.1 mg PM<br>(0.1 mg/day every week)   | 2  | 0.4 mg  | Do not stop abruptly.<br>Not 1:1 conversion to other<br>clonidine products.  |
| <b>Guanfacine ER</b><br>(Intuniv™) (iv)           | 2–3<br>weeks | 8–14 hrs;<br>up to 24 hrs<br>in higher<br>doses        | 1 mg QD<br>(1 mg/day every week)   | 1  | 4 mg  | Do not stop abruptly. Do not<br>administer with high fat meals.<br>Not a 1:1 conversion to other<br>guanfacine products. |
| <b>Clonidine</b><br>(Catapres®,<br>Catapres-TTS®) | 2–8<br>weeks | <b>Oral:</b><br>4–6 hrs<br><br><b>Patch:</b><br>7 days | <b>Oral:</b> ≤ 45 kg: 0.05 mg PM<br>(0.05 mg/day every 3–7 days)<br>> 45 kg: 0.1 mg PM<br>(0.1 mg/day every 3–7 days)<br><br><b>Patch:</b> 0.1 mg/week<br>(next patch size weekly) | <b>Oral:</b><br>2–4<br><br><b>Patch:</b><br>weekly | <b>27–40.5 kg:</b> 0.2 mg<br><b>40.5–45 kg:</b> 0.3 mg<br><b>&gt; 45 kg:</b> 0.4 mg | Do not stop abruptly.<br>Not a 1:1 conversion to ER.   |
| <b>Guanfacine</b><br>(Tenex™)                     | 2–8<br>weeks | 6–8 hrs  | ≤ 45 kg: 0.5 mg PM<br>(0.5 mg/day every 3–7 days)<br>> 45 kg: 1 mg PM<br>(1 mg/day every 3–7 days)   | 2–4  | <b>27–40.5 kg:</b> 2 mg<br><b>40.5–45 kg:</b> 3 mg<br><b>&gt; 45 kg:</b> 4 mg       | Do not stop abruptly.<br>Not a 1:1 conversion to ER.   |

(i) All medications are FDA indicated for the treatment of ADHD in children 6 years of age or older, except for clonidine and guanfacine immediate-release tablets which do not have an FDA indication for ADHD; (ii) FDA indicated for ADHD as monotherapy; (iii) FDA package insert states that dose can be increased to target dose of 1.2mg/kg/day after a minimum of 3 days; (iv) FDA indicated for ADHD as monotherapy or adjunctive therapy to stimulants. **Key:** ER = extended release; NTE = not to exceed

## Guidelines for Switching Stimulant ADHD Medication

| METHYLPHENIDATE TO METHYLPHENIDATE |                                      |                              |                             | METHYLPHENIDATE TO AMPHETAMINES           |  |
|------------------------------------|--------------------------------------|------------------------------|-----------------------------|---|--|
| MPH<br>(Ritalin®, Methylin™)       | (Ritalin SR® or<br>Metadate ER™)     | MPH<br>(Ritalin®, Methylin™) | (Concerta®)                 | MPH<br>(Ritalin®, Methylin™)              | Dextro-AMP<br>(Dexedrine Spansule®)      |
| IR 10 mg BID                       | 20 mg daily                          | IR 5 mg BID or TID           | 18 mg AM                    | IR 5 mg BID                               | 5 mg daily                               |
| IR 20 mg BID                       | 40 mg daily                          | IR 10 mg BID or TID          | 36 mg AM                    | IR 10 mg BID                              | 10 mg daily                              |
|                                    |                                      | IR 15 mg BID or TID          | 54 mg AM                    | IR 20 mg BID                              | 20 mg daily                              |
|                                    |                                      | IR 20 mg BID or TID          | 72 mg AM                    |   |  |
| MPH<br>(Ritalin®, Methylin™)       | Dex-MPH (Focalin®<br>or Focalin XR®) | MPH<br>(Ritalin®, Methylin™) | (Ritalin LA®)               | MPH<br>(Ritalin®, Methylin™)              | Mixed AMP (Adderall®<br>or Adderall XR®) |
| IR 5 mg BID                        | IR 2.5 mg BID or<br>XR 5 mg AM       | IR 5 mg BID                  | 10 mg AM                    | IR 5 mg BID                               | IR 2.5 mg BID, or<br>XR 5 mg AM          |
| IR 10 mg BID                       | IR 5 mg BID or<br>XR 10 mg AM        | IR 10 mg BID                 | 20 mg AM                    | IR 10 mg BID                              | IR 5 mg BID, or<br>XR 10 mg AM           |
| IR 20 mg BID                       | 10 mg BID or<br>XR 20 mg AM          | IR 15 mg BID                 | 30 mg AM                    | IR 20 mg BID                              | IR 10 mg BID, or<br>XR 20 mg AM          |
|                                    |                                      | IR 20 mg BID                 | 40 mg AM                    |   |  |
|                                    |                                      | IR 30 mg BID                 | 60 mg AM                    |   |  |
| AMPHETAMINE TO AMPHETAMINE         |                                      |                              |                             |   |  |
| Dextro-AMP<br>(generic only)       | Dextro-AMP<br>(Dexedrine Spansule®)  | Mixed AMP<br>(Adderall®)     | Mixed AMP<br>(Adderall XR®) | Mixed AMP (Adderall®,<br>or Adderall XR®) | Lisdexamfetamine<br>(Vyvanse®)           |
| IR 5 mg BID                        | 10 mg AM                             | IR 7.5 mg BID                | XR 15 mg AM                 | IR 15 mg BID, or<br>XR 30 mg AM           | 70 mg AM                                 |
| IR 10 mg BID                       | 20 mg AM                             | IR 15 mg BID                 | XR 30 mg AM                 | <b>Dextro-AMP<br/>(generic only)</b>      | <b>Lisdexamfetamine<br/>(Vyvanse®)</b>   |
|                                    |                                      |                              |                             | IR 10 mg BID                              | 50 mg AM                                 |

**Key:** Dextro-AMP = dextroamphetamine; Dex-MPH = dexmethylphenidate; IR = immediate release; Mixed AMP = mixed amphetamine salts; MPH = methylphenidate; XR = extended release

## Select Side Effects of ADHD Medications

| Side Effects                             | 1st LINE        |              |             | 2nd LINE     |               | Side Effect Management/Considerations/Comments   |
|--|-----------------|--------------|-------------|--------------|---------------|--|
|  | Methylphenidate | Amphetamines | Atomoxetine | Clonidine ER | Guanfacine ER |  |
| Anxiety                                  | ✓               | ✓            | ✓*          |              |               | * Reported clinically  |
| Dizziness                                | ✓               | ✓            | ✓           | ✓            | ✓             | May be temporary: use mild analgesics as needed; consider dose reduction and gradual re-titration. If persistent: monitor symptoms and blood pressure carefully; consider long-acting formulation or alternative medication.                   |
| Headache                                 | ✓               | ✓            | ✓           | ✓            | ✓             |  |
| Insomnia                                 | ✓               | ✓            | ✓           | ✓            | ✓             |  |
| Dull/flat/listless                       | ✓               | ✓            |             |              |               | Consider dose reduction or switch to alternative medication.   |
| Irritability, dysphoria, or agitation    | ✓               | ✓            | ✓           | ✓            | ✓             | Consider comorbid conditions. If occurs while medication is active: reduce dose; change to long-acting formulation; or consider adjunctive or alternative medication.  |
| Rebound irritability                     | ✓               | ✓            |             |              |               | If occurs as stimulant wears off: overlap stimulant dosing; use step-down dosing; consider long-acting formulation alone or in combination with short-acting formulation.  |
| Cheek chewing, nail biting, skin picking | ✓               | ✓            |             |              |               | Consider dose reduction or switch to alternative medication.   |
| Somnolence                               |                 |              | ✓           | ✓            | ✓             | Give dose, or bulk of dose (clonidine ER), at bedtime.   |
| Suicidality                              |                 |              | R           |              |               | Black box warning. Careful monitoring suggested.   |
| Tics                                     | ✓               | ✓            | R           |              |               | Monitor for pre- and post-treatment tics. Apparent worsening or new onset may be temporary. Weigh benefit/risk if tics are mild/infrequent. If persistent or clearly problematic, consider switching to nonstimulant alternative.              |
| Blood pressure (bp)                      | ↑bp             | ↑bp          | ↑bp         | ↓bp          | ↓bp           | Monitor upon initiation; consider dose reduction or discontinuation.   |
| Heart rate (hr)                          | ↑hr             | ↑hr          | ↑hr         | ↓hr          | ↓hr           | Discontinue $\alpha_2$ -agonists gradually.  |
| Sudden cardiac death                     | U               | U            | U           |              |               | Before initiation of medication, screen and refer to CV specialist if needed or if patient has pre-existing heart disease.   |
| Appetite suppression                     | ✓               | ✓            | ✓           |              |               | Administer dose with/after meals. Give high-caloric breakfasts and snacks. Consider dose reduction.  |
| GI upset                                 | ✓               | ✓            | ✓           | ✓            | ✓             |  |
| Nausea/vomiting                          | ✓               | ✓            | ✓           | ✓            | ✓             | Routine management suggested.  |
| Constipation or diarrhea                 | ✓               | ✓            | ✓           | ✓            | ✓             |  |
| Dry mouth                                | ✓               | ✓            | ✓           | ✓            | ✓             |  |
| Height suppression                       | ✓               | ✓            | ✓*          |              |               | Monitor on growth chart with percentiles. Consider medication holidays <sup>1</sup> or alternative medication. *Smaller effect than stimulants.  |
| Weight loss                              | ✓               | ✓            | ✓           |              |               | Monitor on growth chart with percentiles. Give high-caloric breakfasts and snacks. Consider dose reduction or medication holidays <sup>1</sup> .   |
| Hepatotoxicity                           |                 |              | R           |              |               | Monitor for signs and symptoms.  |
| Sexual dysfunction                       |                 | ✓            | ✓           | ✓            | ✓             |  |
| Skin reactions                           | ✓               | ✓            | ✓           | ✓            | ✓             | Erythema is common with transdermal systems. If contact sensitization (allergic contact dermatitis) occurs, consider alternative medication or cautious trial with oral dose form of same medication since systemic sensitization may develop. |

<sup>1</sup> There is lack of consensus among the SCORxE writing group on inclusion of medication holidays as a management strategy for growth suppression.

**Key:** CNS = central nervous system; CV = cardiovascular; ER = extended release; GI = gastrointestinal; R = rare; U = unknown, causal relationship not established; ✓ = has been reported; ↑ = increase; ↓ = decrease

## Survival Strategies and Behavior Modification Techniques for Management of ADHD

- **Be realistic** by setting achievable goals; unreachable goals set up failure.
- **Be consistent** from moment to moment with daily routines, rules and discipline.
- **Maintain that consistency** caregiver to caregiver and setting to setting as much as possible.
- **Be patient** when teaching new behaviors since learning takes time. Progress will be gradual.
- **Give praise** for positive behaviors *much* more than criticizing negative behaviors.

| Everyday Survival Strategies for Managing ADHD |  |
|--|--|
| <b>Modify Your Expectations</b>                | <p><b>Be realistic about situations your child handles well and adjust accordingly.</b></p> <ul style="list-style-type: none"> <li>✓ If you cannot go to the store without your child asking for things constantly, explore ways to shop without your child such as trading favors with a friend.</li> </ul>   |
| <b>Identify Success</b>                        | <p><b>In situations/circumstances where your child does well, let him/her do more of it.</b></p> <ul style="list-style-type: none"> <li>✓ If your child does homework best lying on his/her belly with work spread out, allow it and figure out how to make that happen.</li> </ul>  |
| <b>Get Moving</b>                              | <p><b>Physical activity gets the energy out to calm an anxious brain or stimulates to arouse a bored brain.</b></p> <ul style="list-style-type: none"> <li>✓ Aim for 20 minutes of physical activity (actually moving) every couple hours, outdoors when possible. Use small bursts (e.g., 30 jumping jacks, walk to the mailbox) for quick breaks.</li> </ul>   |
| <b>Fidget to Focus</b>                         | <p><b>Allow your child/teen to fidget or squirm when working.</b></p> <ul style="list-style-type: none"> <li>✓ Allow child to doodle, sit on feet, or use gel-filled squeeze ball if it helps child pay attention.</li> </ul>  |
| <b>Apply the Breaks</b>                        | <p><b>Schedule and/or allow your child to take breaks during homework or chores—chunking time can actually save time and improve quality of time and interactions.</b></p> <ul style="list-style-type: none"> <li>✓ “Finish your math, then you can shoot basketball for 10 minutes.” Continue with similar “chunks” of work/breaks (e.g., “Spend 20 minutes on vocabulary, then you can call a friend”).</li> </ul> |

| Behavior Modification Techniques          |  |
|---|--|
| <b>Simple, Specific Commands</b>          | <p><b>Set a specific, one-step command. Be firm. Do not state as a question.</b></p> <ul style="list-style-type: none"> <li>✓ Child: “It’s time to brush your teeth, now,” NOT “Get ready for bed, okay?”</li> <li>✓ Teen: “Study class notes for the test tomorrow,” NOT “Go study for your test.”</li> </ul>   |
| <b>Positive Reinforcement</b>             | <p><b>Praise specific behavior and give rewards/privileges immediately afterwards.</b></p> <ul style="list-style-type: none"> <li>✓ Child: “I’m happy you listened the first time I asked you to pick up your clothes. You can play 15 minutes on your Xbox.”</li> <li>✓ Teen: “I like that you came home on time. Next Saturday you can extend your curfew 30 minutes.” (May delay rewards/privileges with teen)</li> </ul>   |
| <b>Token Economy</b>                      | <p><b>Award privileges/prizes/money for positive behavior or tasks based on net total of earned tokens/stars/points. Earned rewards are never lost.</b></p> <ul style="list-style-type: none"> <li>✓ Child/Teen: Set the total number of stars per day (child) or per week/month (teen) to receive privilege or prize. At first, set easily achievable goals to get “buy-in.” Teens can earn incremental rewards (e.g., extend curfew gradually). [Daily prize: TV show, choose car radio station. Longer: new privilege, mall outing, new toy]</li> </ul> |
| <b>Consequences for Negative Behavior</b> | <p><b>Take away reward or privilege for unwanted or problem behavior. Tell child/teen what to expect in advance and be consistent and fair.</b></p> <ul style="list-style-type: none"> <li>✓ Child: “Play time was over 5 minutes ago. Time to put your toys away. If toys are not put away when the timer goes off, you’ll lose 30 minutes of TV.”</li> <li>✓ Teen: “Be home by 10:30 tonight. If you miss curfew, you can’t use the car tomorrow night.”</li> </ul>  |
| <b>Time-Out</b>                           | <p><b>Give one minute per age of child (2 – 12 years old) in a quiet, non-distracting, set area.</b></p> <ul style="list-style-type: none"> <li>✓ Useful for disruptive behaviors (e.g., spitting, hitting, kicking, screaming).</li> </ul>  |
| <b>Tick-Tock to Time on Task</b>          | <p><b>Use visual/auditory aids to help child stay on task or help with transitions. Also useful for time-out.</b></p> <ul style="list-style-type: none"> <li>✓ Child: Set egg timer for 15 minutes of play; say, “When the timer rings, put your toys away.”</li> <li>✓ Child/Teen: “In 10 minutes, we are going home.” LATER: “In 5 minutes we leave.” FINALLY: “Time to go.” (Useful to help transition to different activity/task)</li> </ul>   |

## How to Use the NICHQ Vanderbilt Assessment Follow-up for Parent and Teacher Informants

The same person should complete this scale each time it is completed. Each rating should be considered in the context of what is appropriate for the age of your/the child. Please think about your/the child's behaviors since the last assessment scale was filled out when rating his/her behaviors.

Is this evaluation based on a time when your/the child: was on medication, was *not* on medication, or not sure?

| Symptoms (For Parent and Teacher)   | 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          |
| <b>ADD TOTAL SYMPTOM SCORE for # 1-18:</b>  |       |              |       |            |

| Performance (Choose ONE: parent OR teacher)             |                             | Excellent | Above Average | Average | Somewhat of a Problem | Problematic |
|---|-----------------------------|-----------|---------------|---------|-----------------------|-------------|
| Parent  | Teacher                     |           |               |         |                       |             |
| 19. Overall school performance                          | 19. Reading                 | 1         | 2             | 3       | 4                     | 5           |
| 20. Reading   | 20. Mathematics             | 1         | 2             | 3       | 4                     | 5           |
| 21. Writing   | 21. Written expression      | 1         | 2             | 3       | 4                     | 5           |
| 22. Mathematics   | 22. Relationship with peers | 1         | 2             | 3       | 4                     | 5           |
| 23. Relationship with parents                           | 23. Following direction     | 1         | 2             | 3       | 4                     | 5           |
| 24. Relationship with siblings                          | 24. Disrupting class        | 1         | 2             | 3       | 4                     | 5           |
| 25. Relationship with peers                             | 25. Assignment completion   | 1         | 2             | 3       | 4                     | 5           |
| 26. Participation in organized activities (e.g., teams) | 26. Organizational skills   | 1         | 2             | 3       | 4                     | 5           |
| <b>AVERAGE PERFORMANCE SCORE for #19-26:</b>            |                             |           |               |         |                       |             |

Has your/the child experienced any of the following side effects or problems in the past week? Are these side effects currently a problem? Read each item carefully and use the following to choose the best description for each side effect listed.

**None:** The side effect is not present.

**Mild:** The side effect is present but not enough to cause concern to the child, peers, or adults.

**Moderate:** The symptom is somewhat bothersome or socially embarrassing and needs to be discussed with the doctor.

**Severe:** The symptom is VERY bothersome or socially embarrassing and needs to be discussed with the doctor IMMEDIATELY.

| Side Effects (For Parent and Teacher)                         | None | Mild | Moderate | Severe |
|---|------|------|----------|--------|
| Headache  |      |      |          |        |
| Stomachache   |      |      |          |        |
| Change of appetite  |      |      |          |        |
| Trouble sleeping  |      |      |          |        |
| Irritability in the late morning, late afternoon, or evening  |      |      |          |        |
| Socially withdrawn—decreased interaction with others          |      |      |          |        |
| Extreme sadness or unusual crying                             |      |      |          |        |
| Dull, tired, listless behavior                                |      |      |          |        |
| Tremors/feeling shaky   |      |      |          |        |
| Repetitive movements, tics, jerking, twitching, eye blinking  |      |      |          |        |
| Picking at skin or fingers, nail biting, lip or cheek chewing |      |      |          |        |
| Sees or hears things that aren't there                        |      |      |          |        |

### Scoring the follow-up scales

Calculate Total Symptom Score for questions 1–18. (add the numbers for a total score)

Calculate Average Performance Score for questions 19–26. (add the numbers then divide by 8 to obtain an average score)

Review the Side Effects Section and address any problems identified.