GUIDELINES

Pocketcard®

Managing:

Attention-Deficit/Hyperactivity Disorder

Version 1.1

AMERICAN ACADEMY OF CHILD & ADOLESCENT PSYCHIATRY

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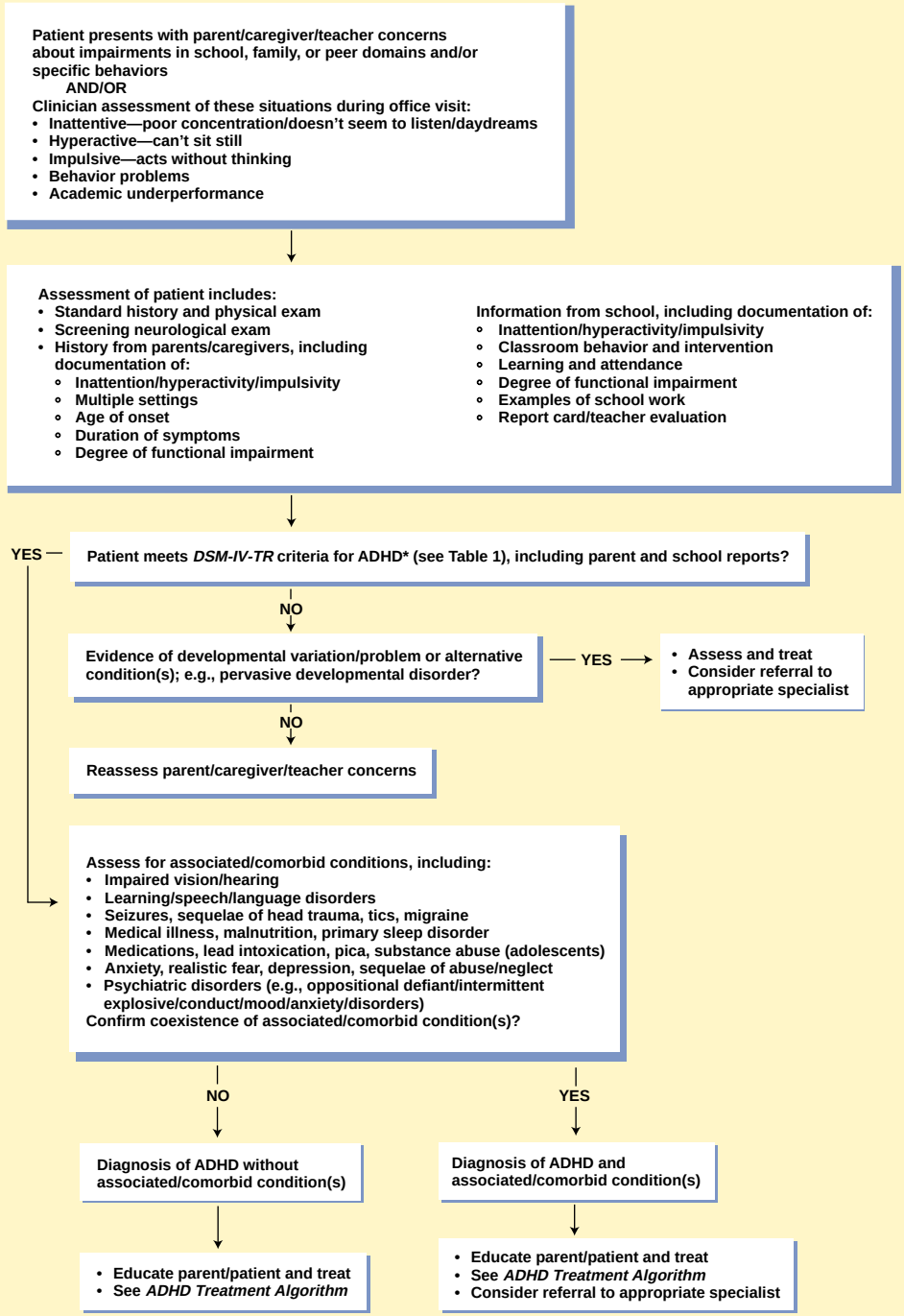
Key Points

- ADHD is a clinical diagnosis requiring evaluation of behavior across multiple settings (e.g., family, academic, social). There is no laboratory "test" for ADHD.
- ADHD is a chronic condition that may persist into adulthood, extends across developmental phases, and presents different challenges during each phase.
- Clinician interviews of parents/caregiver/teacher are the core of ADHD assessment process.
- Core patient ADHD deficits include:
  - Impairment of rule-governed behavior across a variety of settings
  - Lack of inhibition of impulsive responses to internal wishes/needs and/or external stimuli
- Therapeutic alliance with patient/parents/caregiver/teacher is crucial to treatment planning/implementation.
- Important role of educational system in patient treatment/monitoring distinguishes ADHD from many other chronic conditions.
- Treatment plans should:
  - Be individualized
  - Consider patient strengths and target symptoms identified in assessment process
  - Provide periodic, systematized follow-up focused on targeted outcomes and adverse effects based on input from parents, teachers, and patient
  - Anticipate long-term treatment and frequent monitoring
- Treatment goals should be realistic, attainable, and measurable:
  - Improved relationships with parents, siblings, teachers, peers
  - Decreased disruptive/setting-inappropriate behaviors
  - Improved academic performance
  - Increased independence by self-monitoring and completion of assigned activities
  - Improved self-esteem
  - Enhanced safety in recreational activities in community
- Decision to treat with medication should be based on persistent target symptoms across at least 2 settings sufficiently severe to cause functional impairment and on continuing efficacy of medication.
- Limitations in pharmacologic and behavioral treatments arise from lack of maintenance if treatment is discontinued and/or failure in settings where treatment has not been well applied.
- Medication should be continued when target symptoms re-emerge whenever medication is discontinued and when the ratio of therapeutic benefit to side effects is acceptable.

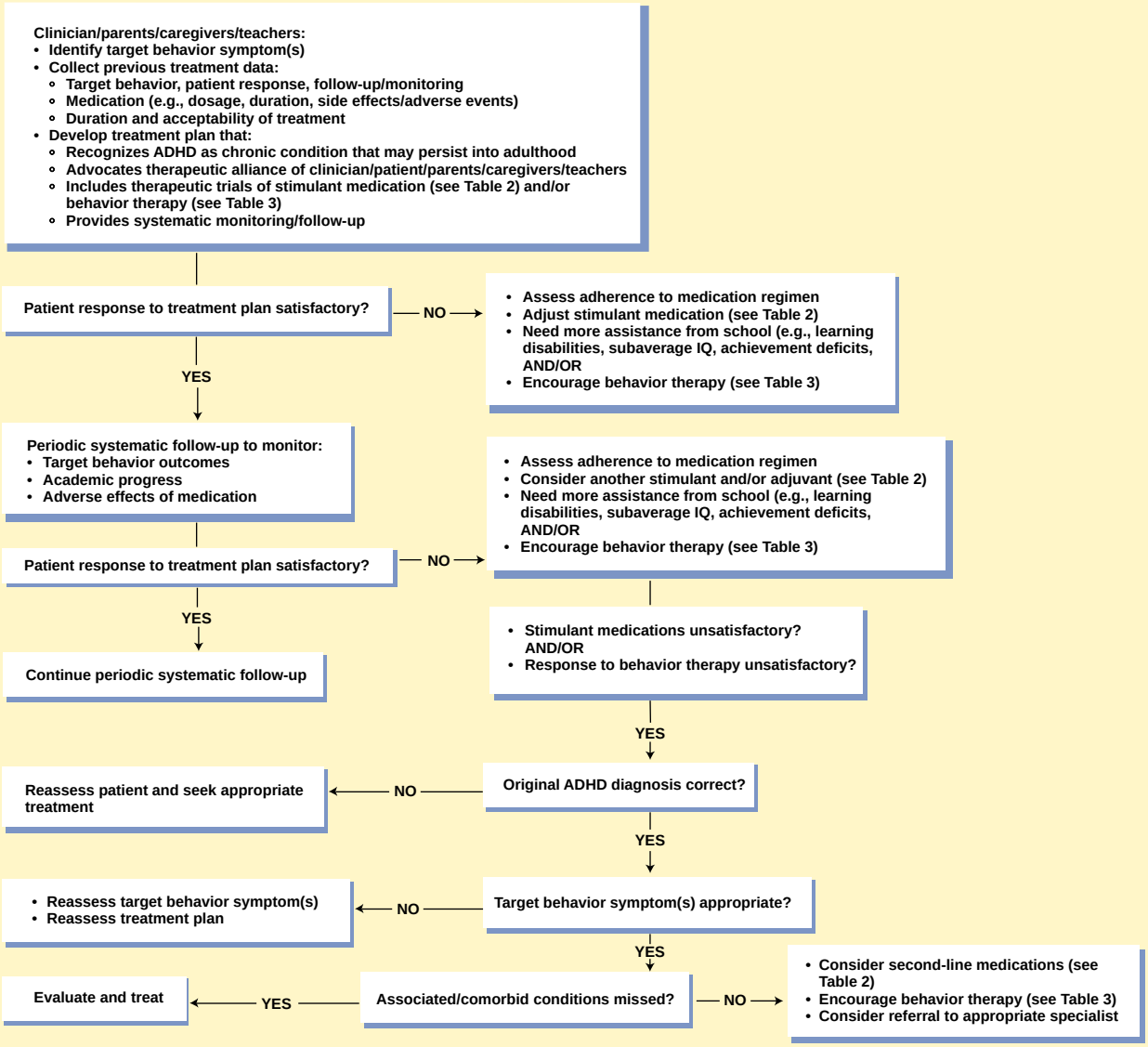
ADHD Diagnosis and Evaluation Algorithm



Adapted from: Committee on Quality Improvement, Subcommittee on Attention-Deficit/Hyperactivity Disorder. Clinical practice guideline: Diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. *Pediatrics* 2000;105(5):1158–1170.

***Children may have behaviors relating to inattention/hyperactivity/impulsivity that may not fully meet DSM-IV-TR criteria. A guide to more common behaviors seen in primary practice is *The Classification of Child and Adolescent Mental Diagnoses in Primary Care: Diagnostic and Statistical Manual for Primary Care (DSM-PC), Child and Adolescent Version*. Elk Grove, IL: American Academy of Pediatrics; 1996.**

ADHD Treatment Algorithm



Adapted from: Committee on Quality Improvement, Subcommittee on Attention-Deficit/Hyperactivity Disorder. Clinical practice guideline: Treatment of the school-aged child with attention-deficit/hyperactivity disorder. *Pediatrics* 2001;108(4):1033-1044.

TREATMENT FAILURES

- **Lack of response to stimulant formulations at maximum dose without side effects OR at any dose with intolerable side effects.**
- **Inability of behavior therapy alone, or in combination with medication, to control behavior.**
- **Interference by/from associated/comorbid condition(s).**
- **Failure of therapeutic alliance with patient/parents/caregiver/teacher.**
- **Lack of adherence to therapy is *not* equivalent of treatment failure. Clinicians should help find solutions to adherence problems.**

Table 1. Five Criteria for ADHD

1. SYMPTOMS

Inattention: ≥ 6 of following symptoms of *inattention* have persisted ≥ 6 mo to a degree that is maladaptive and inconsistent with developmental level:

- Often fails to pay close attention to details or makes careless mistakes in schoolwork, work, or other activities
- Often has difficulty in sustaining attention in tasks or play activities
- Often does not seem to listen when spoken to directly
- Often does not follow through on instructions and fails to finish schoolwork, chores, workplace duties (not due to oppositional behavior or failure to understand)
- Often has difficulty organizing tasks and activities
- Often avoids, dislikes, or reluctant to engage in tasks requiring mental effort (e.g., schoolwork, homework)
- Often loses things necessary for tasks or activities (e.g., written instructions, school assignments, textbooks, pencils, tools, toys)
- Often easily distracted by extraneous stimuli
- Often forgetful in daily activities

AND/OR

Hyperactivity/Impulsivity: ≥ 6 of following symptoms of *hyperactivity-impulsivity* have persisted ≥ 6 mo to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

- Often fidgets with hands or feet and squirms in seat
- Often leaves seat in classroom or other situations where remaining seated is expected
- Often runs about or climbs excessively in situations where considered inappropriate (in adolescents/adults, may be limited to subjective feelings of restlessness)
- Often has difficulty in playing or engaging in leisure activities quietly
- Often "on the go" or acts as if "driven by a motor"
- Often talks excessively

Impulsivity

- Often blurts answers before questions completed
- Often has difficulty awaiting turn
- Often interrupts/intrudes on others (e.g., butts into conversation, games)

(table continued on reverse)

Table 1. Five Criteria for ADHD *(continued from reverse)*

PLUS:

2. Some *inattention* or *hyperactivity-impulsive* symptoms causing impairment present before age 7
3. Some impairment from symptoms present in 2 or more settings (e.g., home, school/work, social)
4. Clear evidence of clinically significant impairment in social, academic, or occupational functioning
5. Symptoms do not occur exclusively during course of a pervasive developmental disorder, schizophrenia, or psychotic disorder and are not better accounted for by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder)

Types of ADHD

- ADHD, combined type: Symptom criteria for *inattention* AND *hyperactivity-impulsivity* met for past 6 mo (DSM-IV code 314.01; ICD-10 code F90.2)
- ADHD, predominantly inattentive type: Symptom criteria for *inattention* met but symptom criteria for *hyperactivity-impulsivity* NOT met for past 6 mo (DSM-IV code 314.00; ICD-10 code F90.0))
- ADHD, predominantly hyperactive-impulsive type: Symptom criteria for *hyperactivity-impulsivity* met but symptom criteria for *inattention* NOT met for past 6 mo (DSM-IV code 314.01; ICD-10 code F90.01)

Adapted from: *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed, Text Revision. Arlington, VA: American Psychiatric Press, Inc.; 2000.

NOTE:

- Symptoms may not be observable when patient is in highly structured or novel setting, engaged in interesting activity, receiving one-to-one attention or supervision, or in situation with frequent rewards for appropriate behavior.
- Symptoms typically worsen in situations that are unstructured, minimally supervised, boring, or require sustained attention or mental effort.
- In adolescents, symptoms include restlessness (rather than hyperactivity as seen in children), impaired academic performance, low self-esteem, poor peer relations, and erratic work record.

NOTE: Depending on provider plans, formulary restrictions and limitations on use of certain medications listed in this guideline may apply.

Table 2. Medications Used in Treatment of ADHD

Decision to medicate should be based on persistent target symptoms sufficiently severe to cause functional impairment.

GENERIC CLASS *Brand Name*	DOSAGE FORM	RECOMMENDED USUAL DOSE	DURATION OF EFFECT	COMMENTS
FIRST LINE				
Stimulants (High margin of safety. Many patients who fail to respond to one stimulant will respond to another.) METHYLPHENIDATE PREPARATIONS (Schedule II controlled substance)				
Short-acting				• Class contraindications, precautions, and side effects ° Safety/effectiveness not studied in patients < 6 yr ° Monitor patient growth and weight gain ° Use cautiously if history of tics ° Give with/after food • Longer-acting stimulants may have greater problematic effects on evening appetite and sleep • Pellet/beaded capsule formulations may be opened and sprinkled on soft food
Focalin	2.5, 5, 10 mg tablets	INITIAL: 2.5 mg BID. MAX: 20 mg/d		
Methylin *Ritalin* generics	5, 10, 20 mg tablets 5, 10, 20 mg tablets	INITIAL: 5 mg BID with/after breakfast and lunch. MAX: 60 mg/d	3–5 h	
Intermediate-acting				
Metadate ER *Methylin ER* *Ritalin SR* generics	10, 20 mg tablets 10, 20 mg tablets 20 mg tablet	Corresponds to titrated 6–8 h dose of short-acting methylphenidate. MAX: 60 mg/d	6–8 h	
Metadate CD *Ritalin LA*	20 mg capsule (6 mg IR/14 mg ER) 20, 30, 40 mg capsules ($^1/_2$ IR/$^1/_2$ ER)	1 capsule QAM. MAX: 60 mg/d 1 capsule QAM. MAX: 60 mg/d	8 h 8 h	
Long-acting				
*Concerta**	18, 27, 36, 54 mg tablets	1 tablet QAM. MAX: 54 mg/d	12 h	* Swallow whole with liquids * Nonabsorbable tablet shell may be

				Nonabsorbable tablet shell may be seen in stool
• **Therapeutic trial:** Initiate at 5 mg BID; titrate weekly in 5 mg increments. 3rd (pm) dose may be added at clinician's discretion.				
AMPHETAMINES (Schedule II controlled substance)				
Short-acting *Adderall* generics	5, 7.5, 10, 12.5, 15, 20, 30 mg tablets	3–5 yr: 2.5 mg QD-BID, ≥ 6 yr: 5 mg QD-BID. MAX: 40 mg/d		• Class contraindications, precautions, and side effects ° Safety/effectiveness not studied in patients < 6 yr ° Monitor patient growth and weight gain ° Use cautiously if history of tics ° Give first dose on awakening, with/after food • Longer-acting stimulants may have greater problematic effects on evening appetite and sleep • Pellet/beaded capsule formulations may be opened and sprinkled on soft food
Dexedrine generics	5 mg tablet	3–5 yr: 2.5 mg BID-TID, ≥ 6 yr: 5 mg BID-TID. MAX: 40 mg/d	4–6 h	
Dextrostat	5, 10 mg tablets	3–5 yr: 2.5 mg BID-TID, ≥ 6 yr: 5 mg BID-TID. MAX: 40 mg/d		
Intermediate-acting *Dexedrine Spansule*	5, 10, 15 mg capsules	≥ 6 yr: 5–10 mg QD-BID. MAX: 40 mg/d	6–8 h	
Long-acting *Adderall XR*	5, 10, 15, 20, 25, 30 mg capsules	≥ 6 yr: 10 mg QD. MAX: 30 mg/d	10–12 h	
• Therapeutic trial: Initiate at 2.5 mg; titrate weekly in 2.5 mg increments. Some patients may require only QD dosing.				

ADJUVANTS TO STIMULANTS				
α2-Adrenergic agonists (centrally acting antihypertensives useful for sleep disturbances due to stimulant rebound restlessness)				
CLONIDINE				• Perform cardiovascular evaluation • Class contraindications, precautions, and side effects • Also effective for: impulsivity and hyperactivity (may not be seen for 4–5 wk), but *not* for distractability or inattention; modulating mood level; tics worsening from stimulants • Taper off to avoid rebound hypotension
Catapres	0.1, 0.2, 0.3 mg tablets	< 45 kg: 0.05 mg QHS; titrate in 0.05 mg increments BID, TID, QID > 45 kg: 0.1 mg QHS; titrate in 0.1 mg increments BID, TID, QID	ND	
GUANFACINE				
Tenex	1, 2 mg tablets	< 45 kg: 0.5 mg QHS; titrate in 0.5 mg increments BID, TID, QID > 45 kg: 1 mg QHS; titrate in 1 mg increments BID, TID, QID	ND	

SECOND LINE				
Selective Norepinephrine Reuptake Inhibitor (more experience needed before establishing as first-line therapy) ATOMOXETINE (alternative for patients who have not responded to, have unacceptable side effects from, or have tic disorder worsened by stimulants, or who object to taking Schedule II drugs)				
Strattera	10, 18, 25, 40, 60 mg capsules	INITIAL: 0.5 mg/kg QAM or BID in divided doses. Increase after min 3 d to 1.2 mg/kg QAM or BID in divided doses. MAX: lesser of 1.4 mg/kg/d or 100 mg/d	Into evening or longer	• Class contraindications, precautions, and side effects ° Safety/effectiveness not studied in patients < 6 yr ° Monitor patient growth and weight gain ° Give with/after food

THIRD LINE
Antidepressants (refer to psychiatric specialist)
AMINOKETONE Buproprion (*Wellbutrin, Zyban*) [lowers seizure threshold] TRICYCLICS [lowers seizure threshold] Nortriptyline (*Aventil, Pamelor*) Imipramine (*Tofranil*) Desipramine (*Norpramin*) [rarely used; associated with rare cases of sudden death at therapeutic doses]

Adapted from: American Academy of Child and Adolescent Psychiatry. Practice parameters for the use of stimulant medications in the treatment of children, adolescents, and adults with attention-deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry* 2002;41(2 suppl):26S–49S.

Pliska SR, Greenhill LL, Crismon ML, et al. The Texas Children's Medication Algorithm Project: Report of the Texas Consensus Conference Panel on medication treatment of childhood attention deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry* 2000;39(7):920–927.

- See product labeling for complete prescribing information.
- Best dosage produces optimal efficacy with minimal side effects.
- Most side effects can be managed through adjustments in dosage or schedule.
- Prescription refills are an opportunity to assess efficacy of therapy, adherence to regimen, side effects.

Therapeutic trial

- Review patient history, clinical assessment, treatment plan, and data from administration of standardized parent and teacher rating scales, such as:
  - Connors Gobal Index for Parents/Teachers
  - SNAP-IV (or similar) Rating Scale
  - Vanderbilt ADHD Diagnostic Teacher Rating Scale
- Educate parents/caregivers/patient about treatment plan and therapeutic trial.
- Select appropriate stimulant as first-line therapy, based on clinician experience and parents/caregiver/patient preference.
- Start (weekly) medication dosage trials on a Saturday, so parents/caregivers can observe first-hand the effect of drug and dosage on patient.
- At end of each dosage trial:
  - Office/telephone evaluation to assess medication efficacy and side effects
  - Administer and review data from brief parent and teacher rating scales
- At completion of each medication trial:
  - Office evaluation with parents/caregivers, patient
  - Repeat appropriate/applicable rating scale

Table 3. Effective Behavio

- Goal: Modification of patient's physical and social environment to alter
- Positive effects better achieved when combined with stimulant medica

Technique	Description
Positive reinforcement	Rewards/privileges provided contingent
Time-out	Access to positive reinforcement remove
Response cost	Rewards/privileges withdrawn contingen
Token economy system (school and home based)	Combines positive reinforcement and res

Education about ADHD:
- A chronic condition that may extend into adulthood.
- Extends across developmental phases and presents different challeng
- Adversely affects self-esteem and relationships with parents, siblings,
- Adversely affects academic, employment, and social performance.

Parent/Caregiver Counseling:
- Group therapy sessions with trained therapist to improve understandi relationships, and skills to deal with behavior modification.
- More structure, closer attention, and limited distractions in patient's ho
- Daily diary of patient's targeted behavior and progress; useful for pare response to therapy.
- Planning for maintenance therapy and relapse prevention.
- Consider psychotherapy for family dysfunction arising from parental p

Classroom Management:
- Educator awareness of therapeutic regimen and incorporation into pat
- More structure, closer attention, and limited distractions in classroom
- Systematic use of positive reinforcement, time-out, response costs, to
- Daily "report card" recording patient's performance/progress, with whi (combined school and home based token economy).
- Homework checklist/notebook for parents to monitor completion of as

Adapted from: American Academy of Child and Adolescent Psychiatry. Practice parameters with attention-deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry* 2002;41(2 su Committee on Quality Improvement, Subcommittee on Attention-Deficit/Hyperactivity Dis deficit/hyperactivity disorder. *Pediatrics* 2001;108(4)1033–1044.

Some ADHD Online Resources

American Academy of Child & Adolescent Psychiatry (AACAP)
http://www.aacap.org

American Academy of Family Physicians (AAFP)
http://www.familydoctor.org/handouts

American Academy of Pediatrics (AAP) http://www.aap.org

American Medical Association (AMA) http://www.ama-assn.org

Centers for Disease Control and Prevention (CDC) http://www.cdc.org

Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD) http://www.chadd.org

Healthology http://www.understandingadhd.com

Learning Disabilities Association of America (LDA)
http://www.ldanatl.org

MEDLINE Plus: Attention Deficit Disorder with Hyperactivity
http://www.nlm.nih.gov/medlineplus/attentiondeficitdisorderwithhyperactivity.html

National Attention Deficit Disorder Association (ADDA)
http://www.add.org

National Institute of Mental Health (NIMH) http://www.nimh.nih.gov

National Mental Health Association http://www.nmha.org

Nemours Foundation http://www.kidshealth.org/parent/emotion/behavior/adhd.html

oral Techniques for ADHD

r/change target behavior.
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on performance of desired behavior
ed contingent on performance of unwanted/problem behavior
t on performance of unwanted/problem behavior
sponse cost: rewards/privileges earned or lost contingent on behavior

es in each phase.
peers, authority figures.

ng of target behavior problems, resulting difficulties in family

ome environment.
ntal reinforcement and response costs and for clinician monitoring of

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ient's educational environment
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ich parents can provide additional reinforcements/consequences

signments and provide additional reinforcements/consequences.

for the use of stimulant medications in the treatment of children, adolescents, and adults
uppl):26S–49S.
order. Clinical practice guideline: Treatment of the school-aged child with attention-

Disclaimer

This Guideline attempts to define principles of practice that should produce high-quality patient care. It focuses on the needs of primary care practice but also is applicable to providers at all levels.

This Guideline should not be considered exclusive of other methods of care reasonably directed at obtaining the same results. The ultimate judgment concerning the propriety of any course of conduct must be made by the clinician after consideration of each individual patient situation.

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