ADHD: A PRIMER FOR PARENTS AND EDUCATORS

By George J. DuPaul, PhD
Lehigh University

NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS

Attention Deficit Hyperactivity Disorder (ADHD) is a disruptive behavior disorder characterized by inattention (difficulty concentrating on schoolwork), impulsivity (frequently interrupting conversations or activities), and overactivity (difficulty remaining seated when required to do so) that are well beyond what is expected and appropriate for a child's gender and age.

Approximately 3–7% of school-aged children in the United States have ADHD. Children with ADHD typically first exhibit symptoms during the preschool or early elementary school years, and these symptoms are highly likely to continue throughout the child's life. Boys are more likely to be diagnosed with ADHD than are girls.

There are three subtypes of ADHD: children who exhibit problems only with inattention and concentration (ADHD Predominantly Inattentive Type), children who exhibit problems only with hyperactivity and impulsivity (ADHD Predominantly Hyperactive-Impulsive Type), and children who exhibit problems in both areas (ADHD Combined Type).

Causes of ADHD

It is likely that children differ with respect to the specific underlying cause of their ADHD symptoms. There is growing evidence that ADHD is at least partially caused by genetic factors. Specifically, the brains of children with and without ADHD may be different. The balance of certain chemicals, referred to as *neurotransmitters,* is different, as well as the size and operation of specific brain components such as the prefrontal cortex. Other biological factors may come into play, such as pregnancy and birth complications and environmental toxins (early lead exposure or prenatal exposure to alcohol and tobacco smoke). Although genetic and biological factors account for ADHD symptoms to a large degree, environmental factors, such as the nature of classroom tasks and behavior management style at home and school, may make symptoms either better or worse.

In general, it is best to view ADHD as having both biological and environmental influences, and thus both medical and psychosocial treatments could be helpful.

Characteristics of Children With ADHD

Learning problems. The inattentive, impulsive, and hyperactive behaviors that comprise ADHD often lead to significant academic and social difficulties that affect children's functioning at home and school. Children with ADHD frequently get school grades that are below their potential. They may also be at higher than average risk for grade retention and school drop-out and are less likely to pursue post-secondary education. Their academic underachievement probably represents a performance problem rather than a lack of ability, because achievement problems are highly related to rates of inattention and disruptive behavior. Also, about 25% of children with ADHD also have learning disabilities.

Social and behavior problems. Children with ADHD typically have difficulties making and keeping friends because of their higher levels of verbal and physical aggression. Family relationships can become difficult because the child may be less likely to follow through on parental directives and more likely to argue with adults.

Approximately 50–60% of the children exhibit significant symptoms of other disruptive behavior disorders including Oppositional Defiant Disorder and Conduct Disorder. Therefore, interventions must not only address ADHD-related behaviors but must also focus on improving academic and behavioral functioning.

Diagnosing ADHD

Best practice. No single test, questionnaire, or source of information (parent or teacher) is sufficient to accurately diagnose ADHD. Current best practice requires the use of multiple assessment methods and sources of information, including diagnostic interviews with parents and teachers, behavior rating scales completed by parents and teachers, and direct observations of behavior in school or clinical settings.

Psychologists or physicians conducting these assessments must ensure that diagnostic decisions are made on the basis of criteria set in the *Diagnostic and Statistical Manual* (4th ed.)(American Psychiatric Association, 2000; see "Resources"). They must also consider alternative hypotheses for children's inattentive, impulsive, and hyperactive behavior (e.g., symptoms caused by other learning or behavioral disorders).

Linking assessment to intervention. The evaluation of ADHD-related behaviors does not end with the diagnosis. Rather, it should lead to the design of effective interventions. For example, school professionals should use Functional Behavior Assessment to evaluate the environmental factors (peers laughing and paying attention to a child's misbehavior) that might be reinforcing or triggering a child's disruptive behavior to plan effective interventions. Then, once an intervention plan is in place, assessment information should be collected periodically to determine whether treatment is working and whether changes in intervention procedures are necessary.

Effective Interventions for ADHD

The two most effective interventions for reducing the symptomatic behaviors of ADHD are central nervous system (CNS) stimulant medications and behavior modification procedures. Although most children respond positively to medication, combined use of medication and behavioral interventions tends to yield the greatest improvement in their social skills.

Medication. CNS stimulants include methylphenidate (Ritalin, Concerta, Metadate), dextroamphetamine (Dexedrine), and mixed amphetamine compound (Adderall). Numerous studies have found stimulants to enhance attention, reduce impulsive behavior, and increase academic productivity among the majority of children treated. For the most part, side effects are relatively benign and include appetite reduction, insomnia, headaches, and stomachaches. In very rare cases, motor or vocal tics may develop.

Several other psychotropic medications are available for those children who do not respond to stimulants or who experience significant side effects, including atomoxetine (Strattera), bupropion (Wellbutrin), and clonidine (Catapres).

Children's response to medication varies and requires ongoing monitoring to determine the optimal medication and dosage. Further, medication should always be used in combination with academic and behavioral interventions. Regardless of the type of medication prescribed, some children may have no or a negative response to medication or severe side effects that preclude medication.

Behavioral interventions. Behavioral interventions involve systematic changes to antecedent events (activities occurring prior to a target behavior) and/or consequent events (activities that follow a target behavior). The most effective treatment plans are those that include a balance between antecedent-based and consequent-based procedures. Interventions such as token reinforcement (earning points for later rewards) and daily report card systems are particularly effective when they are used consistently in both home and school settings.

Academic interventions (peer tutoring, computer-assisted instruction) and social skills training implemented in classroom and/or playground also may be of benefit.

Special education and accommodations. The diagnosis of ADHD does not by itself qualify a child for special education services. However, many children with ADHD will meet criteria for an educational disability (such as Other Health Impaired, Learning Disability, or Emotional Disturbance) and may benefit from the services of special education to address learning and behavior factors that interfere with school performance. If academic progress or behavioral difficulties are present, parents or school personnel can request an evaluation by the special education team to determine eligibility and need for these services.

Section 504 plans is another system of supports. These plans are mandated by federal law for individuals with a disability that interferes with a life activity, such as school performance. A 504 plan for a student with ADHD might provide extra time (or no time limits) during testing or testing in a quiet space to compensate for distractibility. Again, if learning or behavior problems interfere with the school progress of a child with ADHD, parents or school personnel can request that the school provide a Section 504 evaluation.

Resources

Resources for Parents

Barkley, R. A. (2000). *Taking charge of ADHD: The complete, authoritative guide for parents* (rev. ed.). New York: Guilford. ISBN: 1572305606.

Ingersoll, B. D. (1997). *Daredevils and daydreamers: New perspectives on Attention-Deficit/Hyperactivity Disorder.* New York: Doubleday. ISBN: 0385487576.

Resources for Educators

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual* (4th ed.). Washington, DC: Author.

Barkley, R. A. (1998). *Attention Deficit Hyperactivity Disorder: A handbook for diagnosis and treatment* (2nd ed.). New York: Guilford. ISBN: 1572302755.

DuPaul, G. J., & Stoner, G. (1999). *Classroom interventions for ADHD* [videotape]. New York: Guilford.

DuPaul, G. J., & Stoner, G. (2003). *ADHD in the schools: Assessment and intervention strategies* (2nd ed.). New York: Guilford. ISBN 1-57230-862-1.

Power, T. J., Karustis, J. L., & Habboushe, D. F. (2001). *Homework success for children with ADHD: A family-school intervention program.* New York: Guilford. ISBN: 1572306165.

Rief, S. F. (2003). *The ADHD book of lists: A practical guide for helping children and teens with Attention Deficit Disorders.* San Francisco: Jossey-Bass. ISBN 0-7879-6591-X.

Weyandt, L. (2001). *An ADHD primer.* Boston: Allyn & Bacon. ISBN: 0205309003.

Resources for Children With ADHD

Carpenter, P., & Ford, M. (2000). *Sparky's excellent misadventures: My ADD journal.* Washington, DC: Magination Press. ISBN: 1557986061.

Gordon, M. (1992). *My brother's a world-class pain: A sibling's guide to ADHD Hyperactivity.* DeWitt, NY: GSI Publications. ISBN: 0962770124.

Websites

Children and Adults With Attention Deficit Hyperactivity Disorder (CHADD)—*www.chadd.org*

LD Online—*www.ldonline.org*

George J. DuPaul, PhD, is a Professor and researcher in the College of Education, School Psychology Program, Lehigh University, Bethlehem, PA.

The National Association of School Psychologists (NASP) offers a wide variety of free or low cost online resources to parents, teachers, and others working with children and youth through the NASP website ***www.nasponline.org*** and the NASP Center for Children & Families website ***www.naspcenter.org.*** Or use the direct links below to access information that can help you improve outcomes for the children and youth in your care.

About School Psychology—Downloadable brochures, FAQs, and facts about training, practice, and career choices for the profession.
www.nasponline.org/about_nasp/spsych.html

Crisis Resources—Handouts, fact sheets, and links regarding crisis prevention/intervention, coping with trauma, suicide prevention, and school safety.
www.nasponline.org/crisisresources

Culturally Competent Practice—Materials and resources promoting culturally competent assessment and intervention, minority recruitment, and issues related to cultural diversity and tolerance.
www.nasponline.org/culturalcompetence

En Español—Parent handouts and materials translated into Spanish. ***www.naspcenter.org/espanol/***

IDEA Information—Information, resources, and advocacy tools regarding IDEA policy and practical implementation.
www.nasponline.org/advocacy/IDEAinformation.html

Information for Educators—Handouts, articles, and other resources on a variety of topics.
www.naspcenter.org/teachers/teachers.html

Information for Parents—Handouts and other resources a variety of topics.
www.naspcenter.org/parents/parents.html

Links to State Associations—Easy access to state association websites.
www.nasponline.org/information/links_state_orgs.html

NASP Books & Publications Store—Review tables of contents and chapters of NASP bestsellers.
www.nasponline.org/bestsellers
Order online. ***www.nasponline.org/store***

Position Papers—Official NASP policy positions on key issues.
www.nasponline.org/information/position_paper.html

Success in School/Skills for Life—Parent handouts that can be posted on your school's website.
www.naspcenter.org/resourcekit