step
Support and Training
for Exceptional Parents

STEP, Inc.
ADD/ADHD INFORMATION PACKET
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Updated August 2011

NAMI Fact Sheet on Attention-Deficit/Hyperactivity Disorder

What is attention-deficit/hyperactivity disorder?

Attention-deficit/hyperactivity disorder (ADHD) is an illness characterized by inattention, hyperactivity, and impulsivity. The most commonly diagnosed behavior disorder in young persons, ADHD affects an estimated three percent to five percent of school-age children.

Although ADHD is usually diagnosed in childhood, it is not a disorder limited to children -- ADHD often persists into adolescence and adulthood and is frequently not diagnosed until later years.

What are the symptoms of ADHD?

There are actually three different types of ADHD, each with different symptoms: predominantly inattentive, predominantly hyperactive/impulsive, and combined.

Those with the predominantly inattentive type often:

- fail to pay close attention to details or make careless mistakes in schoolwork, work, or other activities
- have difficulty sustaining attention to tasks or leisure activities
- do not seem to listen when spoken to directly
- do not follow through on instructions and fail to finish schoolwork, chores, or duties in the workplace
- have difficulty organizing tasks and activities
- avoid, dislike, or are reluctant to engage in tasks that require sustained mental effort
- lose things necessary for tasks or activities
- are easily distracted by extraneous stimuli
- are forgetful in daily activities

Those with the predominantly hyperactive/impulsive type often:

- fidget with their hands or feet or squirm in their seat
- leave their seat in situations in which remaining seated is expected
- move excessively or feel restless during situations in which such behavior is inappropriate
- have difficulty engaging in leisure activities quietly
- are "on the go" or act as if "driven by a motor"
- talk excessively
- blurt out answers before questions have been completed
- have difficulty awaiting their turn
- interrupt or intrude on others

Those with the combined type, the most common type of ADHD, have a combination of the inattentive and hyperactive/impulsive symptoms.

What is needed to make a diagnosis of ADHD?

A diagnosis of ADHD is made when an individual displays at least six symptoms from either of the above lists, with some symptoms having started before age seven. Clear impairment in at least two settings, such as home and school or work, must also exist. Additionally, there must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

How common is ADHD?

ADHD affects an estimated two million American children, an average of at least one child in every U.S. classroom. In general, boys with ADHD have been shown to outnumber girls with the disorder by a rate of about three to one. The combined type of ADHD is the most common in elementary school-aged boys; the predominantly inattentive type is found more often in adolescent girls.

While there is no specific data on the rates of ADHD in adults, the disorder is sometimes not diagnosed until adolescence or adulthood, and half of the children with ADHD retain symptoms of the disorder throughout their adult lives. (It is generally believed that older individuals diagnosed with ADHD have had elements of the disorder since childhood.)

What is ADD? Is it different than ADHD?

This is a question that has become increasingly difficult to answer simply. *ADHD*, or *attention-deficit/hyperactivity disorder*, is the only clinically diagnosed term for disorders characterized by inattention, hyperactivity, and impulsivity used in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorder, Fourth Edition*, the diagnostic "bible" of psychiatry. However (and this is where things get tricky), *ADD*, or *attention-deficit disorder*, is a term that has become increasingly popular among laypersons, the media, and even some professionals. Some use the term *ADD* as an umbrella term -- after all, ADHD **is** an attention-deficit disorder. Others use the term *ADD* to refer to the predominantly inattentive type of ADHD, since that type does not feature hyperactive symptoms. Lastly, some simply use the terms *ADD* and *ADHD* interchangeably. The bottom line is that when people speak of ADD or ADHD, they generally mean the same thing. However, only *ADHD* is the "official" term.

Is ADHD associated with other disorders?

Yes. In fact, symptoms like those of ADHD are often mistaken for or found occurring with other neurological, biological, and behavioral disorders. Nearly half of all children with ADHD (especially boys) tend to also have *oppositional defiant disorder*, characterized by negative, hostile, and defiant behavior. *Conduct disorder* (marked by aggression towards people and animals, destruction of property, deceitfulness or theft, and serious rule-breaking) is found to co-occur in an estimated 40 percent of children with ADHD. Approximately one-fourth of children with ADHD (mostly younger children and boys) also experience *anxiety* and *depression*. And, at least 25 percent of children with ADHD suffer from some type of *communication/learning disability*. There is additionally a correlation between *Tourette's syndrome*, a neurobiological disorder characterized by motor and vocal tics, and ADHD-only a small percentage of those with ADHD also have Tourette's, but at least half of those with Tourette's also have ADHD. Research is also beginning to show that ADHD-like symptoms are sometimes actually manifestations of childhood-onset bipolar disorder.

What causes ADHD?

First of all, it is important to realize that ADHD is **not** caused by dysfunctional parenting, and those with ADHD do **not** merely lack intelligence or discipline.

Strong scientific evidence supports the conclusion that ADHD is a biologically based disorder. Recently, National Institute of Mental Health researchers using PET scans have observed significantly lower metabolic activity in regions of the brain controlling attention, social judgment, and movement in those with ADHD than in those without the disorder. Biological studies also suggest that children with ADHD may have lower levels of the neurotransmitter dopamine in critical regions of the brain.

Other theories suggest that cigarette, alcohol, and drug use during pregnancy or exposure to environmental toxins such as lead may be linked to the development of ADHD. Research also suggests a strong genetic basis to ADHD -- the disorder tends to run in families. In addition, research has shown that certain forms of genes related to the dopamine neurotransmitter system are linked to increased likelihood of the disorder.

While early theories suggested that ADHD may be caused by minor head injuries or brain damage resulting from infections or complications at birth, research found this hypothesis to lack substantial supportive evidence. Furthermore, scientific studies have not verified dietary factors, another widely discussed possible influence for the development of ADHD, as a main cause of the disorder.

How can ADHD be treated?

Many treatments -- some with good scientific basis, some without -- have been recommended for individuals with ADHD. The most proven treatments are medication and behavioral therapy.

Medication

Stimulants are the most widely used drugs for treating attention-deficit/hyperactivity disorder. The four most commonly used stimulants are methylphenidate (Ritalin), dextroamphetamine (Dexedrine, Desoxyn), amphetamine and dextroamphetamine (Adderall), and pemoline (Cylert). These drugs increase activity in parts of the brain that are underactive in those with ADHD, improving attention and reducing impulsiveness, hyperactivity, and/or aggressive behavior. Antidepressants, major tranquilizers, and the antihypertensive clonidine (Catapres) have also proven helpful in some cases. Most recently, the FDA has approved a non-stimulant medication, Atomoxetine (Straterra), a selective norepinephrine reuptake inhibitor for the treatment of ADHD.

Every person reacts to treatment differently, so it is important to work closely and communicate openly with your physician. Some common side effects of stimulant medications include weight loss, decreased appetite, trouble sleeping, and, in children, a temporary slowness in growth; however, these reactions can often be controlled by dosage adjustments. Medication has proven effective in the short-term treatment of more than 76 percent of individuals with ADHD.

Behavioral Therapy

Treatment strategies such as rewarding positive behavior changes and communicating clear expectations of those with ADHD have also proven effective. Additionally, it is extremely important for family members and teachers or employers to remain patient and understanding.

Children with ADHD can additionally benefit from caregivers paying close attention to their progress, adapting classroom environments to accommodate their needs, and using positive reinforcers. Where appropriate, parents should work with the school district to plan an individualized education program (IEP).

Other Treatments

There are a variety of other treatment options offered (some rather dubious) for those with ADHD. Those treatments **not** scientifically proven to work include biofeedback, special diets, allergy treatment, megavitamins, chiropractic adjustment, and special-colored glasses.

Reviewed by Peter Jensen, MD May 2003

For further information about support groups, family education, or advocacy call;

NAMI Indiana

(800) 677-6442

www.namiindiana.org

TENNESSEE VOICES FOR CHILDREN

Speaking Out for the Well-Being of Children

FACT SHEET

ADHD

Attention-deficit hyperactivity disorder (ADHD) is one of the most common reasons children are referred for mental health services. It affects as many as one in every 20 children. Although boys are three to four times more likely than girls to experience ADHD, the disorder affects both boys and girls.

What Are the Signs and Symptoms?

There are three main types of ADHD. One type is characterized by inattentiveness, one type is characterized by hyperactive or impulsive behavior, and the third type is combined—when children exhibit signs of both types. Symptoms are often unnoticed until a child enters school. To be diagnosed with ADHD, a child must show symptoms in at least two settings, such as home and school, and the symptoms must interfere with the child's ability to function at home or school for at least six months. Specialists have agreed that at least six symptoms from the following lists must be present for an accurate diagnosis, and symptoms must begin by age 7.

Signs of inattentive behavior:

- Has difficulty following instructions
- Has difficulty focusing on tasks
- Loses things at school and at home
- Forgets things often
- Becomes easily distracted or has difficulty listening
- Lacks attention to detail, makes careless mistakes or is disorganized
- Fails to complete homework or tasks

Signs of hyperactive behavior:

- Is fidgety
- Leaves seat when shouldn't
- Runs or climbs inappropriately
- Talks excessively
- Difficulty playing quietly
- Always on the go
- Blurts out answers
- Has trouble waiting turn
- Interrupts

The presence of some symptoms, however, does not confirm a diagnosis of ADHD. Just because a child has a lot of energy or difficulty paying attention in school does not mean the child has ADHD. An accurate diagnosis relies on the presence of a range of symptoms and difficulties that prevent the child from performing at an appropriate level for his or her age and intelligence level. Teachers often first observe these issues, and their input should be considered seriously.

How Does ADHD Affect School and Social Life?

Symptoms of ADHD can make school difficult for a child with the disorder. Although most children with ADHD have normal or above-normal intelligence, 40 to 60 percent have serious learning difficulties. Many others have specific problems with schoolwork or maintaining good grades, and face particular challenges with assignments and tests that require focused attention or lengthy writing, or have time limits. On a social level, children with ADHD often have trouble developing meaningful relationships with peers and family

members. Other children may find it frustrating to play with a child who has ADHD, because classic symptoms include difficulty following rules, waiting one's turn or excessive talking.

What Other Disorders Commonly Occur With ADHD?
Children and adolescents with ADHD are more likely than children without the disorder to suffer from other mental disorders. About one-half of all young people with ADHD have oppositional defiant disorder; about one-quarter have an anxiety disorder; as many as one-third have depression; and one-fifth have bipolar disorder. Adolescents with untreated ADHD are at risk for substance abuse disorders. Research shows that young people treated for ADHD have lower rates of substance abuse than children who go untreated.

What Causes ADHD?
ADHD is nobody's fault. Researchers believe that biology and genes play a large role in the development of ADHD. In fact, 30 to 40 percent of children diagnosed with ADHD have relatives with the same disorder. Brain scans reveal that the brains of children with ADHD differ from those of children without the disorder. Children with ADHD are thought to have problems with the part of the brain that controls the organization and direction of thought and behavior.

What Can Parents and Caregivers Do?
Children with symptoms of ADHD should be referred to and evaluated by a mental health professional who specializes in treating children, unless your primary care doctor has experience in treating this disorder. The diagnostic evaluation should include behavioral observation in the classroom and at home. A comprehensive treatment plan should be developed with the family, and, whenever possible, the child should be involved in making treatment decisions. Educational testing should be performed when learning disabilities are present.

Treatment for ADHD is effective for most children. Early identification, diagnosis and treatment help children reach their full potential. The most effective treatments for ADHD include a combination of medication, behavioral therapy, and parental support and education. Nine out of 10 children respond to medication, and 50 percent of children who do not respond to an initial medication will respond to a second. When ADHD co-occurs with another disorder, such as depression or anxiety, a combination of medication and psychotherapy is shown to be particularly effective. Although the value of medication has been well-documented, parents should feel free to discuss any concerns about medication use with their child's doctor.

If your child or a child you know is diagnosed with ADHD, be patient. Even with treatment, symptoms may take time to improve. Instill a sense of competence in the child or adolescent. Promote his or her strengths, talents and feelings of self-worth. Remember that the side effects of untreated ADHD (such as failure, frustration, discouragement, social isolation, low self-esteem and depression) may cause more problems than the disorder itself.

Information via Mental Health America. Please visit http://www.mentalhealthamerica.net/ for more information.

Tennessee Voices for Children speaks out as active advocates for the emotional and behavioral well-being of children and their families. We provide Advocacy, Training, Support, Referral, Prevention, and Early Intervention Services.

TENNESSEE VOICES FOR CHILDREN

For more information, visit http://www.tnvoices.org or call 1-800-670-9882.
Offices in Nashville, Memphis, Knoxville, Jackson, and Columbia.

Attention-Deficit/Hyperactivity Disorder (AD/HD) — National Dissemination Center for Children with Disabilities

Disability Fact Sheet 19 (FS19V)
May 201R

Mario's Story

Mario is 10 years old. When he was 7, his family learned he had AD/HD. At the time, he was driving everyone crazy. At school, he couldn't stay in his seat or keep quiet. At home, he didn't finish his homework or his chores. He did scary things, too, like climb out of his window onto the roof and run across the street without looking.

Things are much better now. Mario was tested by a trained professional to find out what he does well and what gives him trouble. His parents and teachers came up with ways to help him at school. Mario has trouble sitting still, so now he does some of his work standing up. He's also the student who tidies up the room and washes the chalkboard. His teachers break down his lessons into several parts. Then they have him do each part one at a time. This helps Mario keep his attention on his work.

At home, things have changed, too. Now his parents know why he's so active. They are careful to praise him when he does something well. They even have a reward program to encourage good behavior. He earns "good job points" that they post on a wall chart. After earning 10 points he gets to choose something fun he'd like to do. Having a child with AD/HD is still a challenge, but things are looking better.

What is AD/HD?

Attention-Deficit/Hyperactivity Disorder (AD/HD) is a condition that can make it hard for a person to sit still,control behavior, and pay attention. These difficulties usually begin before the person is 7 years old. However, these behaviors may not be noticed until the child is older.

Doctors do not know just what causes AD/HD. However, researchers who study the brain are coming close to understanding what may cause AD/HD. They believe that some people with AD/HD do not have enough of certain chemicals (called *neurotransmitters*) in their brain. These chemicals help the brain control behavior.

Parents and teachers do not cause AD/HD. Still, there are many things that both parents and teachers can do to help a child with AD/HD.

How Common is AD/HD?

As many as 5 out of every 100 children in school may have AD/HD. Boys are three times more likely than girls to have AD/HD.

What Are the Signs of AD/HD?

There are three main signs, or symptoms, of AD/HD. These are:

- problems with paying attention.
- being very active (called *hyperactivity*), and
- acting before thinking (called *impulsivity*)

More information about these symptoms is listed in a book called the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), which is published by the American Psychiatric Association (2000). Based on these symptoms, three types of AD/HD have been found.

- ***inattentive type***, where the person can't seem to get focused or stay focused on a task or activity.
- ***hyperactive-impulsive type***, where the person is very active and often acts without thinking; and
- ***combined type***, where the person is inattentive, impulsive, and too active.

Inattentive type. Many children with AD/HD have problems paying attention. Children with the inattentive type of AD/HD often:

- do not pay close attention to details.
- can't stay focused on play or school work^.
- don't follow through on instructions or finish school work or chores
- can't seem to organize tasks and activities.
- get distracted easily; and
- lose things such as toys, school work, and books. (APA, 2000, pp.85-86)

Hyperactive-impulsive type. Being too active is probably the most visible sign of AD/HD. The hyperactive child is "always on the go." (As he or she gets older, the level of activity may go down.) These children also act before thinking (called *impulsivity*). For example, they may run across the road without looking or climb to the top of very tall trees. They may be surprised to find themselves in a dangerous situation. They may have no idea of how to get out of the situation. Hyperactivity and impulsivity tend to go together. Children with the hyperactive-impulsive type of AD/HD often may:

- fidget and squirm
- get out of their chairs when they're not supposed to;
- run around or climb constantly;
- have trouble playing quietly;
- talk too much
- blurt out answers before questions have been completed
- have trouble waiting their turn
- interrupt others when they're talking; and
- butt in on the games others are playing. (APA, 2000, p. 86)

Combined type. Children with the combined type of AD/HD have symptoms of both of the types described above. They have problems with paying attention, with hyperactivity, and with controlling their impulses.

Of course, from time to time, all children are inattentive, impulsive, and too active. With children who have AD/HD, *these behaviors are the rule, not the exception.*

These behaviors can cause a child to have real problems at home, at school, and with friends. As a result many children with AD/HD will feel anxious, unsure of themselves, and depressed. These feelings are noB symptoms of AD/HD. They come from having problems again and again at home and in school.

How Do You Know if a Child Has AD/HD?

When a child shows signs of AD/HD, he or she needs to be evaluated by a trained professional. This person may work for the school system or may be a professional in private practice. A complete evaluation is the only way to know for sure if the child has AD/HD. It is also important to.

- rule out other reasons for the child's behavior, and
- find out if the child has other disabilities along with AD/HD

What About Treatment?

There is no quick treatment for AD/HD. However, the symptoms of AD/HD can be managed. It's important that the child's family and teachers:

- find out more about AD/HD

- learn how to help the child manage his or her behavior
- create an educational program that fits the child's individual needs
- and provide medication, if parents and the doctor feel that this would help the child

What About School?

School can be hard for children with AD/HD. Success in school often means being able to pay attention and control behavior and impulse. These are the areas where children with AD/HD have trouble.

There are many ways the school can help students with AD/HD. Some students may be eligible to receive special education services under the Individuals with Disabilities Education Act (IDEA). AD/HD is specifically mentioned under IDEA's disability category of "Other Health Impairment" (OHI). We've included the IDEA'S definition of OHI below and provide information on OHI in a separate fact sheet.

Despite the fact that AD/HD is specifically mentioned in IDEA's definition of OHI, some students with AD/HD may not be found eligible for services under IDEA. The AD/HD must affect educational performance. (To learn more about the eligibility process under IDEA, read Evaluating Children for Disability, looking specifically for the section on determining eligibility and what to do if you don't agree with the determination.) If a student is found not eligible for services under IDEA, he or she may be eligible for services under P different law, Section 504 of the Rehabilitation Act of 1973.

Regardless of the eligibility determination (yes or no), the school and the child's parents need to meet and talk about what special help the student needs. Most students with AD/HD are helped by supports oO changes in the classroom (called *adaptations*). Some common changes that help students with AD/HD arC listed under "Tips for Teachers" below. Much additional info is available from the organizations listed undeO "Additional Resources" at the end of this fact sheet.R ——————————————————————h

IDEA's Definition of "Other Health Impairment{

Many students with ADHD may qualify for special education services under the "Other Health Impairment" category within the Individuals with Disabilities Education Act (IDEA). IDEA defines "other health impairment as...

...having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that

(a) is due to chronic or acute health problems such as asthma, **attention deficit disorder or attention deficit hyperactivity disorder**, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; and

(b) adversely affects a child's educational performance. [34 *Code of Federal Regulations* §300.8(c)(10)l

Tips for Parents

- Learn about AD/HD. The more you know, the more you can help yourself and your child. The organizations listed under "Additional Information" (at the end of this fact sheet) can help you learn more about the disability.
- Praise your child when he or she does well. Build your child's abilities. Talk about and encourage his or her strengths and talents.
- Be clear, be consistent, be positive. Set clear rules for your child. Tell your child what he or she *should* do, not just what he shouldn't do. Be clear about what will happen if your child does not follow the rules. Have a reward program for good behavior. Praise your child when he or she shows the behaviors you like.
- Learn about strategies for managing your child's behavior. These include valuable techniques such as: charting, having a reward program, ignoring behaviors, natural consequences, logical consequences, and time-out. Using these strategies will lead to more positive behaviors and cut down on problem behaviors. You can read about these techniques in many books. See "Resources" at the end of this publication.
- Talk with your doctor about whether medication will help your child.
- Pay attention to your child's mental health (and your own!). Be open to counseling. It can help you deal with the challenges of raising a child with AD/HD. It can help your child deal with frustration, feel better about

himself or herself, and learn more about social skills.

- Talk to other parents whose children have AD/HD. Parents can share practical advice and emotional support. Call NICHCY to find out how to find parent groups near you.

- Meet with the school and develop an educational plan to address your child's needs. Both you and your child's teachers should get a written copy of this plan.

- Keep in touch with your child's teacher. Tell the teacher how your child is doing at home. Ask how your child is doing in school. Offer support.

Tips for Teachers

- Learn more about AD/HD. The resources and organizations listed under "Additional Information" (at the end of this fact sheet) can help you identify specific techniques and strategies to support the student educationally. We've listed some strategies below. Also consult our page on effective instructional practices for students with disabilities, which has a section on teaching those with AD/HD.

- Figure out what specific things are hard for the student. For example, one student with AD/HD may have trouble starting a task, while another may have trouble ending one task and starting the next. Each student needs different help.

- Post rules, schedules, and assignments. Clear rules and routines will help a student with AD/HD. Have set times for specific tasks. Call attention to changes in the schedule.

- Show the student how to use an assignment book and a daily schedule. Also teach study skills and learning strategies, and reinforce these regularly.

- Help the student channel his or her physical activity (e.g., let the student do some work standing up or at the board). Provide regularly scheduled breaks.

- Make sure directions are given step by step, and that the student is following the directions. Give directions both verbally and in writing. Many students with AD/HD also benefit from doing the steps as separate tasks.

- Let the student do work on a computer.

- Work together with the student's parents to create and implement an educational plan tailored to meet the student's needs. Regularly share information about how the student is doing at home and at school.

- Have high expectations for the student, but be willing to try new ways of doing things. Be patient. Maximize the student's chances for success.

Additional Resources

CHADD | Children and Adults with Attention-Deficit/Hyperactivity Disorder Find loads of info on ADD and AD/HD. Find a local chapter of CHADDK 301.306.7070 | Info available in English and in Spanish.
http://www.chadd.org

National Resource Center on AD/HD
A service of CHADD. 1.800.233.4050 | Info available in English and in Spanish.
.http://www.help4adhd.org

Attention Deficit Disorder Association
1.800.939.1019 / info@add.org

http://adda.convio.net/site/PageServer

ADDINFONETWORK
http://www.addinfonetwork.com/hc3.asp

WHAT WE KNOW

The Disorder Named AD/HD

Occasionally, we may all have difficulty sitting still, paying attention or controlling impulsive behavior. For some people, the problems are so pervasive and persistent that they interfere with their lives, including home, academic, social and work settings.

Attention-deficit/hyperactivity disorder (AD/HD) is a common neurobiological condition affecting 5-8 percent of school age children[1,2,3,4,5,6,7] with symptoms persisting into adulthood in as many as 60 percent of cases (i.e. approximately 4% of adults).[8,9] It is characterized by developmentally inappropriate levels of inattention, impulsivity, and hyperactivity.

Although individuals with this disorder can be very successful in life, without identification and proper treatment, AD/HD may have serious consequences, including school failure, family stress and disruption, depression, problems with relationships, substance abuse, delinquency, risk for accidental injuries and job failure. Early identification and treatment are extremely important.

Medical science first documented children exhibiting inattentiveness, impulsivity and hyperactivity in 1902. Since that time, the disorder has been given numerous names, including minimal brain dysfunction, hyperkinetic reaction of childhood and attention-deficit disorder with or without hyperactivity. With the *Diagnostic and Statistical Manual, fourth edition (DSM-IV)* classification system, the disorder has been renamed attention-deficit/hyperactivity disorder, or AD/HD. The current name reflects the importance of the inattention characteristics of the disorder as well as the other characteristics of the disorder, such as hyperactivity and impulsivity.

THE SYMPTOMS

Typically, AD/HD symptoms arise in early childhood, unless associated with some type of brain injury later in life. Some symptoms persist into adulthood and may pose life-long challenges. Although the official diagnostic criteria state that the onset of symptoms must occur before age seven, leading researchers in the field of AD/HD argue that criterion should be broadened to include onset anytime during childhood.[10] The symptom-related criteria for the three primary subtypes are adapted from *DSM-IV* and summarized as follows:

" Although individuals with this disorder can be very successful in life, without proper identification and proper treatment, AD/HD may have serious consequences... "

AD/HD predominantly inattentive type: (AD/HD-I)

- Fails to give close attention to details or makes careless mistakes.
- Has difficulty sustaining attention.
- Does not appear to listen.
- Struggles to follow through on instructions.
- Has difficulty with organization.
- Avoids or dislikes tasks requiring sustained mental effort.
- Loses things.
- Is easily distracted.
- Is forgetful in daily activities.

AD/HD predominantly hyperactive-impulsive type: (AD/HD-HI)

- Fidgets with hands or feet or squirms in chair.
- Has difficulty remaining seated.
- Runs about or climbs excessively.
- Difficulty engaging in activities quietly.
- Acts as if driven by a motor.
- Talks excessively.
- Blurts out answers before questions have been completed.
- Difficulty waiting or taking turns.
- Interrupts or intrudes upon others.

AD/HD combined type: (AD/HD-C)

- Individual meets both sets of inattention and hyperactive/impulsive criteria.

Youngsters with AD/HD often experience delays in independent functioning and may therefore behave in ways more like younger children.[11] In addition, AD/HD frequently co-occurs with other conditions, such as depression, anxiety or learning disabilities. For example, in 1999, NIMH research indicated that two- thirds of children with AD/HD have a least one other co-existing condition.[12] When co-existing conditions are present, academic and behavioral problems, as well as emotional issues, may be more complex.

Teens with AD/HD present a special challenge. During these years, academic and organizational demands increase. In addition, these impulsive youngsters are facing typical adolescent issues: discovering their identity, establishing independence, dealing with peer pressure, exposure to illegal drugs, emerging sexuality, and the challenges of teen driving.

Recently, deficits in executive function have emerged as key factors impacting academic and career success.[13] Simply stated, executive function refers to the "variety of functions within the brain that activate, organize, integrate and manage other functions."[14] This permits individuals to appreciate the longer-term consequences of their actions and guide their behavior across time more effectively.[15] Critical concerns include deficits in working memory and the ability to plan for the future, as well as maintaining and shifting strategies in the service of long-term goals.

THE DIAGNOSIS

Determining if a child has AD/HD is a multifaceted process. Many biological and psychological problems can contribute to symptoms similar to those exhibited by children with AD/HD. For example, anxiety, depression and certain types of learning disabilities may cause similar symptoms. In some cases, these other conditions may actually be the primary diagnosis; in others, these conditions may co-exist with AD/HD.

There is no single test to diagnose AD/HD. Therefore, a comprehensive evaluation is necessary to establish a diagnosis, rule out other causes and determine the presence or absence of co-existing conditions. Such an evaluation requires time and effort and should include a careful history and a clinical assessment of the

individual's academic, social, and emotional functioning and developmental level. A careful history should be taken from the parents and teachers, as well as the child, when appropriate. Checklists for rating AD/HD symptoms and ruling out other disabilities are often used by clinicians; these age-normed instruments help to ensure that the symptoms are extreme for the child's developmental level.

There are several types of professionals who can diagnose AD/HD, including school psychologists, clinical psychologists, clinical social workers, nurse practitioners, neurologists, psychiatrists and pediatricians. Regardless of who does the evaluation, the use of the *Diagnostic and Statistical Manual IV* diagnostic criteria for AD/HD is necessary. A medical exam by a physician is important and should include a thorough physical examination, including assessment of hearing and vision, to rule out other medical problems that may be causing symptoms similar to AD/HD. In rare cases, persons with AD/HD also may have a thyroid dysfunction. Only medical doctors can prescribe medication if it is needed. Diagnosing AD/HD in an adult requires an evaluation of the history of childhood problems in behavior and academic domains, as well as examination of current symptoms and coping strategies. For more information, read *What We Know* #9, "Diagnosis of AD/HD in Adults."

"Research clearly indicates that AD/HD tends to run in families and that the patterns of transmission are to a large extent genetic."

THE CAUSES

Multiple studies have been conducted to discover the cause of the disorder. Research clearly indicates that AD/HD tends to run in families and that the patterns of transmission are to a large extent genetic.[16,17] More than 20 genetic studies, in fact, have shown evidence that AD/HD is strongly inherited. Yet AD/HD is a complex disorder, which is undoubtedly the result of multiple interacting genes. Other causal factors (such as low birth weight, prenatal maternal smoking, and additional prenatal problems) may contribute to other cases of AD/HD.[18,19,20,21] Problems in parenting or parenting styles may make AD/HD better or worse, but these do not cause the disorder. AD/HD is clearly a brain-based disorder. Currently research is underway to better define the areas and pathways that are involved.

PROGNOSIS AND LONG-TERM OUTCOMES

Children with AD/HD are at risk for potentially serious problems in adolescence: academic underachievement and school failure, problems in social relations, risk for antisocial behavior patterns, teen pregnancy, and adverse driving consequences.[22] As noted above, AD/HD persists from childhood to adolescence in the vast majority of cases, although the symptom area of motor activity tends to diminish with time. Furthermore, up to two-thirds of children with AD/HD continue to experience significant symptoms in adulthood. Yet many adults with AD/HD learn coping strategies and compensate quite well.[23,24] A key to good outcome is early identification and treatment.

MULTIMODAL TREATMENT

AD/HD in children often requires a comprehensive approach to treatment called "*multimodal*" and includes:

- Parent and child education about diagnosis and treatment
- Behavior management techniques
- Medication
- School programming and supports

Treatment should be tailored to the unique needs of each child and family. Research from the landmark NIMH Multimodal Treatment Study of AD/HD is very encouraging.[25] Children who received carefully monitored medication, alone or in combination with behavioral treatment, showed significant improvement in their behavior at home and school plus better relationships with their classmates and family than did children receiving lower quality care.

Psychostimulants are the most widely used class of medication for the management of AD/HD related symptoms. Approximately 70 to 80 percent of children with AD/HD respond positively to psychostimulant medications.[26] Significant academic improvement is shown by students who take these medications: *increases in* attention and concentration, compliance and effort on tasks, as well as amount and accuracy of schoolwork, plus *decreased* activity levels, impulsivity, negative

behaviors in social interactions and physical and verbal hostility.[27,28] A new, nonstimulant medication—atomoxetine--appears to have similar effects as the stimulants.

Other medications that may decrease impulsivity, hyperactivity and aggression include some antidepressants and antihypertensives. However, each family must weigh the pros and cons of taking medication (see *What We Know #3*, "Managing Medication for Children and Adolescents with AD/HD").

Behavioral interventions are also a major component of treatment for children who have AD/HD. Important strategies include being consistent and using positive reinforcement, and teaching problem-solving, communication, and self-advocacy skills. Children, especially teenagers, should be actively involved as respected members of the school planning and treatment teams (see *What We Know #7*, "Psychosocial Treatment for Children and Adolescents with AD/HD").

School success may require a variety of classroom accommodations and behavioral interventions. Most children with AD/HD can be taught in the regular classroom with minor adjustments to the environment. Some children may require special education services if an educational need is indicated. These services may be provided within the regular education classroom or may require a special placement outside of the regular classroom that meets the child's unique learning needs (see *What We Know #4* "Educational Rights for Children with AD/HD").

Adults with AD/HD may benefit from learning to structure their environment. In addition, medications effective for childhood AD/HD are also helpful for adults who have AD/HD. While little research has been done on interventions for adults, diagnosis and treatment are still important.

SUMMARY

Although the symptoms of AD/HD—inattention, impulsivity and hyperactivity—are present to some extent in most children, when these symptoms are developmentally extreme, pervasive and persistent a diagnosis of AD/HD is warranted. This diagnostic category is associated with significant impairment in family relations, peer interactions, school achievement, and risk for accidental injury, which are domains of crucial importance for healthy and successful development. Because AD/HD can become a lifelong disorder, careful diagnosis and treatment are essential. CHADD is seeking out solutions that will lead to improved quality of life for children, adolescents and adults.

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Updated February 2008

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Please also visit the CHADD Web site at
www.chadd.org

Parenting a Child with AD/HD

Often, when a child is diagnosed with AD/HD, the first response from his or her concerned parent is, "What can *I do* about it?" Although life with your child may at times seem challenging, it is important to remember that children with AD/HD can and do succeed. As a parent, you can help create home and school environments that improve your child's chances for success. The earlier you address your child's problems, the more likely you will be able to prevent school and social failure and associated problems such as underachievement and poor self-esteem that may lead to delinquency or drug and alcohol abuse.

Early intervention holds the key to positive outcomes for your child. Here are some ways to get started:

- **Don't waste limited emotional energy on self-blame.** AD/HD is the result of dysfunction in certain areas of the brain and in the majority of cases is inherited. It is *not* caused by poor parenting or a chaotic home environment, although the home environment can make the symptoms of AD/HD worse.
- **Learn all you can about AD/HD.** There is a great deal of information available on the diagnosis and treatment of AD/HD. It is up to you to act as a good consumer and *learn* to distinguish the "accurate" information from the "inaccurate." But how can you sort out what will be useful and what will not? In general, it is good to be wary about ads claiming to cure AD/HD. Currently, there is no cure for AD/HD, but you can take positive steps to decrease its impact.

- **Make sure your child has a comprehensive assessment.** To complete the diagnostic process, make sure your child has a comprehensive assessment that includes medical, educational, and psychological evaluations and that other disorders that either mimic or commonly occur with AD/HD have been considered and ruled out.

Multimodal treatment for children and adolescents with AD/HD consists of:

- Parent and child education about diagnosis and treatment;
- Behavior management techniques;
- Medication; and
- School programming and supports.

Treatment should be tailored to the unique needs of each child and family.

HOW TO ENSURE YOUR CHILD'S SUCCESS AT SCHOOL

- **Become an effective case manager.** Keep a record of all information about your child. This includes copies of all evaluations and documents from any meetings concerning your child. You might also include information about AD/HD, a record of your child's prior treatments and placements, and contact information for the professionals who have worked with your child.
- **Take an active role in forming a team that understands AD/HD and wants to help your child.** Meetings at your child's school should be attended by the principal's designee, as well as a special educator and a classroom teacher that knows your child. You, however, have the right to request input at these meetings from others that understand AD/HD or your child's special needs. These include your child's physician, the school psychologist, and the nurse or guidance counselor from your child's school. If you have consulted other professionals, such as a psychiatrist, educational advocate or behavior management specialist, the useful information they have provided should also be made available at these meetings. A thorough understanding of your child's strengths and weaknesses and how AD/HD affects him will help you and members of this team go on to develop an appropriate and effective program that takes into account his or her AD/HD.
- **Learn all you can about AD/HD and your child's educational rights.** The more knowledge you have about your child's rights under the two education laws—the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act—the better the chance that you will maximize his or her success. Each state has a parent training and information center that can help you learn more about your child's rights (visit www.taalliance.org/centers to find the center in your state).
- **Become your child's best advocate.** You may have to represent or protect your child's best interest in school situations, both academic and behavioral. Become an active part of the team that determines what services and placements your child receives in an Individualized Education Plan (IEP) or Section 504 plan. See CHADD fact sheet #4, "Educational Rights for Children with AD/HD," for more information.

"The more knowledge you have about your child's rights under two education laws—IDEA and Section 504—the better the chance that you will maximize his or her success."

HOW TO MAKE LIFE AT HOME EASIER

- **Join a support group.** Parents will find additional information, as well as support, by attending local CHADD meetings where available. You can find the nearest chapter to your home on http://www.chadd.org chapter locator.
- **Seek professional help.** Ask for help from professionals, particularly if you are feeling depressed, frustrated and exhausted. Helping yourself feel less stressed will benefit your child as well.
- **Work together to support your child.** It is important that all of the adults that care for your child (parents, grandparents, relatives, and babysitters) agree on how to approach or handle your child's

problem behaviors. Working with a professional, if needed, can help you better understand how to work together to support your child.

- **Learn the tools of successful behavior management.** Parent training will teach you strategies to change behaviors and improve your relationship with your child. Identify parent training classes in your community through your local parent information and resource center (http://www.federalresourcecenter.org/frc/TAGuide/welcome.htm) or parent training and information center (http://www.taalliance.org/centers).
- **Find out if you have AD/HD.** Since AD/HD is generally inherited, many parents of children with AD/HD often discover that they have AD/HD when their child is diagnosed. Parents with AD/HD may need the same types of evaluation and treatment that they seek for their children in order to function at their best. AD/HD in the parent may make the home more chaotic and affect parenting skills.

PARENT TRAINING WILL HELP YOU LEARN TO:

- **Focus on certain behaviors and provide clear, consistent expectations, directions and limits.** Children with AD/HD need to know exactly what others expect from them. They do not perform well in ambiguous situations that don't specify exactly what is expected and that require they read between the lines.

"Many children with AD/HD have strengths in certain areas such as art, athletics, computers or mechanical ability. Build upon these strengths."

Working with a professional can help you narrow the focus to a few specific behaviors and help you set limits, and consistently follow through.

- **Set up an effective discipline system.** Parents should learn proactive—not reactive—discipline methods that teach and reward appropriate behavior and respond to misbehavior with alternatives such as "time out" or loss of privileges.
- **Help your child learn from his or her mistakes.** At times, negative consequences will arise naturally out of a child's behavior. However, children with AD/HD have difficulty making the connection between their behaviors and these consequences. Parents can help their child with AD/HD make these connections and learn from his or her mistakes.

HOW TO BOOST YOUR CHILD'S CONFIDENCE

- **Tell your child that you love and support him or her unconditionally.** There will be days when you may not believe this yourself. Those will be the days when it is even more important that you acknowledge the difficulties your child faces on a daily basis, and express your love. Let your child know that you will get through the smooth and rough times together.
- **Assist your child with social skills.** Children with AD/HD may be rejected by peers because of hyperactive, impulsive or aggressive behaviors. Parent training can help you learn how to assist your child in making friends and learning to work cooperatively with others.
- **Identify your child's strengths.** Many children with AD/HD have strengths in certain areas such as art, athletics, computers or mechanical ability. Build upon these strengths, so that your child will have a sense of pride and accomplishment. Make sure that your child has the opportunity to be successful while pursuing these activities and that his strengths are not undermined by untreated AD/HD. Also, avoid, as much as possible, targeting these activities as contingencies for good behavior or withholding them, as a form of punishment, when your child with AD/HD misbehaves.
- **Set aside a daily "special time" for your child.** Constant negative feedback can erode a child's self-esteem. A "special time," whether it's an outing, playing games, or just time spent in positive interaction, can help fortify your child against assaults to self-worth.

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Please also visit the CHADD Web site at **www.chadd.org**.

What do I do if I think my child has ADD/ADHD?

Your child should have a complete medical examination by your pediatrician or family physician. At your request, your school can also conduct tests to evaluate your child's abilities and learning style.

There is no single treatment for ADD/ADHD. The treatment plan must be individualized for each child. A comprehensive approach is the key to success.

Medication is helpful for many individuals diagnosed with ADD/ADHD, **but is best managed by a specialist in this area**, such as a physician or child psychiatrist who has training and expertise in treating attention disorders. Proper medication therapy improves attention span, controls impulsivity, dampens restlessness, improves school performance, decreases aggression and enhances the quality of family life.

Behavior modification techniques have also been effective, as have individual and family counseling.

Whatever treatment a family chooses, it must be one which touches all aspects of the child's life -- his/her self-perception, school, and home life. Children with ADD/ADHD are particularly in need of support and encouragement. Since academics are frequently difficult for them, they must find other avenues to build self-esteem, such as sports, art, music or other special interests.

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- IPUL, Boise, ID, Information Flyer #1
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For more information about ATTENTION DISORDERS

CONTACT:

WYOMING
Information & Referral for Parents of Children with Disabilities

Parent Information Center

500 W. Lott St, Suite A
Buffalo, WY 82834
1-800-660-9742 (WY only)
(307) 684-2277 (v/tdd)
(307) 684-5314 (fax)
E-mail: tdawson@wpic.org
Website: www.wpic.org

To talk with the
PIC Outreach Parent Liaison
in your area, contact:

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Attention Disorders

Disability Brochure #2

Characteristics and Coping Strategies

Parent Information Center
1-307-684-2277

A project of
Parents Helping Parents
of Wyoming, Inc.

What is ADD/ADHD?

Attention Deficit Disorder (ADD), also known as Attention Deficit Hyperactivity Disorder (ADHD) is indicated when children display inappropriate attention, hyperactivity, and impulsive behavior for their mental and chronological age. ADD/ADHD may first be recognized when the child enters school, but the symptoms are usually present at a much younger age.

What are characteristics of ADD/ADHD?

1. **Short Attention Span** -- often changes subject; doesn't finish projects; misses parts of directions; doesn't seem to listen to speaker; easily distracted by outside stimuli; shifts from one uncompleted task to another; loses things necessary for completing assignments or tasks.
2. **Impulsive Behavior** -- Interrupts conversations, sometimes making inappropriate comments; acts without thinking; breaks rules, then regrets it; difficulty accepting changes in routine; accident prone.
3. **Hyperactivity** -- Talks loudly, rapidly, incessantly; excessive energy, fidgety, constantly into things; moves quickly from one task to another, makes careless errors; stands beside seat, sits on the edge of seat, rocks in seat; has difficulty waiting turn.

Secondary characteristics

- **Emotional Instability** -- Low frustration tolerance, over-reacts, under-reacts; temper tantrums; excess anger or excitement.
- **Poor Social Relationships** -- few friends; bossy, irritates others without realizing; starts fights, chooses younger children for friends.
- **Poor Response to Discipline** -- doesn't accept correction; unresponsive to discipline; defiant.

Strategies for dealing with characteristics of ADD/ADHD

Attention:

✓ Provide a sanctuary for child to work away from distractions or seat child in front of room.

✓ Use direct instruction/interaction techniques that permit cues for attention, require direct response and provide immediate encouragement and correction.

✓ Acquire and maintain eye contact, verbal contact and close contact with the child.

✓ Give child a cue before giving instructions or directions. Directions should be brief and concise.

✓ Break tasks into small parts. Provide concrete models and examples -- a hands-on approach.

✓ Praise and recognize appropriate attention rather than reprimand for lack of attention.

Impulsive Behavior:

× Establish and post firm, clearly understood, rules with immediate consequences for violations.

× Establish routines for child and prepare child for breaks in routine.

× When behavior gets out of control, or the environment is too stimulating, calmly remove child and isolate him in a quiet place for a short period of time.

× Don't let child interrupt. Have him/her wait a brief time before giving permission to speak.

Hyperactivity:

⇨ Provide appropriate activities for channeling the child's energy, (e.g. rocking chair for reading,) combine a learning activity with movement (e.g. bouncing ball while reciting alphabet.)

⇨ Channel annoying behavior into more acceptable behavior (e.g. suggest tapping with fingers rather than pencil.)

⇨ Reward roaming child when he stays near work area, gradually making rewards more specific the closer child stays in area. Placing colored tape on floor around work area may remind child to stay in area.

⇨ Use activities that involve visual, tactile and auditory skills.

⇨ Alternate sitting and moving activities.

Social/Emotional:

☺ Use consistent rules and clear routine.

☺ Praise appropriate behavior.

☺ Keep environment as simple as possible.

☺ Playing with one friend at a time, or one toy at a time, may be most beneficial.

IDENTIFYING AND TREATING ATTENTION DEFICIT HYPERACTIVITY DISORDER:

A RESOURCE FOR SCHOOL AND HOME

2008

Identifying and Treating Attention Deficit Hyperactivity Disorder:

A Resource for School and Home

2008

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Contents

Identifying and Treating Attention Deficit Hyperactivity Disorder: A Resource for School and Home

We have all had one of these experiences at one time or another. Perhaps it was at the grocery store, watching frustrated parents call their children's names repeatedly and implore them to "put that down." Maybe it was a situation at school with a child who could not seem to sit still and was always in motion. Maybe we noticed a child who appears always to be daydreaming in class—the student who will not focus on an activity long enough to finish it. Possibly the child is bored with a task, seemingly as soon as it has begun, and wants to move on to something else. We all puzzle over these challenging behaviors.

Attention Deficit Hyperactivity Disorder (ADHD) has many faces and remains one of the most talked-about and controversial subjects in education. Hanging in the balance of heated debates over medication, diagnostic methods, and treatment options are children, adolescents, and adults who must manage the condition and lead productive lives on a daily basis.

What is ADHD?

- Definition
- Core Categories
- Comorbidity
- Social Impact
- Prevalence

Attention Deficit Hyperactivity Disorder (ADHD) is a neurological condition that involves problems with inattention and hyperactivity-impulsivity that are developmentally inconsistent with the age of the child. We are now learning that ADHD is not a disorder of attention, as had long been assumed. Rather, it is a function of developmental failure in the brain circuitry that monitors inhibition and self-control. This loss of self-regulation impairs other important brain functions crucial for maintaining attention, including the ability to defer immediate rewards for later gain (Barkley, 1998a). Behavior of children with ADHD can also include excessive motor activity. The high energy level and subsequent behavior are often misperceived as purposeful noncompliance when, in fact, they may be a manifestation of the disorder and require specific interventions. Children with ADHD exhibit a range of symptoms and levels of severity. In addition, many children with ADHD often are of at least average intelligence and have a range of personality characteristics and individual strengths.

Children with ADHD typically exhibit behavior that is classified into two main categories: poor sustained attention and hyperactivity-impulsiveness. As a result, three subtypes of the disorder have been proposed by the American Psychiatric Association in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV): predominantly inattentive, predominantly hyperactive-impulsive, and combined types (Barkley, 1997). A child expressing hyperactivity commonly will appear fidgety, have difficulty staying seated or playing quietly, and act as if driven by a motor. Children displaying impulsivity often have difficulty participating in tasks that require taking turns. Other common behaviors may include blurting out answers to questions instead of waiting to be called and flitting from one task to another without finishing. The inattention component of ADHD affects the educational experience of these children because ADHD causes them to have difficulty in attending to detail in directions, sustaining attention for the duration of the task, and mis-

placing needed items. These children often fail to give close attention to details, make careless mistakes, and avoid or dislike tasks requiring sustained mental effort.

Although these behaviors are not in themselves a learning disability, almost one-third of all children with ADHD have learning disabilities (National Institute of Mental Health [NIMH], 1999). Children with ADHD may also experience difficulty in reading, math, and written communication (Anderson, Williams, McGee, & Silva, 1987; Cantwell & Baker, 1991; Dykman, Akerman, & Raney, 1994; Zentall, 1993). Furthermore, ADHD commonly occurs with other conditions. Current literature indicates that approximately 40–60 percent of children with ADHD have at least one coexisting disability (Barkley, 1990a; Jensen, Hinshaw, Kraemer, et al., 2001; Jensen, Martin, & Cantwell, 1997). Although any disability can coexist with ADHD, certain disabilities seem to be more common than others. These include disruptive behavior disorders, mood disorders, anxiety disorders, tics and Tourette's Syndrome, and learning disabilities (Jensen, et al., 2001). In addition, ADHD affects children differently at different ages. In some cases, children initially identified as having hyperactive-impulsive subtype are subsequently identified as having the combined subtype as their attention problems surface.

These characteristics affect not only the academic lives of students with ADHD, they may affect their social lives as well. Children with ADHD of the predominantly hyperactive-impulsive type may show aggressive behaviors, while children of the predominantly inattentive type may be more withdrawn. Also, because they are less disruptive than children with ADHD who are hyperactive or impulsive, many children who have the inattentive type of ADHD go unrecognized and unassisted. Both types of children with ADHD may be less cooperative with others and less willing to wait their turn or play by the rules (NIMH, 1999; Swanson, 1992; Waslick & Greenhill, 1997). Their inability to control their own behavior may lead to social isolation. Consequently, the children's self-esteem may suffer (Barkley, 1990a).

In the United States, an estimated 1.46 to 2.46 million children (3 percent to 5 percent of the student population) have ADHD (American Psychiatric Association, 1994; Anderson, et al., 1987; Bird, et al., 1988; Esser, Schmidt, & Woemer, 1990; Pastor & Reuben, 2002; Pelham, Gnagy, Greenslade, & Milich, 1992; Shaffer, et al., 1996; Wolraich, Hannah, Pinock, Baumgaertel, & Brown, 1996). Boys are four to nine times more likely to be diagnosed, and the disorder is found in all cultures, although prevalence figures differ (Ross & Ross, 1982).

What Causes ADHD?

ADHD has traditionally been viewed as a problem related to attention, stemming from an inability of the brain to filter competing sensory inputs such as sight and sound. Recent research, however, has shown that children with ADHD do not have difficulty in that area. Instead, researchers now believe that children with ADHD are unable to inhibit their impulsive motor responses to such input (Barkley, 1997; 1998a).

It is still unclear what the direct and immediate causes of ADHD are, although scientific and technological advances in the field of neurological imaging techniques and genetics promise to clarify this issue in the near future. Most researchers suspect that the cause of ADHD is genetic or biological, although they acknowledge that the child's environment helps determine specific behaviors.

Imaging studies conducted during the past decade have indicated which brain regions may malfunction in patients with ADHD, and thus account for symptoms of the condition (Barkley, 1998a). A 1996 study conducted at the National Institutes for Mental Health (NIMH) found that the right prefrontal cortex (part of the cerebellum) and at least two of the clusters of nerve cells known collectively as the basal ganglia are significantly smaller in children with ADHD (as cited in Barkley, 1998a). It appears that these areas of the brain relate to the regulation of attention. Why these areas of the brain are smaller for some children is yet unknown, but re-

searchers have suggested mutations in several genes that are active in the prefrontal cortex and basal ganglia may play a significant role (Barkley, 1998a). In addition, some nongenetic factors have been linked to ADHD including premature birth, maternal alcohol and tobacco use, high levels of exposure to lead, and prenatal neurological damage. Although some people claim that food additives, sugar, yeast, or poor child rearing methods lead to ADHD, there is no conclusive evidence to support these beliefs (Barkley, 1998a; Neuwirth, 1994; NIMH, 1999).

How Do We Identify ADHD?

Although toddlers and preschoolers, on occasion, may show characteristics of ADHD, some of these behaviors may be normal for their age or developmental stage. These behaviors must be exhibited to an abnormal degree to warrant identification as ADHD. Even with older children, other factors (including environmental influences) can produce behaviors resembling ADHD.

The criteria set forth by the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) are used as the standardized clinical definition to determine the presence of ADHD (see DSM-IV Criteria for ADHD). A person must exhibit several characteristics to be clinically diagnosed as having ADHD:

Severity. The behavior in question must occur more frequently in the child than in other children at the same developmental stage.

Early onset. At least some of the symptoms must have been present prior to age 7.

Duration. The symptoms must also have been present for at least 6 months prior to the evaluation.

Impact. The symptoms must have a negative impact on the child's academic or social life.

Settings. The symptoms must be present in multiple settings.

The specific DSM-IV criteria are set forth in the following chart.

DSM-IV Criteria for Attention Deficit/Hyperactivity Disorder

A. According to the DSM-IV, a person with Attention Deficit/Hyperactivity Disorder must have either (1) or (2):

(1) Six (or more) of the following symptoms of **inattention** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention

(a) often fails to give close attention to details or makes careless mistakes in school work, work, or other activities

(b) often has difficulty sustaining attention in tasks or play activities

(c) often does not seem to listen when spoken to directly

(d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)

(e) often has difficulty organizing tasks and activities

(f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

(g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)

(h) is often easily distracted by extraneous stimuli

(i) is often forgetful in daily activities

(2) Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

(a) often fidgets with hands or feet or squirms in seat

(b) often leaves seat in classroom or in other situations in which remaining seated is expected

(c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings or restlessness)

(d) often has difficulty playing or engaging in leisure activities quietly

(e) is often "on the go" or often acts as if "driven by a motor"

(f) often talks excessively

(g) often blurts out answers before questions have been completed

(h) often has difficulty awaiting turn

(i) often interrupts or intrudes on others (e.g., butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Disassociative Disorder, or a Personality Disorder).

Attention Deficit/Hyperactivity Disorder, Combined Type: if both Criteria A1 and A2 are met for the past 6 months.

Attention Deficit/Hyperactivity Disorder, Predominantly Inattentive Type: if Criterion A1 is met but Criterion A2 is not met for the past 6 months.

Attention Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type: if Criterion A2 is met but Criterion A1 is not met for the past 6 months.

Source: American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition. Washington, DC, American Psychiatric Association, 1994.

Legal Requirements for Identification of and Educational Services for Children With ADHD

Two important federal mandates protect the rights of eligible children with ADHD—the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act of 1973 (Section 504). The regulations implementing these laws are 34 CFR sections 300 and 104, respectively, which require school districts to provide a "free appropriate public education" to students who meet their eligibility criteria. Although a child with ADHD may not be eligible for services under IDEA, he or she may meet the requirements of Section 504.

The requirements and qualifications for IDEA are more stringent than those of Section 504. IDEA provides funds to state education agencies for the purpose of providing special education and related services to children evaluated in accordance with IDEA and found to have at least one of the 13 specific categories of disabilities, and who thus need special education and related services. Attention Deficit Hyperactivity Disorder may be considered under the specific category of "Other Health Impairment" (OHI), if the disability results in limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli that results in limited alertness with respect to the educational environment and that is due to chronic or acute health problems.

Under IDEA, each public agency—that is, each school district—shall ensure that a full and individual evaluation is conducted for each child being considered for special education and related services. The child's individualized education program (IEP) team uses the results of the evaluation to determine the educational needs of the child. The results of a medical doctor's, psychologist's, or other qualified professional's assessment indicating a diagnosis of ADHD may be an important evaluation result, but the diagnosis does not automatically mean that a child is eligible for special education and related services. A group of qualified professionals and the parent of the child determine whether the child is an eligible child with a disability according to IDEA. Children with ADHD also may be eligible for services under the "Specific Learning Disability," "Emotional Disturbance," or other relevant disability categories of IDEA if they have those disabilities in addition to ADHD.

After it has been determined that a child is eligible for special education and related services under IDEA, an IEP is developed that includes a statement of measurable annual goals, including benchmarks or short-term objectives that reflect the student's needs. The IEP goals are determined with input from the parents and cannot be changed without the parents' knowledge. Although children who are eligible under IDEA must have an IEP, students eligible under Section 504 are not required to have an IEP but must be provided regular or special education and related aids or services that are designed to meet their individual educational needs as adequately as the needs of nondisabled students are met.

Section 504 was established to ensure a free appropriate education for all children who have an impairment—physical or mental—that substantially limits one or more major life activities. If it can be demonstrated that a child's ADHD adversely affects his or her learning—a major life activity in the life of a child—the student may qualify for services under Section 504. To be considered eligible for Section 504, a student must be evaluated to ensure that the disability requires special education or related services or supplementary aids and services. Therefore, a child whose ADHD does not interfere with his or her learning process may not be eligible for special education and related services under IDEA or supplementary aids and services under Section 504.

IDEA and Section 504 require schools to provide special education or to make modifications or adaptations for students whose ADHD adversely affects their educational performance. Such adaptations may include curriculum adjustments, alternative classroom organization and management, specialized teaching tech-

niques and study skills, use of behavior management, and increased parent/ teacher collaboration. Eligible children with ADHD must be placed in regular education classrooms, to the maximum extent appropriate to their educational needs, with the use of supplementary aids and services if necessary. Of course, the needs of some children with ADHD cannot be met solely within the confines of a regular education classroom, and they may need special education or related aids or services provided in other settings.

Components of a Comprehensive Evaluation

- Behavioral
- Educational
- Medical

A diagnosis of ADHD is multifaceted and includes behavioral, medical, and educational data gathering. One component of the diagnosis includes an examination of the child's history through comprehensive interviews with parents, teachers, and health care professionals. Interviewing these individuals determines the child's specific behavior characteristics, when the behavior began, duration of symptoms, whether the child displays the behavior in various settings, and coexisting conditions. The American Academy of Pediatrics (AAP) stresses that since a variety of psychological and developmental disorders frequently coexist in children who are being evaluated for ADHD, a thorough examination for any such coexisting condition should be an integral part of any evaluation (AAP, 2000).

Behavioral Evaluation

Specific questionnaires and rating scales are used to review and quantify the behavioral characteristics of ADHD. The AAP has developed clinical practice guidelines for the diagnosis and evaluation of children with ADHD, and finds that such behavioral rating scales accurately distinguish between children with and without ADHD (AAP, 2000). Conversely, AAP recommends not using broadband rating scales or teacher global questionnaires in the diagnosis of children with ADHD. They suggest using ADHD-Specific rating scales including:

CPRS-R:L-ADHD Index
(Conners Parent Rating Scale—1997
Revised Version: Long Form, ADHD Index Scale)

CTRS-R:L-ADHD Index
(Conners Teacher Rating Scale—1997
Revised Version: Long Form, ADHD Index Scale)

CPRS-R:L-DSM-IV Symptoms
(Conners Parent Rating Scale—1997
Revised Version: Long Form, DSM-IV Symptoms Scale)

CTRS-R:L-DSM-IV Symptoms
(Conners Teacher Rating Scale—1997
Revised Version: Long Form, DSM-IV Symptoms Scale)

SSQ-O-I
(Barkley's School Situations Questionnaire—Original Version, Number of Problem Settings Scale)

SSQ-O-II
(Barkley's School Situations Questionnaire—Original Version, Mean Severity Scale)

(Taken from Green, Wong, Atkins, et al. (1999). *Diagnosis of Attention Deficit/Hyperactivity Disorder.* Technical Review 3. Rockville, MD: U.S. Department of Health and Human Services, Agency for Health Care Policy and Research, as cited in AAP, 2000).

As with all psychological tests, child-rating scales have a range of measurement error. Appropriate scales have satisfactory norms for the child's chronological age and ability levels.

Collecting information about the child's ADHD symptoms from several different sources helps ensure that the information is accurate. Appropriate sources of information include the child's parents, teachers, other diagnosticians such as psychologists, occupational therapists, speech therapists, social workers, and physicians. It is also important to review both the child's previous medical history as well as his or her school records.

Educational Evaluation

An educational evaluation assesses the extent to which a child's symptoms of ADHD impair his or her academic performance at school. The evaluation involves direct observations of the child in the classroom as well as a review of his or her academic productivity.

Behaviors targeted for classroom observation may include:

- Problems of inattention, such as becoming easily distracted, making careless mistakes, or failing to finish assignments on time;
- Problems of hyperactivity, such as fidgeting, getting out of an assigned seat, running around the classroom excessively or striking out at a peer;
- Problems of impulsivity, such as blurting out answers to the teacher's questions or interrupting the teacher or other students in the class; and
- More challenging behaviors, such as severe aggressive or disruptive behavior.

Classroom observations are used to record how often the child exhibits various ADHD symptoms in the classroom. The frequency with which the child with ADHD exhibits these and other target behaviors are compared to norms for other children of the same age and gender. It is also important to compare the behavior of the child with ADHD to the behaviors of other children in his or her classroom.

It is best to collect this information during two or three different observations across several days. Each observation typically lasts about 20 to 30 minutes.

In order to receive special education and related services under Part B of IDEA, a child must be evaluated to determine (1) whether he or she has a disability and (2) whether he or she, because of the disability, needs special education and related services. The initial evaluation must be a full and individual evaluation that assesses the child in all areas related to the suspected disability and uses a variety of assessment tools and strategies. As discussed in the section on Legal Requirements (above), a child who has ADHD may be eligible for special education and related services because he or she also meets the criteria for at least one of the disability categories, such as specific learning disability or emotional disturbance. It is important to note that the assessment instruments and procedures used by educational personnel to evaluate other disabilities—such as learning disabilities—may not be appropriate for the evaluation of ADHD. A variety of assessment tools and strategies must be used to gather relevant functional and developmental information about the child.

An educational evaluation also includes an assessment of the child's productivity in completing classwork and other academic assignments. It is important to collect information about both the percentage of work completed as well as the accuracy of the work. The productivity of the child with ADHD can be compared to the productivity of other children in the class.

Once the observations and testing are complete, a group of qualified professionals and the parents of the child will review the results and determine if the child has a disability and whether the child needs special education and related services. Using this information, the child's IEP team, which includes the child's parents, will develop an individualized educational program that directly addresses the child's learning and behavior. If the child is recommended for evaluation and determined by the child's IEP team not to meet the eligibility requirements under IDEA, the child may be appropriate for evaluation under Section 504.

Medical Evaluation

A medical evaluation assesses whether the child is manifesting symptoms of ADHD, based on the following three objectives:

- To assess problems of inattention, impulsivity, and hyperactivity that the child is currently experiencing;
- To assess the severity of these problems; and
- To gather information about other disabilities that may be contributing to the child's ADHD symptoms.

Part B of IDEA does not necessarily require a school district to conduct a medical evaluation for the purpose of determining whether a child has ADHD. If a public agency believes that a medical evaluation by a licensed physician is needed as part of the evaluation to determine whether a child suspected of having ADHD meets the eligibility criteria of the OHI category, or any other disability category under Part B, the school district must ensure that this evaluation is conducted at no cost to the parents (OSEP Letter to Michel Williams, March 14, 1994, 21 IDELR 73).

In May 2000, the American Academy of Pediatrics (AAP) published a clinical practice guideline that provides recommendations for the assessment and diagnosis of school-aged children with ADHD. The guideline, developed by a committee comprised of pediatricians and experts in the fields of neurology, psychology, child psychiatry, child development, and education, as well as experts in epidemiology and pediatrics, is intended for use by primary care clinicians who are involved in the identification and evaluation process. The recommendations are designed to provide a framework for diagnostic decisionmaking and include the following:

- Medical evaluation for ADHD should be initiated by the primary care clinician. Questioning parents regarding school and behavioral issues, either directly or through a pre-visit questionnaire, may help alert physicians to possible ADHD.
- In diagnosing ADHD, physicians should use DSM-IV criteria.
- The assessment of ADHD should include information obtained directly from parents or caregivers, as well as a classroom teacher or other school professional, regarding the core symptoms of ADHD in various settings, the age of onset, duration of symptoms, and degree of functional impairment.

Evaluation of a child with ADHD should also include assessment of co-existing conditions such as learning and language problems, aggression, disruptive behavior, depression, or anxiety.

What Are the Treatment Options?

Although at present no cure for ADHD exists, there are a number of treatment options that have proven to be effective for some children. Effective strategies include behavioral, pharmacological, and multimodal methods.

Behavioral Approaches

Behavioral approaches represent a broad set of specific interventions that have the common goal of modifying the physical and social environment to alter or change behavior (AAP, 2001). They are used in the treatment of ADHD to provide structure for the child and to reinforce appropriate behavior. Those who typically implement behavioral approaches include parents as well as a wide range of professionals, such as psychologists, school personnel, community mental health therapists, and primary care physicians. Types of behavioral approaches include behavioral training for parents and teachers (in which the parent and/or teacher is taught child management skills), a systematic program of contingency management (e.g. positive reinforcement, "time outs," response cost, and token economy), clinical behavioral therapy (training in problem-solving and social skills), and cognitive-behavioral treatment (e.g., self-monitoring, verbal self-instruction, development of problem-solving strategies, self-reinforcement) (AAP, 2001; Barkley, 1998b; Pelham, Wheeler, & Chronis, 1998). In general, these approaches are designed to use direct teaching and reinforcement strategies for positive behaviors and direct consequences for inappropriate behavior. Of these options, systematic programs of intensive contingency management conducted in specialized classrooms and summer camps with the setting controlled by highly trained individuals have been found to be highly effective (Abramowitz, et al., 1992; Carlson, et al., 1992; Pelham & Hoza, 1996). A later study conducted by Pelham, Wheeler, and Chronis (1998) indicates that two approaches—parent training in behavior therapy and classroom behavior interventions—also are successful in changing the behavior of children with ADHD. In addition, home-school interactions that support a consistent approach are important to the success of behavioral approaches.

The use of behavioral strategies holds promise but also presents some limitations. Behavioral strategies may be appealing to parents and professionals for the following reasons:

- Behavioral strategies are used most commonly when parents do not want to give their child medication;
- Behavioral strategies also can be used in conjunction with medicine (see multimodal methods);
- Behavioral techniques can be applied in a variety of settings including school, home, and the community; and
- Behavioral strategies may be the only options if the child has an adverse reaction to medication.

The research results on the effectiveness of behavioral techniques are mixed. While studies that compare the behavior of children during periods on and off behavior therapy demonstrate the effectiveness of behavior therapy (Pelham & Fabiano, 2001), it is difficult to isolate its effectiveness. The multiplicity of interventions and outcome measures makes careful analysis of the effects of behavior therapy alone, or in association with medications, very difficult (AAP, 2001). A review conducted by McInerney, Reeve, and Kane (1995) confirms that the effective education of children with ADHD requires modifications to academic instruction,

behavior management, and classroom environment. Although some research suggests that behavioral methods offer the opportunity for children to work on their strengths and learn self-management, other research indicates that behavioral interventions are effective but to a lower degree than treatment with psychostimulants (Jadad, Boyle, & Cunningham, 1999; Pelham, et al., 1998).

Behavior therapy has been found to be effective only when it is implemented and maintained (AAP, 2001). Indeed, behavioral strategies can be difficult to implement consistently across all of the settings necessary for it to be maximally effective. Although behavioral management programs have been shown to enhance the academic performance and behavior of children with ADHD, followup and maintenance of the treatment is often lacking (Rapport, Stoner, & Jones, 1986).

In fact, some research has shown that behavioral techniques may fail to reduce ADHD's core characteristics of hyperactivity, impulsivity, and inattention (AAP, 2001; U.S. Department of Health and Human Services [DHHS], 1999). Conversely, one must consider that the problems of children with ADHD are seldom limited to the core symptoms themselves (Barkley, 1990a). Children frequently demonstrate other types of psychosocial difficulties, such as aggression, oppositional defiant behavior, academic underachievement, and depression (Barkley, 1990a). Because many of these other difficulties cannot be managed through psychostimulants, behavioral interventions may be useful in addressing ADHD and other problems a child may be exhibiting.

Pharmacological Approaches

Pharmacological treatment remains one of the most common, yet most controversial, forms of ADHD treatment. It is important to note that the decision to prescribe any medicine is the responsibility of medical—not educational—professionals, after consultation with the family and agreement on the most appropriate treatment plan. Pharmacological treatment includes the use of psychostimulants, antidepressants, anti-anxiety medications, antipsychotics, and mood stabilizers (NIMH, 2000). Stimulants predominate in clinical use and have been found to be effective with 75 to 90 percent of children with ADHD (DHHS, 1999). Stimulants include Methylphenidate (Ritalin), Dextroamphetamine (Dexedrine), and Pemoline (Cylert). Other types of medication (antidepressants, anti-anxiety medications, antipsychotics, and mood stabilizers) are used primarily for those who do not respond to stimulants, or those who have coexisting disorders. The results of the Multimodal Treatment Study (MTA), which are discussed in further detail in the next section, confirm research findings on the use of pharmacological treatment for patients with ADHD. Specifically, the study found that the use of medication was almost as effective as the multimodal treatment of medication and behavioral interventions (Edwards, 2002).

Administering Medication at School

- Develop a plan to ensure that medication is administered in accordance with doctor's recommendation
- Include this plan in the child's IEP
- Maintain child and parent rights to medical confidentiality

Researchers believe that psychostimulants affect the portion of the brain that is responsible for producing neurotransmitters. Neurotransmitters are chemical agents at nerve endings that help electrical impulses travel among nerve cells. Neurotransmitters are responsible for helping people attend to important aspects of their environment. The appropriate medication stimulates these underfunctioning chemicals to produce extra neurotransmitters, thus increasing the child's capacity to pay attention, control impulses, and reduce hyperactivity.

Medication necessary to achieve this typically requires multiple doses throughout the day, as an individual dose of the medication lasts for a short time (1 to 4 hours). However, slow- or timed-release forms of the medication (for example, Concerta) may allow a child with ADHD to continue to benefit from medication over a longer period of time. Doctors, teachers, and parents should communicate openly about the child's behavior and disposition in order to get the dosage and schedule to a point where the child can perform optimally in both academic and social settings, while keeping side effects to a minimum. If it is determined that the child should receive medication during the school day, it is important to develop a plan to ensure that medication is administered in accordance with the plan. Such a plan would be an appropriate component of the child's IEP. In addition, schools must ensure that the child's and parent's rights to medical confidentiality are maintained.

Although the positive effects of the stimulant medication are immediate, all medications have side effects. Adjusting the dosage of the medicine can diminish some of these side effects. Some of the more common side effects include insomnia, nervousness, headaches, and weight loss. In fewer cases, subjects have reported slowed growth, tic disorders, and problems with thinking or with social interaction (Gadow, Sverd, Sprafkin, Nolan, & Ezor, 1995). Medication also can be expensive, depending upon the medicine prescribed, the frequency of administration, and the subsequent frequency of refills. Stimulant medicines do not "normalize" the entire range of behavior problems, and children under treatment may still manifest higher levels of behavioral problems than their peers (DHHS, 1999). Nonetheless, the American Academy of Pediatrics (AAP) finds that at least 80 percent of children will respond to one of the stimulants if they are administered in a systematic way. Under medical care, children who fail to show positive effects or who experience intolerable side effects on one type of medication may find another medication helpful. The AAP reports that children who do not respond to one medication may have a positive response to an alternative medication, and concludes that stimulants may be a safe and effective way to treat ADHD in children (AAP, 2001).

In January 2003, a new type of nonstimulant medication for the treatment of children and adults with ADHD was approved by the FDA. Atomoxetine, also known as Straterra, may be prescribed by physicians in some cases.

Multimodal Approaches

Research indicates that for many children the best way to mitigate symptoms of ADHD is the use of a combined approach. A recent study by the NIMH—the Multimodal Treatment Study of Children with ADHD (MTA)—is the longest and most thorough study of the effects of ADHD interventions (MTA Cooperative Group, 1999a, 1999b). The study followed 579 children between the ages of 7 and 10 at six sites nationwide and in Canada. The researchers compared the effects of four interventions: medication provided by the researchers, behavioral intervention, a combination of medication and behavioral intervention, and no-intervention community care (i.e., typical medical care provided in the community).

Multimodal intervention improves:

- Academic performance
- Parent-child interaction
- School-related behavior

And reduces ...

- Child anxiety
- Oppositional behavior

Of the four interventions investigated, the researchers found that the combined medication/behavior treatment and the medication treatment work significantly better than behavioral therapy alone or community care alone at reducing the symptoms of ADHD. Multimodal treatments were especially effective in improving social skills for students coming from high-stress environments and children with ADHD in combination with symptoms of anxiety or depression. The study revealed that a lower medication dosage is effective in multimodal treatments, whereas higher doses were needed to achieve similar results in the medication-only treatment.

Researchers found improvement in the following areas after using a multimodal intervention: child anxiety, academic performance, oppositional behavior, and parent-child interaction. Positive results also were found in school-related behavior when multimodal treatment is coupled with improved parenting skills, including more effective disciplinary responses, and appropriate reinforcements (Hinshaw, et al., 2000). These findings were replicated across all six research sites, despite substantial differences among sites in their samples' sociodemographic characteristics. The study's overall results appear to apply to a wide range of children and families identified as in need of treatment services for ADHD (NIMH, 2000). Other studies demonstrate that multimodal treatments hold value for those children for whom treatment with medication alone is not sufficient (Klein, Abikoff, Klass, Ganeles, Seese, & Pollack, 1997).

In October 2001, the AAP released evidence-based recommendations for the treatment of children diagnosed with ADHD. Their guidelines state that:

- Primary care clinicians should establish a treatment program that recognizes ADHD as a chronic condition;
- The treating clinician, parents, and the child, in collaboration with school personnel, should specify appropriate target outcomes to guide management;
- The clinician should recommend stimulant mediation and/or behavioral therapy as appropriate to improve target outcomes in children with ADHD;
- When the selected management for a child with ADHD has not met target outcomes, clinicians should evaluate the original diagnosis, use of all appropriate treatments, adherence to the treatment plan, and the presence of coexisting conditions; and
- The clinician should periodically provide a systematic followup for the child with ADHD. Monitoring should be directed to target outcomes and adverse effects, with information gathered from parents, teachers, and the child.

The AAP report stressed that the treatment of ADHD (whether behavioral, pharmacological, or multimodal) requires the development of child-specific treatment plans that describe not only the methods and goals of treatment, but also include means of monitoring over time and specific plans for followup. The process of developing target outcomes requires careful input from parents, children, and teachers as well as other school personnel where available and appropriate. The AAP concluded that parents, children, and educators should agree on at least three to six key targets and desired changes as requisites for constructing the treatment plan. The goals should be realistic, attainable, and measurable. The AAP report found that, for most children, stimulant medication is highly effective in the management of the core symptoms of ADHD. For many children, behavioral interventions are valuable as primary treatment or as an adjunct in the management of ADHD, based on the nature of coexisting conditions, specific target outcomes, and family circumstances (AAP, 2001).

How Does ADHD Affect School Performance?

The school experience can be challenging for students with ADHD. Students usually are identified only after consistently demonstrating a failure to understand or follow rules or to complete required tasks. Other common reasons for referral include frequent classroom disruptions and poor academic performance.

Studies found that students with ADHD, compared to students without ADHD, had persistent academic difficulties that resulted in the following: lower average marks, more failed grades, more expulsions, increased dropout rates, and a lower rate of college undergraduate completion (Weiss & Hechtman as cited in Johnston, 2002; Ingersoll, 1988). The disruptive behavior sometimes associated with the disorder may make students with ADHD more susceptible to suspensions and expulsions. A study by Barkley and colleagues (1990b) found that 46 percent of their student study group with ADHD had been suspended and 11 percent had been expelled.

ADHD's core symptoms—inattention, hyperactivity, and impulsivity—make meeting the daily rigors of school challenging (Zentall, 1993). Difficulty sustaining attention to a task may contribute to missing important details in assignments, daydreaming during lectures and other activities, and difficulty organizing assignments. Hyperactivity may be expressed in either verbal or physical disruptions in class. Impulsivity may lead to careless errors, responding to questions without fully formulating the best answers, and only attending to activities that are entertaining or novel. Overall, students with ADHD may experience more problems with school performance than their nondisabled peers.

Helpful Hints

This section highlights a few evidence-based hints for addressing the specific learning needs of children with ADHD. More detailed information about the effective strategies can be found in a companion guide, Teaching Children with Attention Deficit Hyperactivity Disorder: Instructional Strategies and Practices. Information regarding the complete set of materials is available on page 21.

Numerous studies have found that positive results occur when the major stakeholders in a student's education collaborate to address a child's ADHD (Blazer, 1999; Bos, 1999; Bos, Nahmias, & Urban, 1999; Nahmias, 1995; Williams & Carteledge, 1997). Effective collaboration and communication between home and school provide structure across the two major settings in the child's life. Common rewards, reinforcement strategies, and language help to promote consistency across settings.

Bos et al. (1999) reported that collaborative partnerships between home and school were especially important during the initial assessment of the child's disability and educational needs, the development of behavior modification plans, the evaluations of medication, and the coordination of assignments. Parents and teachers can share information with one another if they work together to plan behavioral and academic strategies for the student. Parents can offer information about the child—including the child's medical history, hobbies and interests, effective reinforcers, and behavior in other settings—that may inform the decisions made by the teacher and other members of the IEP team. The teacher can keep parents informed about their child's progress, performance, and behavior in school. If the child is taking medication, the teacher can offer feedback to parents regarding how the medication affects the student's performance and the duration of the medicine's effectiveness. This information also can be used to help medical professionals make more informed decisions about the child with ADHD.

If a child exhibits patterns of disruptive or aggressive behavior, best practice research indicates that the child may benefit from a positive behavioral intervention plan that clearly delineates expectations and includes

positive supports. The process to develop an effective plan should be collaborative and involve the parents and those other individuals who are most familiar with the child.

Students also can take some of the responsibility for their educational and behavioral adaptations. Blazer (1999) reported that students as young as 5 years old can communicate ways to make their school experience more pleasurable and learning easier. Student input also helps to promote a sense of ownership and responsibility for the new strategies and adaptations.

The following are some suggestions for practices that may be helpful for parents and teachers working with a child with ADHD.

Tips for Home

Caring for children with ADHD may be challenging, but it is important to remember that these children can learn successfully. It is critical that parents remember that some of their child's disruptive behavior is a manifestation of the disability and that the challenge is finding ways to help their child change the inappropriate behavior. Key to this is remembering to focus on the need for structure and routine for your child's daily schedule and thereby reinforcing the importance of learning self-control and self-regulation. The following are suggestions for parents:

- Focus on discrete rewards and consequences for appropriate and inappropriate behavior:
  - Tangible rewards and treats;
  - Movie night for a good week at school;
  - Removal of privileges; and
  - Time-out from reinforcing activities: the child is essentially removed from situations that foster inappropriate behavior.
- Set a daily routine and stick to it. Bedtime and preparation for school are much easier if there is a structure already in place.
- Have tangible reminders:
  - A big clock in the bedroom;
  - Charts for chores;
  - Assignment pad to record homework and a specific folder to put work in upon completion; and
  - Gain the child's attention before speaking to him or her. Have the child repeat back directions for things that are really important.
- Avoid the following:
  - Repeating patterns of inappropriate behavior followed by ineffective punishment;
  - Administering consequences without prior warning or without the child understanding why he or she is receiving them; and
  - Responding inconsistently to inappropriate behaviors.

Tips for School

A student with ADHD can present unique challenges in the classroom. Inattention, hyperactivity, or impulsivity can be the source of frustration, but there are ways teachers can help students with ADHD to improve the educational experience and control the symptoms of the disorder. It is important for teachers to be aware of coexisting conditions such as learning disabilities, as well as reinforcing the importance of classroom and instructional structure.

The following are tips for teachers:

- Work on the most difficult concepts early in the day;
- Give directions to one assignment at a time instead of directions to multiple tasks all at once;
- Vary the pace and type of activity to maximize the student's attention; and
- Structure the student's environment to accommodate his or her special needs. For example, the student can be seated away from potentially distracting areas (such as doors, windows, and computers) or seated near another student who is working on a shared assignment.

This guide is the first in a series of three publications that address issues related to the instruction of children with ADHD. The two additional guides are A Resource Directory for ADHD and Teaching Children with Attention Deficit Hyperactivity Disorder: Instructional Strategies and Practices. Teachers and others are encouraged to consult these publications and to use them in conjunction with Identifying and Treating Attention Deficit Hyperactivity Disorder: A Resource for School and Home. As the documents become available, they will be listed on the Office of Special Education and Rehabilitative Services/Office of Special Education Programs Web site (www.ed.gov/about/offices/list/osers/osep/products.html).

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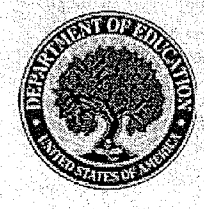

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Attention Deficit Hyperactivity Disorder (ADHD)

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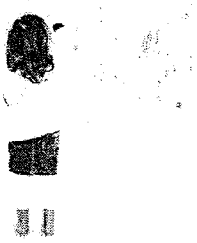
Contents

What is attention deficit hyperactivity disorder?



Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood disorders and can continue through adolescence and adulthood. Symptoms include difficulty staying focused and paying attention, difficulty controlling behavior, and hyperactivity (over-activity).

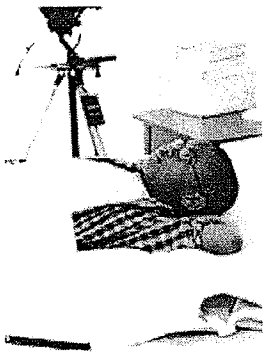
ADHD has three subtypes:[1]

- **Predominantly hyperactive-impulsive**
  - Most symptoms (six or more) are in the hyperactivity-impulsivity categories.
  - Fewer than six symptoms of inattention are present, although inattention may still be present to some degree.
- **Predominantly inattentive**
  - The majority of symptoms (six or more) are in the inattention category and fewer than six symptoms of hyperactivity-impulsivity are present, although hyperactivity-impulsivity may still be present to some degree.
  - Children with this subtype are less likely to act out or have difficulties getting along with other children. They may sit quietly, but they are not paying attention to what they are doing. Therefore, the child may be overlooked, and parents and teachers may not notice that he or she has ADHD.
- **Combined hyperactive-impulsive and inattentive**
  - Six or more symptoms of inattention and six or more symptoms of hyperactivity-impulsivity are present.
  - Most children have the combined type of ADHD.

Treatments can relieve many of the disorder's symptoms, but there is no cure. With treatment, most people with ADHD can be successful in school and lead productive lives. Researchers are developing more effective treatments and interventions, and using new tools such as brain imaging, to better understand ADHD and to find more effective ways to treat and prevent it.

What are the symptoms of ADHD in children?

Inattention, hyperactivity, and impulsivity are the key behaviors of ADHD. It is normal for all children to be inattentive, hyperactive, or impulsive sometimes, but for children with ADHD, these behaviors are more severe and occur more often. To be diagnosed with the disorder, a child must have symptoms for 6 or more months and to a degree that is greater than other children of the same age.



Children who have symptoms of **inattention** may:

- Be easily distracted, miss details, forget things, and frequently switch from one activity to another
- Have difficulty focusing on one thing
- Become bored with a task after only a few minutes, unless they are doing something enjoyable
- Have difficulty focusing attention on organizing and completing a task or learning something new
- Have trouble completing or turning in homework assignments, often losing things (e.g., pencils, toys, assignments) needed to complete tasks or activities
- Not seem to listen when spoken to
- Daydream, become easily confused, and move slowly
- Have difficulty processing information as quickly and accurately as others
- Struggle to follow instructions.

Children who have symptoms of **hyperactivity** may:

- Fidget and squirm in their seats
- Talk nonstop
- Dash around, touching or playing with anything and everything in sight
- Have trouble sitting still during dinner, school, and story time
- Be constantly in motion
- Have difficulty doing quiet tasks or activities.

Children who have symptoms of **impulsivity** may:

- Be very impatient
- Blurt out inappropriate comments, show their emotions without restraint, and act without regard for consequences
- Have difficulty waiting for things they want or waiting their turns in games
- Often interrupt conversations or others' activities.

ADHD Can Be Mistaken for Other Problems

Parents and teachers can miss the fact that children with symptoms of inattention have the disorder because they are often quiet and less likely to act out. They may sit quietly, seeming to work, but they are often not paying attention to what they are doing. They may get along well with other children, compared with those with the other subtypes, who tend to have social problems.

But children with the inattentive kind of ADHD are not the only ones whose disorders can be missed. For example, adults may think that children with the hyperactive and impulsive subtypes just have emotional or disciplinary problems.

What causes ADHD?

Scientists are not sure what causes ADHD, although many studies suggest that genes play a large role. Like many other illnesses, ADHD probably results from a combination of factors. In addition to genetics, researchers are looking at possible environmental factors, and are studying how brain injuries, nutrition, and the social environment might contribute to ADHD.

Genes. Inherited from our parents, genes are the "blueprints" for who we are. Results from several international studies of twins show that ADHD often runs in families. Researchers are looking at several genes that may make people more likely to develop the disorder.[2,3] Knowing the genes involved may one day help researchers prevent the disorder before symptoms develop. Learning about specific genes could also lead to better treatments.

Children with ADHD who carry a particular version of a certain gene have thinner brain tissue in the areas of the brain associated with attention. This NIMH research showed that the difference was not permanent, however, and as children with this gene grew up, the brain developed to a normal level of thickness. Their ADHD symptoms also improved.[4]

Environmental factors. Studies suggest a potential link between cigarette smoking and alcohol use during pregnancy and ADHD in children.[5,6] In addition, preschoolers who are exposed to high levels of lead, which can sometimes be found in plumbing fixtures or paint in old buildings, may have a higher risk of developing ADHD.[7]

Brain injuries. Children who have suffered a brain injury may show some behaviors similar to those of ADHD. However, only a small percentage of children with ADHD have suffered a traumatic brain injury.

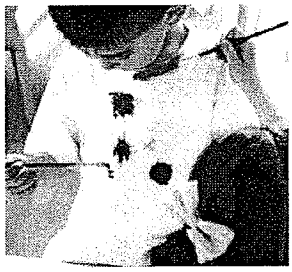
Sugar. The idea that refined sugar causes ADHD or makes symptoms worse is popular, but more research discounts this theory than supports it. In one study, researchers gave children foods containing either sugar or a sugar substitute every other day. The children who received sugar showed no different behavior or learning capabilities than those who received the sugar substitute.[8] Another study in which children were given higher than average amounts of sugar or sugar substitutes showed similar results.[9]

In another study, children who were considered sugar-sensitive by their mothers were given the sugar substitute aspartame, also known as Nutrasweet. Although *all* the children got aspartame, half their mothers were told their children were given sugar, and the other half were told their children were given aspartame. The mothers who *thought* their children had gotten sugar rated them as more hyperactive than the other children and were more critical of their behavior, compared to mothers who thought their children received aspartame.[10]

Food additives. Recent British research indicates a possible link between consumption of certain food additives like artificial colors or preservatives, and an increase in activity.[11] Research is under way to confirm the findings and to learn more about how food additives may affect hyperactivity.

How is ADHD diagnosed?

Children mature at different rates and have different personalities, temperaments, and energy levels. Most children get distracted, act impulsively, and struggle to concentrate at one time or another. Sometimes, these normal factors may be mistaken for ADHD. ADHD symptoms usually appear early in life, often between the ages of 3 and 6, and because symptoms vary from person to person, the disorder can be hard to diagnose. Parents may first notice that their child loses interest in things sooner than other children, or seems constantly "out of control." Often, teachers notice the symptoms first, when a child has trouble following rules, or frequently "spaces out" in the classroom or on the playground.



No single test can diagnose a child as having ADHD. Instead, a licensed health professional needs to gather information about the child, and his or her behavior and environment. A family may want to first talk with the child's pediatrician. Some pediatricians can assess the child themselves, but many will refer the family to a mental health specialist with experience in childhood mental disorders such as ADHD. The pediatrician or mental health specialist will first try to rule out other possibilities for the symptoms. For example, certain situations, events, or health conditions may cause temporary behaviors in a child that seem like ADHD. Between them, the referring pediatrician and specialist will determine if a child:

- Is experiencing undetected seizures that could be associated with other medical conditions
- Has a middle ear infection that is causing hearing problems
- Has any undetected hearing or vision problems
- Has any medical problems that affect thinking and behavior
- Has any learning disabilities
- Has anxiety or depression, or other psychiatric problems that might cause ADHD-like symptoms
- Has been affected by a significant and sudden change, such as the death of a family member, a divorce, or parent's job loss.

A specialist will also check school and medical records for clues, to see if the child's home or school settings appear unusually stressful or disrupted, and gather information from the child's parents and teachers. Coaches, babysitters, and other adults who know the child well also may be consulted. The specialist also will ask:

- Are the behaviors excessive and long-term, and do they affect all aspects of the child's life?
- Do they happen more often in this child compared with the child's peers?
- Are the behaviors a continuous problem or a response to a temporary situation?
- Do the behaviors occur in several settings or only in one place, such as the playground, classroom, or home?

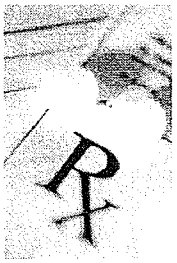
The specialist pays close attention to the child's behavior during different situations. Some situations are highly structured, some have less structure. Others would require the child to keep paying attention. Most children with ADHD are better able to control their behaviors in situations where they are getting individual attention and when they are free to focus on enjoyable activities. These types of situations are less important in the assessment. A child also may be evaluated to see how he or she acts in social situations, and may be given tests of intellectual ability and academic achievement to see if he or she has a learning disability.

Finally, if after gathering all this information the child meets the criteria for ADHD, he or she will be diagnosed with the disorder.

How is ADHD treated?

Currently available treatments focus on reducing the symptoms of ADHD and improving functioning. Treatments include medication, various types of psychotherapy, education or training, or a combination of treatments.

Medications



The most common type of medication used for treating ADHD is called a "stimulant." Although it may seem unusual to treat ADHD with a medication considered a stimulant, it actually has a calming effect on children with ADHD. Many types of stimulant medications are available. A few other ADHD medications are non-stimulants and work differently than stimulants. For many children, ADHD medications reduce hyperactivity and impulsivity and improve their ability to focus, work, and learn. Medication also may improve physical coordination.

However, a one-size-fits-all approach does not apply for all children with ADHD. What works for one child might not work for another. One child might have side effects with a certain medication, while another child may not. Sometimes several different medications or dosages must be tried before finding one that works for a particular child. Any child taking medications must be monitored closely and carefully by caregivers and doctors.

Stimulant medications come in different forms, such as a pill, capsule, liquid, or skin patch. Some medications also come in short-acting, long-acting, or extended release varieties. In each of these varieties, the active ingredient is the same, but it is released differently in the body. Long-acting or extended release forms often allow a child to take the medication just once a day before school, so they don't have to make a daily trip to the school nurse for another dose. Parents and doctors should decide together which medication is best for the child and whether the child needs medication only for school hours or for evenings and weekends, too.

A list of medications and the approved age for use follows. ADHD can be diagnosed and medications prescribed by M.D.s (usually a psychiatrist) and in some states also by clinical psychologists, psychiatric nurse practitioners, and advanced psychiatric nurse specialists. Check with your state's licensing agency for specifics.

ADHD Medications Approved by U.S. Food and Drug Administration (FDA)*

Trade Name	Generic Name	Approved Age
Adderall	amphetamine	3 and older
Adderall XR	amphetamine (extended release)	6 and older
Concerta	methylphenidate (long acting)	6 and older
Daytrana	methylphenidate patch	6 and older
Desoxyn	methamphetamine hydrochloride	6 and older
Dexedrine	dextroamphetamine	3 and older
Dextrostat	dextroamphetamine	3 and older
Focalin	dexmethylphenidate	6 and older
Focalin XR	dexmethylphenidate (extended release)	6 and older
Metadate ER	methylphenidate (extended release)	6 and older
Metadate CD	methylphenidate (extended release)	6 and older
Methylin	methylphenidate (oral solution and chewable tablets)	6 and older
Ritalin	methylphenidate	6 and older
Ritalin SR	methylphenidate (extended release)	6 and older
Ritalin LA	methylphenidate (long acting)	6 and older
Strattera	atomoxetine	6 and older
Vyvanse	lisdexamfetamine dimesylate	6 and older

*Not all ADHD medications are approved for use in adults.

NOTE: "extended release" means the medication is released gradually so that a controlled amount enters the body over a period of time. "Long acting" means the medication stays in the body for a long time.

Over time, this list will grow, as researchers continue to develop new medications for ADHD. Medication guides for each of these medications are available from the U.S. Food and Drug Administration (FDA) at http://www.fda.gov/cder/drug/infopage/ADHD/default.htm.

What are the side effects of stimulant medications?

The most commonly reported side effects are decreased appetite, sleep problems, anxiety, and irritability. Some children also report mild stomachaches or headaches. Most side effects are minor and disappear over time or if the dosage level is lowered.

- **Decreased appetite.** Be sure your child eats healthy meals. If this side effect does not go away, talk to your child's doctor. Also talk to the doctor if you have

concerns about your child's growth or weight gain while he or she is taking this medication.

- **Sleep problems.** If a child cannot fall asleep, the doctor may prescribe a lower dose of the medication or a shorter-acting form. The doctor might also suggest giving the medication earlier in the day, or stopping the afternoon or evening dose. Adding a prescription for a low dose of an antidepressant or a blood pressure medication called clonidine sometimes helps with sleep problems. A consistent sleep routine that includes relaxing elements like warm milk, soft music, or quiet activities in dim light, may also help.
- **Less common side effects.** A few children develop sudden, repetitive movements or sounds called tics. These tics may or may not be noticeable. Changing the medication dosage may make tics go away. Some children also may have a personality change, such as appearing "flat" or without emotion. **Talk with your child's doctor if you see any of these side effects.**

Are stimulant medications safe?

Under medical supervision, stimulant medications are considered safe. Stimulants do not make children with ADHD feel high, although some kids report feeling slightly different or "funny." Although some parents worry that stimulant medications may lead to substance abuse or dependence, there is little evidence of this.

FDA warning on possible rare side effects

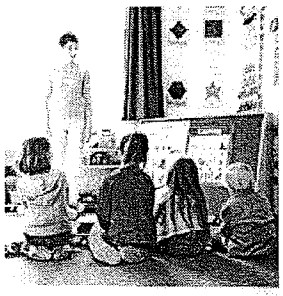
In 2007, the FDA required that all makers of ADHD medications develop Patient Medication Guides that contain information about the risks associated with the medications. The guides must alert patients that the medications may lead to possible cardiovascular (heart and blood) or psychiatric problems. The agency undertook this precaution when a review of data found that ADHD patients with existing heart conditions had a slightly higher risk of strokes, heart attacks, and/or sudden death when taking the medications.

The review also found a slight increased risk, about 1 in 1,000, for medication-related psychiatric problems, such as hearing voices, having hallucinations, becoming suspicious for no reason, or becoming manic (an overly high mood), even in patients without a history of psychiatric problems. The FDA recommends that any treatment plan for ADHD include an initial health history, including family history, and examination for existing cardiovascular and psychiatric problems.

One ADHD medication, the non-stimulant atomoxetine (Strattera), carries another warning. Studies show that children and teenagers who take atomoxetine are more

likely to have suicidal thoughts than children and teenagers with ADHD who do not take it. **If your child is taking atomoxetine, watch his or her behavior carefully. A child may develop serious symptoms suddenly, so it is important to pay attention to your child's behavior every day.** Ask other people who spend a lot of time with your child to tell you if they notice changes in your child's behavior. Call a doctor right away if your child shows any unusual behavior. While taking atomoxetine, your child should see a doctor often, especially at the beginning of treatment, and be sure that your child keeps all appointments with his or her doctor.

Do medications cure ADHD?

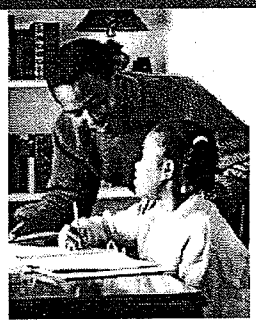


Current medications do not cure ADHD. Rather, they control the symptoms for as long as they are taken. Medications can help a child pay attention and complete schoolwork. It is not clear, however, whether medications can help children learn or improve their academic skills. Adding behavioral therapy, counseling, and practical support can help children with ADHD and their families to better cope with everyday problems. Research funded by the National Institute of Mental Health (NIMH) has shown that medication works best when treatment is regularly monitored by the prescribing doctor and the dose is adjusted based on the child's needs.[12]

Psychotherapy

Different types of psychotherapy are used for ADHD. Behavioral therapy aims to help a child change his or her behavior. It might involve practical assistance, such as help organizing tasks or completing schoolwork, or working through emotionally difficult events. Behavioral therapy also teaches a child how to monitor his or her own behavior. Learning to give oneself praise or rewards for acting in a desired way, such as controlling anger or thinking before acting, is another goal of behavioral therapy. Parents and teachers also can give positive or negative feedback for certain behaviors. In addition, clear rules, chore lists, and other structured routines can help a child control his or her behavior.

Therapists may teach children social skills, such as how to wait their turn, share toys, ask for help, or respond to teasing. Learning to read facial expressions and the tone of voice in others, and how to respond appropriately can also be part of social skills training.



How can parents help?

Children with ADHD need guidance and understanding from their parents and teachers to reach their full potential and to succeed in school. Before a child is diagnosed, frustration, blame, and anger may have built up within a family. Parents and children may need special help to overcome bad feelings. Mental health professionals can educate parents about ADHD and how it impacts a family. They also will help the child and his or her parents develop new skills, attitudes, and ways of relating to each other.

Parenting skills training helps parents learn how to use a system of rewards and consequences to change a child's behavior. Parents are taught to give immediate and positive feedback for behaviors they want to encourage, and ignore or redirect behaviors they want to discourage. In some cases, the use of "time-outs" may be used when the child's behavior gets out of control. In a time-out, the child is removed from the upsetting situation and sits alone for a short time to calm down.

Parents are also encouraged to share a pleasant or relaxing activity with the child, to notice and point out what the child does well, and to praise the child's strengths and abilities. They may also learn to structure situations in more positive ways. For example, they may restrict the number of playmates to one or two, so that their child does not become overstimulated. Or, if the child has trouble completing tasks, parents can help their child divide large tasks into smaller, more manageable steps. Also, parents may benefit

Tips to Help Kids Stay Organized and Follow Directions

Schedule. Keep the same routine every day, from wake-up time to bedtime. Include time for homework, outdoor play, and indoor activities. Keep the schedule on the refrigerator or on a bulletin board in the kitchen. Write changes on the schedule as far in advance as possible.

Organize everyday items. Have a place for everything, and keep everything in its place. This includes clothing, backpacks, and toys.

Use homework and notebook organizers. Use organizers for school material and supplies. Stress to your child the importance of writing down assignments and bringing home the necessary books.

Be clear and consistent. Children with ADHD need consistent rules they can understand and follow.

Give praise or rewards when rules are followed. Children with ADHD often receive and expect criticism. Look for good behavior, and praise it.

from learning stress-management techniques to increase their own ability to deal with frustration, so that they can respond calmly to their child's behavior.

Sometimes, the whole family may need therapy. Therapists can help family members find better ways to handle disruptive behaviors and to encourage behavior changes. Finally, support groups help parents and families connect with others who have similar problems and concerns. Groups often meet regularly to share frustrations and successes, to exchange information about recommended specialists and strategies, and to talk with experts.

What conditions can coexist with ADHD?

Some children with ADHD also have other illnesses or conditions. For example, they may have one or more of the following:

- **A learning disability.** A child in preschool with a learning disability may have difficulty understanding certain sounds or words or have problems expressing himself or herself in words. A school-aged child may struggle with reading, spelling, writing, and math.
- **Oppositional defiant disorder.** Kids with this condition, in which a child is overly stubborn or rebellious, often argue with adults and refuse to obey rules.
- **Conduct disorder.** This condition includes behaviors in which the child may lie, steal, fight, or bully others. He or she may destroy property, break into homes, or carry or use weapons. These children or teens are also at a higher risk of using illegal substances. Kids with conduct disorder are at risk of getting into trouble at school or with the police.
- **Anxiety and depression.** Treating ADHD may help to decrease anxiety or some forms of depression.
- **Bipolar disorder.** Some children with ADHD may also have this condition in which extreme mood swings go from mania (an extremely high elevated mood) to depression in short periods of time.
- **Tourette syndrome.** Very few children have this brain disorder, but among those who do, many also have ADHD. Some people with Tourette syndrome have nervous tics and repetitive mannerisms, such as eye blinks, facial twitches, or grimacing. Others clear their throats, snort, or sniff frequently, or bark out words inappropriately. These behaviors can be controlled with medication.

ADHD also may coexist with a sleep disorder, bed-wetting, substance abuse, or other disorders or illnesses.

For more information on these disorders, visit http://www.nimh.nih.gov/health/topics/index.shtml.

Recognizing ADHD symptoms and seeking help early will lead to better outcomes for both affected children and their families.

How can I work with my child's school?

If you think your child has ADHD, or a teacher raises concerns, you may be able to request that the school conduct an evaluation to determine whether he or she qualifies for special education services.

Start by speaking with your child's teacher, school counselor, or the school's student support team, to begin an evaluation. Also, each state has a Parent Training and Information Center and a Protection and Advocacy Agency that can help you get an evaluation. A team of professionals conducts the evaluation using a variety of tools and measures. It will look at all areas related to the child's disability.

Once your child has been evaluated, he or she has several options, depending on the specific needs. If special education services are needed and your child is eligible under the Individuals with Disabilities Education Act, the school district must develop an "individualized education program" specifically for your child within 30 days.

If your child is considered not eligible for special education services—and not all children with ADHD are eligible—he or she still can get "free appropriate public education," available to all public-school children with disabilities under Section 504 of the Rehabilitation Act of 1973, regardless of the nature or severity of the disability.

The U.S. Department of Education's Office for Civil Rights enforces Section 504 in programs and activities that receive Federal education funds. For more information on Section 504, please see http://www.ed.gov/about/offices/list/ocr/504faq.html.

More information about Department of Education programs for children with disabilities is available at http://www.ed.gov/parents/needs/speced/edpicks.jhtml?src=ln.

Transitions can be difficult. Each school year brings a new teacher and new schoolwork, a change that can be especially hard for a child with ADHD who needs routine and structure. Consider telling the teachers that your child has ADHD when he or she starts school or moves to a new class. Additional support will help your child deal with the transition.

Do teens with ADHD have special needs?

Most children with ADHD continue to have symptoms as they enter adolescence. Some children, however, are not diagnosed with ADHD until they reach adolescence. This is more common among children with predominantly inattentive symptoms because they are not necessarily disruptive at home or in school. In these children, the disorder becomes more apparent as academic demands increase and responsibilities mount. For all teens, these years are challenging. But for teens with ADHD, these years may be especially difficult.

Although hyperactivity tends to decrease as a child ages, teens who continue to be hyperactive may feel restless and try to do too many things at once. They may choose tasks or activities that have a quick payoff, rather than those that take more effort, but provide bigger, delayed rewards. Teens with primarily attention deficits struggle with school and other activities in which they are expected to be more self-reliant.

Teens also become more responsible for their own health decisions. When a child with ADHD is young, parents are more likely to be responsible for ensuring that their child maintains treatment. But when the child reaches adolescence, parents have less control, and those with ADHD may have difficulty sticking with treatment.

To help them stay healthy and provide needed structure, teens with ADHD should be given rules that are clear and easy to understand. Helping them stay focused and organized—such as posting a chart listing household chores and responsibilities with spaces to check off completed items—also may help.

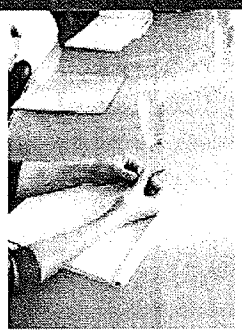
Teens with or without ADHD want to be independent and try new things, and sometimes they will break rules. If your teen breaks rules, your response should be as calm and matter-of-fact as possible. Punishment should be used only rarely. Teens with ADHD often have trouble controlling their impulsivity and tempers can flare. Sometimes, a short time-out can be calming.

If your teen asks for later curfews and use of the car, listen to the request, give reasons for your opinions, and listen to your child's opinion. Rules should be clear once they are set, but communication, negotiation, and compromise are helpful along the way. Maintaining treatments, such as medication and behavioral or family therapy, also can help with managing your teenager's ADHD.

What about teens and driving?

Although many teens engage in risky behaviors, those with ADHD, especially untreated ADHD, are more likely to take more risks. In fact, in their first few years of driving, teens with ADHD are involved in nearly four times as many car accidents as those who do not have ADHD. They are also more likely to cause injury in accidents, and they get three times as many speeding tickets as their peers.[13]

Most states now use a graduated licensing system, in which young drivers, both with and without ADHD, learn about progressively more challenging driving situations.[14] The licensing system consists of three stages—learner's permit, during which a licensed adult must always be in the car with the driving teen; intermediate (provisional) license; and full licensure. Parents should make sure that their teens, especially those with ADHD, understand and follow the rules of the road. Repeated driving practice under adult supervision is especially important for teens with ADHD.



Can adults have ADHD?

Some children with ADHD continue to have it as adults. And many adults who have the disorder don't know it. They may feel that it is impossible to get organized, stick to a job, or remember and keep appointments. Daily tasks such as getting up in the morning, preparing to leave the house for work, arriving at work on time, and being productive on the job can be especially challenging for adults with ADHD.

These adults may have a history of failure at school, problems at work, or difficult or failed relationships. Many have had multiple traffic accidents. Like teens, adults with ADHD may seem restless and may try to do several things at once, most of them unsuccessfully. They also tend to prefer "quick fixes," rather than taking the steps needed to achieve greater rewards.

How is ADHD diagnosed in adults?

Like children, adults who suspect they have ADHD should be evaluated by a licensed mental health professional. But the professional may need to consider a wider range of symptoms when assessing adults for ADHD because their symptoms tend to be more varied and possibly not as clear cut as symptoms seen in children.

To be diagnosed with the condition, an adult must have ADHD symptoms that began in childhood and continued throughout adulthood.[15] Health professionals use certain rating scales to determine if an adult meets the diagnostic criteria for ADHD. The mental health professional also will look at the person's history of childhood behavior and school experiences, and will interview spouses or partners, parents, close friends, and other associates. The person will also undergo a physical exam and various psychological tests.

For some adults, a diagnosis of ADHD can bring a sense of relief. Adults who have had the disorder since childhood, but who have not been diagnosed, may have developed negative feelings about themselves over the years. Receiving a diagnosis allows them to understand the reasons for their problems, and treatment will allow them to deal with their problems more effectively.

How is ADHD treated in adults?

Much like children with the disorder, adults with ADHD are treated with medication, psychotherapy, or a combination of treatments.

Medications. ADHD medications, including extended-release forms, often are prescribed for adults with ADHD, but not all of these medications are approved for adults.[16] However, those not approved for adults still may be prescribed by a doctor on an "off-label" basis.

Although not FDA-approved specifically for the treatment of ADHD, antidepressants are sometimes used to treat adults with ADHD. Older antidepressants, called tricyclics, sometimes are used because they, like stimulants, affect the brain chemicals norepinephrine and dopamine. A newer antidepressant, venlafaxine (Effexor), also may be prescribed for its effect on the brain chemical norepinephrine. And in recent clinical trials, the antidepressant bupropion (Wellbutrin), which affects the brain chemical dopamine, showed benefits for adults with ADHD.[17]

Adult prescriptions for stimulants and other medications require special considerations. For example, adults often require other medications for physical problems, such as diabetes or high blood pressure, or for anxiety and depression. Some of these medications may interact badly with stimulants. An adult with ADHD should discuss potential medication options with his or her doctor. These and other issues must be taken into account when a medication is prescribed.

Education and psychotherapy. A professional counselor or therapist can help an adult with ADHD learn how to organize his or her life with tools such as a large calendar or date book, lists, reminder notes, and by assigning a special place for keys, bills, and paperwork. Large tasks can be broken down into more manageable, smaller steps so that completing each part of the task provides a sense of accomplishment.

Psychotherapy, including cognitive behavioral therapy, also can help change one's poor self-image by examining the experiences that produced it. The therapist encourages the adult with ADHD to adjust to the life changes that come with treatment, such as thinking before acting, or resisting the urge to take unnecessary risks.

What efforts are under way to improve treatment?

This is an exciting time in ADHD research. The expansion of knowledge in genetics, brain imaging, and behavioral research is leading to a better understanding of the causes of the disorder, how to prevent it, and how to develop more effective treatments for all age groups.

NIMH has studied ADHD treatments for school-aged children in a large-scale, long-term study called the Multimodal Treatment Study of Children with ADHD (MTA study). NIMH also funded the Preschoolers with ADHD Treatment Study (PATS), which involved more than 300 preschoolers who had been diagnosed with ADHD. The study found that low doses of the stimulant methylphenidate are safe and effective for preschoolers, but the children are more sensitive to the side effects of the medication, including slower than average growth rates.[18] Therefore, preschoolers should be closely monitored while taking ADHD medications.[19,20]

PATS is also looking at the genes of the preschoolers, to see if specific genes affected how the children responded to methylphenidate. Future results may help scientists link variations in genes to differences in how people respond to ADHD medications. For now, the study provides valuable insights into ADHD.[21]

Other NIMH-sponsored clinical trials on children and adults with ADHD are under way. In addition, NIMH-sponsored scientists continue to look for the biological basis of ADHD, and how differences in genes and brain structure and function may combine with life experiences to produce the disorder.

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For more information on attention deficit hyperactivity disorder

Visit the National Library of Medicine's:

MedlinePlus:
http://medlineplus.gov

En Español:
http://medlineplus.gov/spanish

For information on clinical trials for ADHD:
http://www.nimh.nih.gov/health/trials/index.shtml

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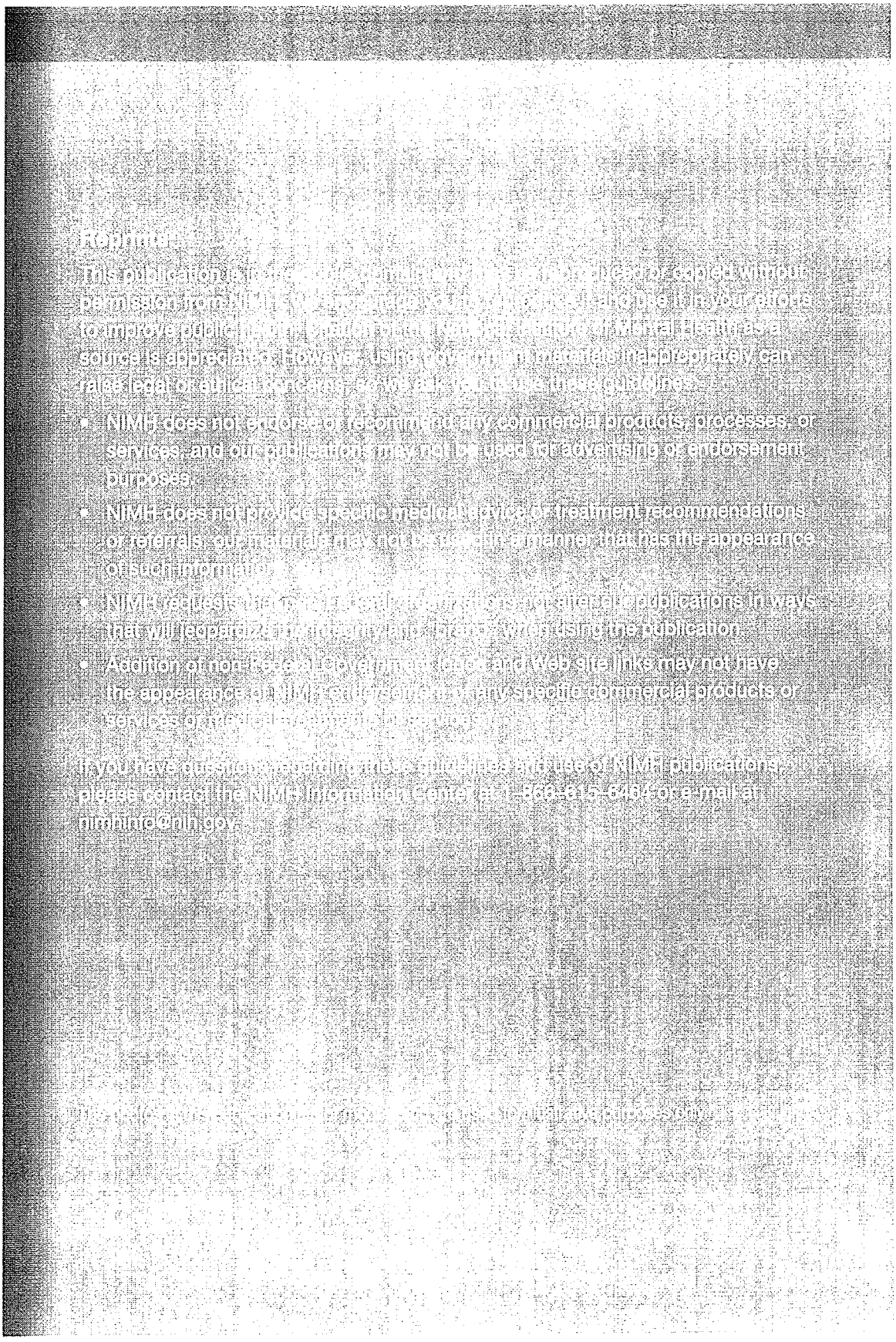

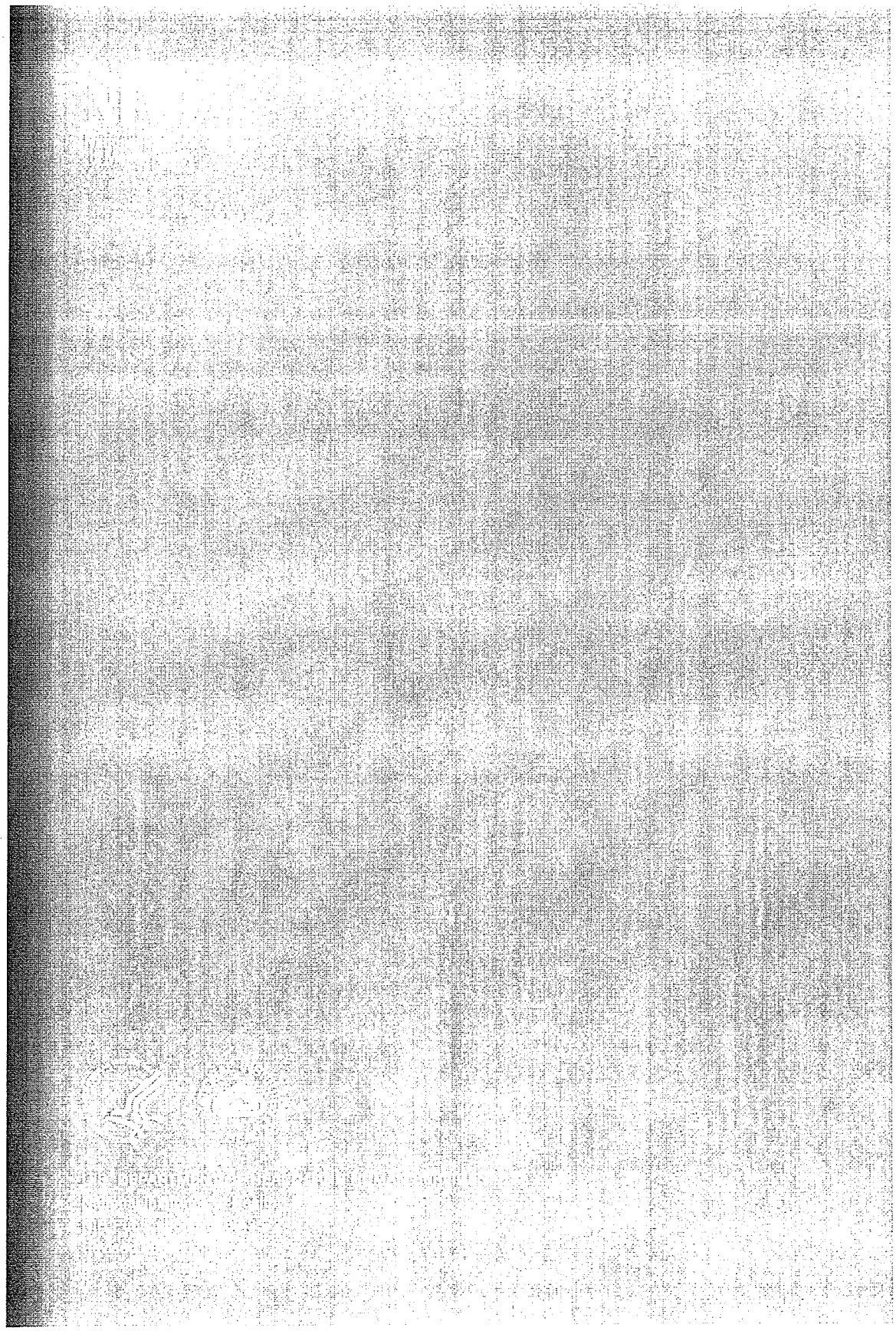

ED358673 1993-07-00 ADHD and Children Who Are Gifted. ERIC Digest #522.

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ERIC Digests

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ADHD and Children Who Are Gifted. ERIC Digest #522.

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Howard's teachers say he just isn't working up to his ability. He doesn't finish his

assignments, or just puts down answers without showing his work; his handwriting and spelling are poor. He sits and fidgets in class, talks to others, and often disrupts class by interrupting others. He used to shout out the answers to the teachers' questions (they were usually right), but now he daydreams a lot and seems distracted. Does Howard have Attention Deficit Hyperactivity Disorder (ADHD), is he gifted, or both?

Frequently, bright children have been referred to psychologists or pediatricians because they exhibited certain behaviors (e.g., restlessness, inattention, impulsivity, high activity level, day-dreaming) commonly associated with a diagnosis of ADHD. Formally, the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) (American Psychiatric Association) lists 14 characteristics that may be found in children diagnosed as having ADHD. At least 8 of these characteristics must be present, the onset must be before age 7, and they must be present for at least six months.

DSM-III-R DIAGNOSTIC CRITERIA FOR ATTENTION-DEFICIT

HYPERACTIVITY DISORDERNote: DSM-III-R Diagnostic Criteria For Attention-Deficit Hyperactivity Disorder reprinted with permission from the "Diagnostic and Statistical Manual of Mental Disorders," Third Edition, Revised, Washington, DC, American Psychiatric Association, 1987.

- 1. Often fidgets with hands or feet or squirms in seat (in adolescents may be limited to subjective feelings of restlessness).
- 2. Has difficulty remaining seated when required to.
- 3. Is easily distracted by extraneous stimuli.
- 4. Has difficulty awaiting turns in games or group situations.
- 5. Often blurts out answers to questions before they have been completed.

- 6. Has difficulty following through on instructions from others (not due to oppositional behavior or failure of comprehension).
- 7. Has difficulty sustaining attention in tasks or play activities.
- 8. Often shifts from one uncompleted activity to another.
- 9. Has difficulty playing quietly.
- 10. Often talks excessively.
- 11. Often interrupts or intrudes on others, e.g., butts into other people's games.
- 12. Often does not seem to listen to what is being said to him or her.
- 13. Often loses things necessary for tasks or activities at school or at home (e.g., toys, pencils, books).
- 14. Often engages in physically dangerous activities without considering possible consequences (not for the purpose of thrill-seeking), e.g., runs into street without looking.

Almost all of these behaviors, however, might be found in bright, talented, creative, gifted children. Until now, little attention has been given to the similarities and differences between the two groups, thus raising the potential for misidentification in both areas -- giftedness and ADHD.

Sometimes, professionals have diagnosed ADHD by simply listening to parent or teacher descriptions of the child's behaviors along with a brief observation of the child. Other times, brief screening questionnaires are used, although these questionnaires only quantify the parents' or teachers' descriptions of the behaviors (Parker, 1992). Children who are fortunate enough to have a thorough physical evaluation (which includes screening for allergies and other metabolic disorders) and extensive psychological evaluations, which include assessment of intelligence, achievement, and emotional status, have a better chance of being accurately identified. A child may be gifted and have ADHD. Without a thorough professional evaluation, it is difficult to tell.

HOW CAN PARENTS OR TEACHERS DISTINGUISH BETWEEN ADHD AND

GIFTEDNESS?Seeing the difference between behaviors that are sometimes associated with giftedness but also characteristic of ADHD is not easy, as the following parallel lists show.

BEHAVIORS ASSOCIATED WITH ADHD (BARKLEY, 1990)

1. Poorly sustained attention in almost all situations
2. Diminished persistence on tasks not having immediate consequences
3. Impulsivity, poor delay of gratification
4. Impaired adherence to commands to regulate or inhibit behavior in social contexts
5. More active, restless than normal children

6. Difficulty adhering to rules and regulations

BEHAVIORS ASSOCIATED WITH GIFTEDNESS (WEBB, 1993)

1. Poor attention, boredom, daydreaming in specific situations

2. Low tolerance for persistence on tasks that seem irrelevant

3. Judgment lags behind development of intellect

4. Intensity may lead to power struggles with authorities

5. High activity level; may need less sleep

6. Questions rules, customs and traditions

CONSIDER THE SITUATION AND SETTING

It is important to examine the situations in which a child's behaviors are problematic. Gifted children typically do not exhibit problems in all situations. For example, they may be seen as ADHD-like by one classroom teacher, but not by another; or they may be seen as ADHD at school, but not by the scout leader or music teacher. Close examination of the troublesome situation generally reveals other factors which are prompting the problem behaviors. By contrast, children with ADHD typically exhibit the problem behaviors in virtually all settings "including at home and at school" though the extent of their problem behaviors may fluctuate significantly from setting to setting (Barkley, 1990), depending largely on the structure of that situation. That is, the behaviors exist in all settings, but are more of a problem in some settings than in others. In the classroom, a gifted child's perceived inability to stay on task is likely to be related to boredom, curriculum, mismatched learning style, or other environmental factors.

Gifted children may spend from one-fourth to one-half of their regular classroom time waiting for others to catch up -- even more if they are in a heterogeneously grouped class. Their specific level of academic achievement is often two to four grade levels above their actual grade placement. Such children often respond to non-challenging or slow-moving classroom situations by "off-task" behavior, disruptions, or other attempts at self-amusement. This use of extra time is often the cause of the referral for an ADHD evaluation.

Hyperactive is a word often used to describe gifted children as well as children with ADHD. As with attention span, children with ADHD have a high activity level, but this activity level is often found across situations (Barkley, 1990). A large proportion of gifted children are highly active too. As many as one-fourth may require less sleep; however, their activity is generally focused and directed (Clark, 1992; Webb, Meckstroth, & Tolan, 1982), in contrast to the behavior of children with ADHD. The intensity of gifted children's concentration often permits them to spend long periods of time and much energy focusing on whatever truly interests them. Their specific interests may not coincide, however, with the desires and expectations of teachers or parents.

While the child who is hyperactive has a very brief attention span in virtually every situation (usually except for television or computer games), children who are gifted can concentrate comfortably for long periods on tasks that interest them, and do not require immediate completion of those tasks or immediate consequences. The activities of children with ADHD tend to be both continual and random; the gifted child's activity usually is episodic and directed to specific goals.

While difficulties and adherence to rules and regulations has only begun to be accepted as a sign of ADHD (Barkley, 1990), gifted children may actively question rules, customs and traditions, sometimes creating complex rules which they expect others to respect or obey. Some engage in power struggles. These behaviors can cause discomfort for parents, teachers, and peers.

One characteristic of ADHD that does not have a counterpart in children who are gifted is variability of task performance. In almost every setting, children with ADHD tend to be highly inconsistent in the quality of their performance (i.e., grades, chores) and the amount of time used to accomplish tasks (Barkley, 1990). Children who are gifted routinely maintain consistent efforts and high grades in classes when they like the teacher and are intellectually challenged, although they may resist some aspects of the work, particularly repetition of tasks perceived as dull. Some gifted children may become intensely focused and determined (an aspect of their intensity) to produce a product that meets their self-imposed standards.

WHAT TEACHERS AND PARENTS CAN DO

Determining whether a child has ADHD can be particularly difficult when that child is

also gifted. The use of many instruments, including intelligence tests administered by qualified professionals, achievement and personality tests, as well as parent and teacher rating scales, can help the professional determine the subtle differences between ADHD and giftedness. Individual evaluation allows the professional to establish maximum rapport with the child to get the best effort on the tests. Since the test situation is constant, it is possible to make better comparisons among children. Portions of the intellectual and achievement tests will reveal attention problems or learning disabilities, whereas personality tests are designed to show whether emotional problems (e.g., depression or anxiety) could be causing the problem behaviors. Evaluation should be followed by appropriate curricular and instructional modifications that account for advanced knowledge, diverse learning styles, and various types of intelligence.

Careful consideration and appropriate professional evaluation are necessary before concluding that bright, creative, intense youngsters like Howard have ADHD. Consider the characteristics of the gifted/talented child and the child's situation. Do not hesitate to raise the possibility of giftedness with any professional who is evaluating the child for ADHD; however, do not be surprised if the professional has had little training in recognizing the characteristics of gifted/talented children (Webb, 1993). It is important to make the correct diagnosis, and parents and teachers may need to provide information to others since giftedness is often neglected in professional development programs.

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Additional ADHD / ADD Resource Links and Books

http://www.ed.gov
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http://fape.org
http://ncld.org
http://nami.org
http://www.thearc.org
www.additudemag.com

The following books are available from STEP's Lending Library, please call 1/800-280-7837 to make a request.

#1017
Hyperactivity Why Won't My Child Pay Attention? Dr. Sam Goldstein, Child Psychologist and Dr. Michael Goldstein, Child Neurologist (A book about children who have difficulty paying attention, controlling emotions, and governing physical activity, and who do not think before they act.

#1128
Teenagers with ADD A Parents Guide by Chris A. Zeigler Dendy, M.S. (Parents will find many suggestions for protecting and strengthening their teenager's self esteem)

#1412
Teaching Teens with ADD and ADHD by Chris A. Zeigler Dendy, M.S. (A Quick Reference Guide for Teachers and Parents)

#1749
ADHD 102 Practical Strategies for "Reducing the Deficit" by Kim "Tip" Frank, Ed.S.,L.P.C. and Susan J. Smith-Rex, Ed.D
(Provides a clear, concise understanding of what an attention disorder actually is and how it can be treated, both medically and behaviorally.)

#1753
From Chaos to Calm, by Janet Heininger, Ph.D. and Sharon K. Weiss, M. ED. (Effective Parenting of Challenging Children with ADHD and Other Behavioral Problems)

#1760
Learning a Living by Dale S. Brown (Discusses everything you need to know in order to find the best possible job that emphasizes your strengths and minimizes the effects of your disability.

 # 1828
Answers to DistractionEdward M. Hallowell, M.D. and John J. Ratey, M.D. (The book that answers your questions about ADD)

 # 2281
Life at the Edge and Beyond by Jan Greenman, (Jan challenges common perceptions of "life with labels", and recalls her family's 18 year journey to the edge and back.