part

1

Key Information for Understanding and Managing ADHD

section

1.1

Understanding ADHD

Clarifying Terms and Labels

ADHD (attention-deficit/hyperactivity disorder) is the umbrella term or diagnostic label established by the American Psychiatric Association. It is inclusive of three presentations (or kinds) of the disorder: predominantly inattentive, predominantly hyperactive-impulsive, and combined (meeting diagnostic criteria for both inattentive and hyperactive-impulsive ADHD). Many people prefer to use the term ADD when referring to individuals with predominantly inattentive ADHD, and that presentation is also referred to as such in federal education law (IDEA). Although I use ADD/ADHD in the title of this book, as I have done since the first edition was published in 1993, throughout the remainder of this book, I will be using only the label of ADHD, which is inclusive of all three presentations of this disorder.

Descriptions and Definitions

Some of the definitions and descriptions of ADHD have been changed or refined as a result of all that we have learned in recent years from neuroscience, brain imaging, and clinical studies, and likely will continue to change in the future. Until recently, ADHD was classified as a neurobehavioral disorder, characterized by the three core symptoms of inattention, impulsivity, and sometimes hyperactivity.

It is now recognized that ADHD is a far more complex disorder, involving impairment in a whole range of abilities related to self-regulation and executive functioning. This more recent understanding of ADHD is reflected in some of the following descriptions, as shared by leading ADHD authorities and based on the most widely held beliefs of the scientific community at this time:

- ADHD is a neurobiological disorder characterized by chronic and developmentally inappropriate degrees of inattention, impulsivity, and in some cases hyperactivity, and is so pervasive and persistent that it interferes with a person's daily life at home, school, work, or other settings.
- ADHD is a disorder of self-regulation and executive functions.
- ADHD is a brain-based disorder involving a wide range of executive dysfunctions that arises out of differences in the central nervous system—both in structural and neurochemical areas.
- ADHD represents a condition that leads individuals to fall to the bottom of a normal distribution in their capacity to demonstrate and develop self-control and self-regulatory skills.

- ADHD is a developmental impairment of the brain's self-management system. It involves a wide range of executive functions linked to complex brain operations that are not limited to observable behaviors.
- ADHD is a neurological inefficiency in the area of the brain that controls impulses and is the center of executive functions.
- ADHD is a dimensional disorder of human behaviors that all people exhibit at times to certain degrees. Those with ADHD display the symptoms to a significant degree that is maladaptive and developmentally inappropriate compared to others at that age.
- ADHD is a common although highly varied condition. One element of this variation is the frequent co-occurrence of other conditions.

Signs and Symptoms

In making a diagnosis of ADHD, a qualified clinician does so based on the criteria set forth in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*), published in 2013 by the American Psychiatric Association, which is discussed further in Section 1.3. The *DSM* lists nine specific symptoms under the category of **inattention** and nine specific symptoms under the **hyperactive-impulsive** category. Part of the diagnostic criteria for ADHD is that the child, teen, or adult often displays a significant number of symptoms of *either* the inattentive *or* the hyperactive-impulsive categories *or* in both categories.

Following are lists of behaviors or observable symptoms that are common in children and teens with ADHD. Those symptoms that are found in the *DSM-5* criteria are *italicized* and listed as the first nine bullets in each category. Additional symptoms associated with ADHD are also included; they are not italicized.

Most people display some of the following behaviors at times and in different situations to a certain degree. Those who have the disorder have a history of frequently exhibiting many of these behaviors beyond the normal range developmentally when compared to their peers, in multiple settings (such as home, school, social, and workplace), and to the degree that they interfere with or reduce the quality of their functioning. Such a history is a red flag that an evaluation for ADHD by a well-qualified professional should be considered.

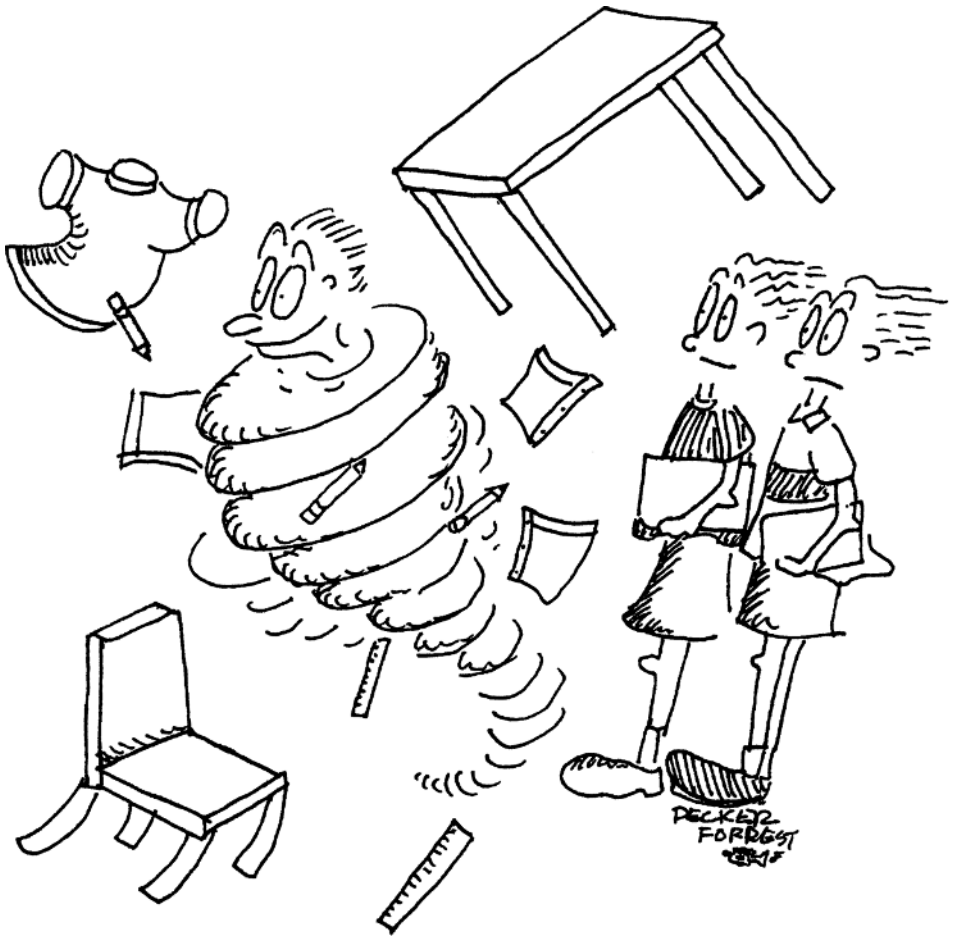
Symptoms of Inattention and Associated Problems

- *Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or with other activities.*
- *Often has trouble holding attention on tasks or play activities.*
- *Often does not seem to listen when spoken to directly.*
- *Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (for example, loses focus, side-tracked). Note: This is not due to oppositional behavior or failure to understand instructions.*
- *Often has trouble organizing tasks and activities.*
- *Often avoids, dislikes, or is reluctant to do tasks that require mental effort over a long period of time (such as schoolwork or homework).*
- *Often loses things necessary for tasks and activities (for example, school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).*
- *Is often easily distracted.*
- *Is often forgetful in daily activities.*
- Has difficulty concentrating and is easily pulled off task.
- Tunes out, daydreams, may appear "spacey."
- Requires a lot of adult prompts and refocusing to complete tasks.
- Has many incomplete assignments and unfinished tasks.
- Has difficulty working independently; needs a high degree of supervision and redirecting of attention to task at hand.
- Exhibits poor listening: not following directions, being pulled off topic in conversations, not focusing on the speaker.
- Makes many errors with academic tasks requiring attention to details and accuracy

(such as math computation, spelling, and written mechanics).
- Cannot stay focused on what he or she is reading (loses place, misses words and details, needs to reread the material).
- Exhibits poor study skills, such as test-taking and note-taking skills.
- Goes off topic in writing, losing train of thought.
- Makes many written errors in capitalization and punctuation; has difficulty editing own work for such errors.
- Makes numerous computational errors in math due to inattention to operational signs (plus, minus, multiplication, division), decimal points, and so forth.
- Appears to have slower speed of processing information (for example, responding to teacher questions or keeping up with class discussions).
- Misses verbal and nonverbal cues, which affects social skills.
- Does not participate in class, or participates minimally.

Symptoms of Hyperactivity and Impulsivity and Associated Problems

- *Often fidgets with or taps hands or feet, or squirms in seat.*
- *Often leaves seat in situations when remaining seated is expected.*
- *Often runs about or climbs in situations where it is not appropriate (adolescents or adults may be limited to feeling restless).*
- *Often unable to play or take part in leisure activities quietly.*
- *Is often "on the go" acting as if "driven by a motor."*
- *Often talks excessively.*



- *Often blurts out an answer before a question has been completed.*
- *Often has trouble waiting his or her turn.*
- *Often interrupts or intrudes on others (for example, butts into conversations or games).*
- Has difficulty keeping hands and feet to self.
- Knows the rules and consequences, but repeatedly commits the same errors or infractions of rules.
- Has difficulty standing in lines.
- Gets in trouble because he or she cannot stop and think before acting (responds first, thinks later).
- Does not think or worry about consequences, so tends to be fearless or to gravitate toward high-risk behavior.
- Is accident prone and breaks things.
- Has difficulty inhibiting what he or she says, making tactless comments; says whatever pops into his or her head and talks back to authority figures.
- Begins tasks without waiting for directions (before listening to the full direction or taking the time to read written directions).
- Hurries through tasks, particularly boring ones, and consequently makes numerous careless errors.
- Gets easily bored and impatient.
- Does not take time to correct or edit work.
- Disrupts, bothers others.
- Is highly energetic, in almost nonstop motion.
- Engages in physically dangerous activities (for example, jumping from heights, riding bike into the street without looking); hence, has a high frequency of injuries.
- Cannot sit still in chair (is in and out of chair, rocks and tips chair over, sits on knees, or stands by desk) or sit long enough to perform required tasks.
- Engages in a high degree of unnecessary movement (pacing, tapping feet, bouncing leg, tapping pencil, drumming fingers).

- Seems to need something in hands; finds or reaches for nearby objects to play with or put in mouth.
- Intrudes in other people's space; has difficulty staying within own boundaries.
- Cannot wait or delay gratification; wants things immediately.
- Is constantly drawn to something more interesting or stimulating in the environment.
- Hits when upset or grabs things away from others (not inhibiting responses or thinking of consequences).
- Becomes overstimulated and excitable and has difficulty calming himself or herself or settling down.
- Appears to live in the moment, acting without foresight or hindsight.
- Is easily pulled off task, affecting work performance and class participation.
- Is a greater challenge to motivate and discipline (not responding as well to typical rewards or punishments effective for most students).

Other Common Difficulties Experienced by Children and Teens with ADHD

In addition to symptoms related to inattention, hyperactivity, and impulsivity, other challenges related to executive function and self-regulation weaknesses as well as common coexisting conditions (such as learning disabilities) are often evident in individuals with ADHD. Some include the following:

Social and Emotional

- Experiences a high degree of emotionality (for example, has temper outbursts, is quick to anger, gets upset, is irritable or moody)
- Is easily upset or frustrated and has a hard time coping with or managing his or her anger and other negative emotions
- Is overly reactive; is easily provoked to engage in fighting and inappropriate means of resolving conflicts
- Has difficulty with transitions and changes in routine or activity
- Displays aggressive behavior

- Receives a lot of negative attention and interaction from peers and adults
- Has difficulty working in cooperative groups or getting along with peers in work or play situations
- Gets along better with younger children
- Has immature social skills

Organization and Time Management

- Is disorganized—frequently misplaces or loses belongings; desks, backpacks, lockers, and rooms are often messy and chaotic
- Is unprepared with materials and books needed for schoolwork and homework
- Has poorly organized work, such as writing assignments
- Has little or no awareness of time; is chronically late; often underestimates the length of time a task will require to complete or how long it takes to get somewhere

- Has great difficulty with long-term assignments and projects, scrambling at the last minute to complete important assignments
- Misses deadlines and due dates

Other Executive Skills

- Has forgetfulness/memory issues (not remembering or following all parts of the directions, not remembering to turn in homework even when he or she completed it)
- Has difficulty with planning and follow-through (failing to think through all of the steps or components of a task and having particular difficulty with long-term assignments and projects)
- Has difficulty with tasks requiring a heavy memory load
- Plans poorly for assignments and projects
- Has difficulty prioritizing
- Has difficulty initiating or getting started on tasks

Learning, Language, Academic

- Has learning and school performance difficulties; is not achieving or performing to the level that is expected given his or her apparent ability
- Has language and communication problems (for example, not sticking to topic, not fluent verbally)
- Employs inefficient learning strategies
- Has poor handwriting and fine motor skills
- Experiences problem-solving difficulties
- Performs inconsistently: one day can perform a task, next day cannot
- Takes a lot longer than average time to process information or complete tasks and assignments
- Has difficulty with reading comprehension, written expression, mathematical problem solving (or other complex or lengthy academic tasks that require a heavy working memory load, planning and organization of thoughts and information, and self-monitoring or self-correction throughout the process)
- (If learning disabilities, such as dyslexia, coexist) Has more significant difficulty with basic reading skills (word recognition and fluency, writing, spelling)

Note: *Academic difficulties related to inattention, impulsivity, and executive dysfunctions will be discussed in depth in Part 4 of this book.*

Three Presentations of ADHD

As noted earlier, there are three types or what are now called "presentations" of ADHD, based on the symptoms. Although all people will exhibit these

behaviors at times to a certain degree, for those with ADHD, the symptoms far exceed that which is normal developmentally (in frequency, level, and intensity), have been evident and problematic in multiple settings for at least the past six months, and interfere with the person's functioning or development. There are other diagnostic criteria that must be met as well, which will be described in more depth in Section 1.3.

Predominantly Inattentive

This presentation is what some people prefer to call ADD, because those who receive this diagnosis do not have the hyperactive symptoms. They may show some of them, but not a significant amount. These children and teens often slip through the cracks and are not as easily identified or understood. Because they do not exhibit the disruptive behaviors associated with ADHD, it is easy to overlook these students and misinterpret their behaviors and symptoms as "not trying" or "being lazy." Many girls have the predominantly inattentive presentation of the disorder.

Be aware that people with ADHD who have significant attention difficulties are often able to be focused and to sustain attention for long periods of time when they play video games or are engaged in other high-interest, stimulating, and rapidly changing activities. In fact, many hyper-focus on such activities and have a hard time disengaging from them.

Predominantly Hyperactive-Impulsive

Individuals with this presentation of ADHD have a significant number of hyperactive-impulsive symptoms. They may have some inattentive symptoms that are developmentally inappropriate, but not a significant number of them.

Hyperactive-impulsive ADHD (without the inattention) is most commonly diagnosed in early childhood. Children receiving this diagnosis are often reclassified as having the combined presentation of ADHD when they get older and the inattentive symptoms emerge more and become developmentally significant.

Combined

This is the most common presentation of ADHD—a significant number of symptoms exist in both the inattentive category and the hyperactive-impulsive category.

Please note: More information on signs and symptoms of ADHD is found in other sections of this book, such as those describing executive function difficulties, symptoms in girls, and what ADHD looks like at different grade levels or ages (preschool through high school).

Formula ONE for Disaster
take ONE impulsive child
add ONE forbidden object
multiply by ONE minute
to equal
ONE predictable trip to the emergency room . . .

Karen Easter ©1995

Statistics and Risk Factors

The number of people estimated to have ADHD varies, depending on the source, which can be confusing. Here are some of the reported prevalence rates:

- Conservatively 5–8 percent of school-age children have ADHD (Barkley, 2013).
- Approximately 11 percent of children four to seventeen years of age (6.4 million) have been diagnosed with ADHD as of 2011, according to the results of surveys that asked parents whether their child received an ADHD diagnosis from a health care provider (Centers for Disease Control and Prevention [CDC], n.d.).
- Based on the CDC analysis of data from the National Survey of Children's Health, which has been collected every four years since 2003, the percentage of children diagnosed with ADHD increased from 7.8 percent in 2003 to 9.5 percent in 2007 and to 11.0 percent in 2011 (CDC, n.d.).

- The worldwide prevalence of ADHD for children is approximately 5 percent, based on a review of over one hundred studies comprising subjects from all world regions (Polanczyk et al., 2007).
- Studies throughout the world have reported the occurrence of ADHD in school-age children as being between 5 and 12 percent. This means that on average, there are at least one to three children in every class with ADHD (Centre for ADHD Awareness, Canada, n.d.).

ADHD is associated with a number of risk factors. ADHD places those who have this disorder at risk for a host of serious consequences, which increases the urgency of early identification, diagnosis, and proper treatment. Numerous studies (Barkley et al., 2002; Barkley, 2013) have demonstrated the increased risk of negative outcomes associated with those who have ADHD. Compared to their peers of the same age, youth with ADHD experience

- More serious accidents and hospitalizations, and significantly higher medical costs than those children without ADHD
- More school failure and dropout
- More delinquency and altercations with the law
- More engagement in antisocial activities
- More teen pregnancy and sexually transmitted diseases
- Earlier experimentation with and higher use of alcohol, tobacco, and illicit drugs
- More trouble socially and emotionally
- More rejection, ridicule, and punishment
- More underachievement and underperformance at school or work

Dr. Russell Barkley (2013), one of the world's leading ADHD experts and researchers, has also found the following to be true:

- Up to 58 percent of youth with ADHD may be retained in a grade in school at least once.
- As many as 35 percent fail to complete high school.
- For half of children with ADHD, social relationships are seriously impaired.
- More than 25 percent of ADHD youth are expelled from high school because of serious misconduct.
- More than 30 percent of youth with ADHD have engaged in theft.
- More than 40 percent of youth with ADHD drift into early tobacco and alcohol use.
- Adolescents and young adults with a diagnosis of ADHD have nearly four to five times as many traffic citations for speeding, two to three times as many auto accidents, and accidents that are two to three times more expensive in damages or likely to cause bodily injuries as young drivers without ADHD.

Note: *Compared to the general population, people with ADHD are at greater risk than others for negative outcomes (as described). However, when children with ADHD are provided with supports and effective treatments and intervention, the risks are reduced substantially.*

ADHD and Coexisting Disorders

ADHD is often accompanied by one or more other conditions or disorders—psychiatric, psychological, developmental, or medical. Because symptoms of these various disorders commonly overlap, diagnosis and treatment can be complex. The word *comorbidity* is the medical term for having coexisting disorders (co-occurring and presenting at the same time as ADHD).

Approximately two-thirds of individuals with ADHD have at least one other coexisting condition, such as learning disabilities, oppositional defiant disorder, anxiety disorder, conduct disorder, Tourette Syndrome, or depression (MTA Cooperative Group, 1999; National Resource Center on AD/HD, 2015). The most common conditions comorbid with ADHD in childhood are oppositional defiant disorder (ODD) and conduct disorder (CD). In adulthood, the most common comorbid conditions with ADHD are depression and anxiety (Goldstein, 2009).

Coexisting disorders can cause significant impairment above and beyond the problems caused by ADHD. It can take time for all the pieces of

the puzzle to come together, and parents, teachers, and clinicians need to monitor the child's development and any emerging concerns. Effective intervention will require treatment for the ADHD and the other conditions.

Common Coexisting Conditions and Disorders

The reported prevalence of specific coexisting conditions and disorders accompanying ADHD varies depending on the source. Most sources indicate the following ranges:

Oppositional defiant disorder (ODD). Approximately 40 percent of children and teens with ADHD develop ODD (National Resource Center on AD/HD, 2015). It occurs eleven times more frequently in children with ADHD than in the general population (Barkley, 2013).

Anxiety disorder. Up to 30 percent of children and up to 53 percent of adults with ADHD have this disorder (National Resource Center on AD/HD, 2015).

Conduct disorder (CD). Approximately 27 percent of children, 45–50 percent of adolescents, and 20–25 percent of adults have this disorder (National Resource Center on AD/HD, 2015).

Bipolar. Up to 20 percent of people with ADHD may manifest bipolar disorder (National Resource Center on AD/HD, 2015).

Depression. Approximately 14 percent of children with ADHD and up to 47 percent of adolescents and adults have this disorder (National Resource Center on AD/HD, 2015).

Tics, Tourette Syndrome. About 7 percent of those with ADHD have tics or Tourette Syndrome, but 60 to 80 percent of Tourette Syndrome patients also have ADHD (National Resource Center on AD/HD, 2015).

Learning disabilities. The reported range is from 20 to 60 percent, with most sources estimating that between one-quarter and one-half of children with ADHD have a coexisting learning disability (such as dyslexia). "Up to 50 percent of children with ADHD have a coexisting learning disorder, whereas 5 percent of children without ADHD have learning disorders" (National Resource Center on AD/HD, 2015, p. 2).

Obsessive-compulsive disorder (OCD). Up to one-third of people with ADHD may have OCD (Goodman, 2010; Kutscher, 2010).

Sleep disorders. One-quarter to one-half of parents of children with ADHD report that their children suffer from a sleep problem, especially problems with falling asleep and staying asleep (National Resource Center on AD/HD, 2015).

Other Disorders and Conditions

- Between 12 and nearly 20–30 percent of children and teens with ADHD also have some form of challenge in the area of speech and language (National Resource Center on AD/HD, 2015; Spencer, 2013).
- Autism spectrum disorder (ASD) is now recognized as a possible coexisting disorder with ADHD and was added to the *DSM-5* as such.
- ASD symptoms are more common in children with ADHD than in the general population. In some studies, nearly 50 percent of youth with ASD meet diagnostic criteria for ADHD (Goldstein, 2010).

Identifying and Treating Coexisting Disorders

Most children with ADHD have some school-related achievement, performance, or social problems. It is important that they receive the educational supports and interventions they need.

Because a high percentage of children with ADHD also have learning disabilities, such as dyslexia, the school district should evaluate the student when a possible learning disability is suspected. Parents are advised to request an evaluation if they are concerned that their child may have coexisting learning disabilities.

Parents, educators, and medical and mental health care providers should be alert to signs of other mental health disorders that may exist or emerge, often in the adolescent years, especially when current strategies and treatments being used to help the child or teen with ADHD are no longer working effectively. Anxiety disorder and depression can easily go unrecognized and overlooked. There is a high rate of these internalized disorders, particularly among teenage girls.

ADHD Look-Alikes

Not everyone who displays symptoms of ADHD has the disorder. There are a number of other conditions and factors (medical, psychological, learning, psychiatric, emotional, social, and environmental) that can cause inattentive, hyperactive, and impulsive behaviors that resemble ADHD or that may coexist with ADHD, such as

- Learning disabilities
- Sensory impairments (hearing, vision, or motor problems)
- Substance use and abuse (of alcohol and drugs)
- Oppositional defiant disorder
- Conduct disorder
- Allergies
- Posttraumatic stress disorder (PTSD)
- Anxiety disorder
- Depression
- Obsessive-compulsive disorder
- Sleep disorder
- Bipolar disorder
- Thyroid problems
- Rare genetic disorders (for example, Fragile X syndrome)
- Seizure disorders
- Sluggish cognitive tempo
- Lead poisoning
- Hypoglycemia
- Anemia
- Fetal alcohol syndrome and fetal alcohol effects
- Chronic illness
- Language disorders
- Auditory processing disorders
- Visual processing disorders
- Tourette Syndrome
- Autism spectrum disorder
- Developmental delays
- Sensory integration dysfunction
- Low intellectual ability
- High intellectual ability or giftedness
- Chronic ear infections
- Severe emotional disturbance
- Side effects of medications being taken (such as antiseizure or asthma medication)

Emotional and environmental factors that have nothing to do with ADHD can also cause a child or teen to be distracted and unable to concentrate, or to exhibit acting-out or aggressive behaviors—for example, if the child or teen is experiencing high-stress circumstances, such as the following:

- Experiencing or witnessing abuse or violence
- Family stresses (for example, divorce and custody battles, death of a loved one, financial difficulties)
- Bullying or peer pressure and other social issues
- A chaotic, unpredictable, unstable, or neglectful home life with inappropriate expectations placed on the child

Inattention and disruptive classroom behaviors can be school related (having nothing to do with ADHD). Students may display those behaviors if they are in a school environment with these characteristics:

- A pervasive negative climate
- Poor instruction and low academic expectations
- Nonstimulating and unmotivating curriculum
- Ineffective classroom management

What Is Currently Known about ADHD

ADHD has been the focus of a tremendous amount of research, particularly during the past three decades. Literally thousands of studies and scientific articles have been published (nationally and internationally) on ADHD. All of the advances in neuroscience and the sophisticated brain imaging technologies and genetic research in recent years have dramatically increased our knowledge of ADHD—the brain differences and probable causes of the disorder.

What We Know

- ADHD is not a myth. It has been recognized as a very real, valid, and significant disorder by the US surgeon general, the National Institutes of Health, the US Department of Education, the Centers for Disease Control and Prevention, and all of the major medical and mental health associations.
- ADHD is not new. It has been recognized by clinical science and documented in the literature since 1902 (having been renamed several times). Some of the previous names for the disorder were *minimal brain dysfunction, hyperactive child syndrome,* and *ADD* with or without hyperactivity.
- There is no quick fix or cure for ADHD, but it is treatable and manageable. Proper diagnosis and treatment can substantially decrease ADHD symptoms and impairment in functioning and greatly increase positive outcomes.
- ADHD is not just a childhood disorder. Up to 80 percent of children diagnosed with ADHD continue to have the disorder into adolescence, and 50–65 percent will continue to exhibit symptoms into adulthood (Barkley, 2013).
- ADHD is a neurobiological disorder that is a result of different factors, the most common cause by far being genetic in origin. Heredity accounts for most cases of ADHD, but there are other problems and factors that occur prenatally, during birth, or in childhood that might interfere with a child's brain development and be contributing causes of ADHD.
- Regardless of the underlying cause, there are on average differences in both the size and function of certain areas of the brain in individuals with ADHD (Wolraich & DuPaul, 2010).
- ADHD exists across all populations, regardless of race, ethnicity, gender, nationality, culture, and socioeconomic level. Many children, teens, and adults with ADHD slip through the cracks without being identified or receiving the intervention and treatment they need.
- ADHD can be managed best by multimodal treatment and a team approach. We know that it takes a team effort on the part of parents, school personnel, clinicians, and other professionals to be most effective in helping children and teens with ADHD. No single intervention effectively manages ADHD for most people with the disorder, and intervention needs change over time.
- ADHD is diagnosed at least two to three times more frequently in boys than girls, although many more girls may actually have ADHD than are identified.
- ADHD is *not* the result of poor parenting. ADHD is *not* laziness, willful misbehavior, or a character flaw. The challenging behaviors that children with ADHD exhibit stem from neurobiological differences. Their behaviors are not deliberate. Children with ADHD are often not even aware of their behaviors and their impact on others.
- Although ADHD is most commonly diagnosed in school-age children, it can be and is diagnosed reliably in younger children and adults.
- Most children who are diagnosed and provided with the help they need are able to manage the disorder. Parents should maintain a positive mind-set and be optimistic about their child's future. ADHD does not limit their child's potential. Countless highly successful adults in every profession and walk of life have ADHD.

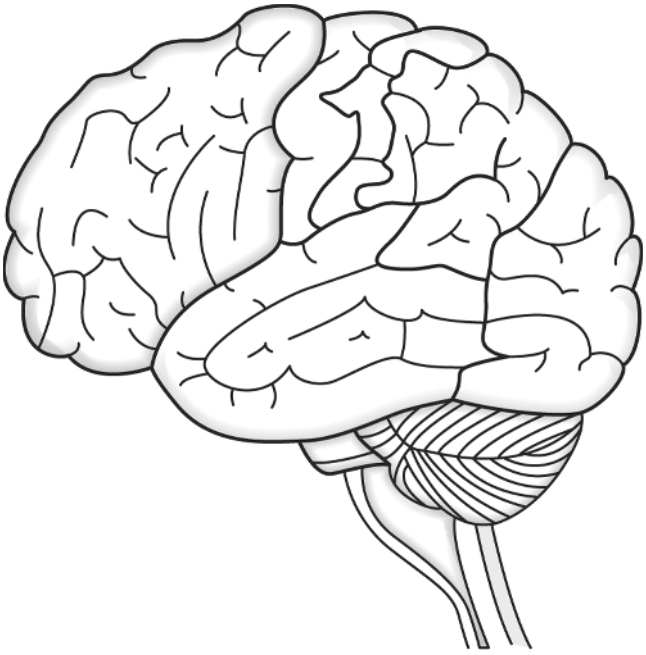
- Medication therapy and behavioral therapy are research-validated, effective treatments for ADHD. Medications used to treat ADHD are proven to work effectively for reducing the symptoms and impairment in 70–95 percent of children diagnosed with ADHD. Use of a token economy or daily report card system between home and school are among the behavioral interventions and programs that help in the management of ADHD. (See Sections 1.5, 1.6, 2.3, and 2.4 for more on these topics and tools to use.)
- The teaching techniques and strategies that are necessary for the success of children with ADHD are good teaching practices and are typically helpful for all students.
- There is still need for better diagnosis, education, and treatment of this disorder that affects so many lives.

We Do Not Yet Know Enough about . . .

- All of the causes
- How to prevent ADHD or minimize the risk factors and negative effects
- Diagnosing and treating the disorder in certain populations (very young children, females, adults, and racial and ethnic minorities), and cultural variables that may exist—as the majority of research in past decades was studying ADHD in school-age white boys
- Long-term treatment effects
- The inattentive type of ADHD
- What may prove to be the best, most effective diagnostic tools, treatments, and strategies for helping individuals with ADHD

ADHD Brain Differences

The evidence from hundreds of well-designed and controlled scientific studies (metabolic, brain imaging, and genetic) indicates that in people with ADHD, there are brain differences: abnormalities in size, maturation, and levels of activity in the regions of the brain involved in executive functions and self-regulation.



Recent brain imaging research also suggests weaker connections in some important networks (brain regions that activate together to perform a complex task) in individuals with ADHD, including the cognitive control and salience networks, reward and motivation networks, and the "default mode" network (DMN) (Norr, 2015).

Note: *Although imaging tests and brain scans such as functional magnetic resonance imaging (fMRI), single photon emission computed tomography (SPECT), positron emission tomography (PET), and electroencephalograms (EEGs) are used in researching ADHD, they are not used in the diagnosis of ADHD.*

Delayed Brain Maturation and Structural Differences

Recent research has shown that delayed maturation in specific areas of the brain plays a significant part in ADHD.

According to Dr. Thomas Brown (2013b), "Individuals with ADHD have been shown to differ in the rate of maturation of specific areas of the cortex, in the thickness of cortical tissue, in characteristics of the parietal and cerebellar

regions, as well as in the basal ganglia, and in the white matter tracts that connect and provide critically important communication between various regions of the brain." Recent research has also shown that the brains of those with ADHD tend to have different patterns in functional connectivity, patterns of oscillations that allow different regions of the brain to exchange information.

Dr. Philip Shaw and other researchers at the National Institute of Mental Health used brain imaging technology to study the brain maturation of hundreds of children and teens with and without ADHD and reported their findings in 2007. They found that in youth with ADHD, the brain matures in a normal pattern, but there is approximately a three-year delay in some regions compared to other children, particularly in the frontal cortex (American Psychological Association, 2008; Shaw et al., 2007).

Neuroimaging studies have found that on average, children with ADHD have about a 5 percent reduction in total volume and a 10–12 percent reduction in the size of four or five key brain regions involved in higher-order control of behavior (Nigg, 2006).

Diminished Activity and Lower Metabolism in Certain Brain Regions

Numerous studies measuring electrical activity, blood flow, and brain activity have found differences between those with ADHD and those without ADHD:

- Decreased activity level in certain regions of the brain (mainly the frontal region and basal ganglia). These underactivated regions are responsible for controlling activity level, impulsivity, attention, and executive functions.
- Lower metabolism of glucose (the brain's energy source) in the frontal region.
- Decreased blood flow to certain brain regions associated with ADHD.
- Less electrical activity in these key areas of the brain.

Brain Chemical (Neurotransmitter) Inefficiency

There is significant evidence that those with ADHD have a deficiency or inefficiency in brain chemicals (neurotransmitters) operating in certain brain regions associated with ADHD. The two main neurotransmitters involved in ADHD are dopamine and norepinephrine. Other brain chemicals also play a part in the disorder and are being studied.

Dopamine is involved in regulating, among other things, attention, inhibition, motivation, motor activity, and emotional responses. It plays a major role in ADHD. Genetic research has found that some of the dopamine receptor and transporter genes are altered or not working properly.

Neurotransmitters are the chemical messengers of the brain. The neurons in the brain are not connected; they have a synapse, or tiny gap, between them where nerve impulses are sent from one neuron to another. The neurotransmitters help carry messages between two neurons by being released into the synapse and then being recycled or reloaded once the message gets across. It is believed that with ADHD, those essential brain chemicals may not be efficiently releasing and staying long enough in the synapse in order to do their job of getting the message across effectively in those key regions and circuits of the brain. Research indicates that individuals with ADHD may have disturbances in their dopamine signaling systems.

Brown (2013a) explains that the problem with ADHD is not one of a generalized chemical deficiency or imbalance: "The primary problem is related to chemicals manufactured, released, and then reloaded at the level of synapses, the trillions of infinitesimal junctions between certain networks of neurons that manage critical activities within the brain's management system" (p. 8).

Causes of ADHD

Heredity

According to the evidence, heredity is the most common cause of ADHD, accounting for approximately 75–80 percent of children with this disorder (Barkley, 1998, 2013).

- ADHD is known to run in families, as found by numerous studies (of identical and fraternal twins, adopted children, families, and molecular genetics). For example, in studies of identical twins, if one has ADHD, there is as high as a 75–90 percent chance that the other twin will have ADHD as well (Barkley, 2013).
- It is believed that a genetic predisposition to the disorder is inherited. Children with ADHD will frequently have a parent, sibling, grandparent, or other close relative with ADHD—or whose history indicates they had similar problems and symptoms during childhood.
- ADHD is a complex disorder, which likely involves multiple interacting genes.
- Genetic research involving several methods have so far identified at least nine genes that link to ADHD—at least three involving the regulation of dopamine levels (two dopamine receptor genes and a dopamine transporter gene). Other genes have also been identified that affect brain growth, how nerve cells migrate during development to arrive at their normal sites, and the way in which nerve cells connect to each other (Barkley, 2013).
- The genetic contribution to ADHD has been thought to reflect differences in certain brain structures and in brain chemistry, as well as the interaction of the two (Goldstein, 2007).
- Research suggests that certain genes or alterations in some genes may be inherited and influence the development or maturation of certain areas of the brain or affect the regulation or efficiency of certain brain chemicals. Other researchers suggest that children who carry certain genes may be more vulnerable than other children to various environmental factors associated with ADHD symptoms.

Birth Complications, Illnesses, and Brain Injury

These are other factors that raise the risk for ADHD and may lead to its development:

- Premature birth and significantly low birth weight
- Trauma or head injury to the frontal part of the brain
- Certain illnesses that affect the brain, such as encephalitis
- Birth complications, such as toxemia

Maternal or Childhood Exposure to Certain Toxins

Certain substances the pregnant mother consumes or to which she exposes the developing fetus increase risk factors and may be a cause for ADHD in some children. This includes fetal exposure to alcohol, tobacco, and high levels of lead.

Other Environmental Factors

- It is generally believed in the scientific community that environmental factors (for example, lack of structure in the environment, stress, diet) influence the severity of ADHD symptoms, but are not the cause of ADHD.
- "Research does not support the popularly held views that ADHD arises from excessive sugar intake, excessive television viewing, poor child management by parents, or social and environmental factors such as poverty or family chaos. Of course, many things, including these, might aggravate symptoms, especially in certain individuals. But the evidence for such individual aggravating circumstances is not strong enough to conclude that they are primary causes of ADHD" (National Resource Center on AD/HD, n.d.).
- Of concern to many people are the unknown effects of all the chemicals in our environment and other toxins. Many are as yet not studied. It is reasonable to assume that future research may identify chemicals and other toxins that affect brain development or brain processes in children and possibly contribute to ADHD or other disorders.

Girls with ADHD

Girls most commonly have the inattentive presentation (type) of ADHD. Many girls do not receive diagnoses or treatment because they do not have the typical hyperactive and disruptive symptoms seen in boys that signal a problem and lead to a referral. Girls also tend to be teacher pleasers and often put a lot of effort into trying to hide their problems. Girls being evaluated for ADHD also may not receive a diagnosis because the *DSM* criteria until very recently required that significant symptoms be evident by age seven. We now know that symptoms may emerge later, particularly in girls. Fortunately, the *DSM-5* has acknowledged this later onset of symptoms and changed the criteria so that now symptoms must occur by age twelve, instead of seven.

Many girls are labeled and written off as being "space cadets," "ditzy," or "scattered." The unrecognized struggles of girls with ADHD and their need for proper diagnosis and treatment place them at high risk for a number of serious negative outcomes (academic and learning problems; social, behavioral, and emotional problems; demoralization; low self-esteem; and more).

Many girls don't receive an evaluation for ADHD because parents, teachers, and physicians are often unaware that ADHD symptoms manifest differently in girls than in boys. When they are evaluated (often in their preteens and teen years), girls may receive a misdiagnosis, or a coexisting condition (commonly anxiety disorder or depression) may be identified, missing the primary disorder of ADHD that existed first.

Most of the research on ADHD over the years has been on boys or has had very few girls participating in the studies. In recent years, much more attention has been paid to gender differences, thanks to the work, leadership, and advocacy of Drs. Patricia Quinn, Kathleen Nadeau, Ellen Littman, and others. The scientific community is now looking at gender issues in ADHD, with some significant studies on ADHD in females, such as by the research teams of Drs. Joseph Biederman and Stephen Hinshaw. Much more research still needs to be done to understand the impact of ADHD in females and the best ways to help girls and women with this disorder.

What We Have Learned

According to Nadeau (2000a, 2000b, 2004a, 2004b); Quinn (2008, 2009, 2012); Littman (2000, 2012); Nadeau, Littman, and Quinn (2015); and Quinn and Nadeau (2000, 2004), girls with ADHD present symptoms in these ways:

- Often have impaired social skills
- Often experience academic difficulties and underachievement
- Often experience peer rejection (generally more so than boys with ADHD) and are more devastated by rejection from their peers
- Often unleash frustrations at home that were kept hidden at school; parents may see behaviors in their daughter, such as temper tantrums and meltdowns, that she would never exhibit at school
- Are self-critical and often feel a sense of shame
- Have more internalized and less externalized (observable) symptoms, such as biting nails or pulling hair
- Have verbal expression and processing problems that are more problematic than they are in boys because so many of girls' interactions rely heavily on verbal communication and demands
- Experience a lot of difficulty with executive function impairment (disorganization,

prioritization, poor time management, working memory difficulties, emotional regulation)

Girls with the inattentive presentation of ADHD often present with these characteristics:

- Shy, timid, withdrawn, introverted
- Passive, daydreaming
- Reluctant to participate in class
- Quick to give up when frustrated
- Often overwhelmed

Girls with hyperactivity and impulsivity often present with these symptoms:

- Hyperverbal and hypersocial behavior (cannot stop talking, chatting, commenting on everything)
- Much giggling, "silly" and immature behavior
- Emotional overreactivity (lots of drama)
- Disruptive behavior (as is also seen in boys with ADHD)

These girls

- Stand out, because their behavior is significantly out of norm (compared to other girls their age)
- Show hyperactive and impulsive symptoms that often look different from what is commonly seen in boys
- Begin to have social problems as early as preschool
- Are at greater risk for consequences stemming from poor self-control combined with lower self-esteem; impulsivity in girls can lead to high-risk activities, such as smoking, drinking, drugs, sexual promiscuity, engaging in unprotected sex, or binge eating
- Are at a much higher risk for self-harm—suicide attempts and self-injury (Hinshaw et al., 2012)

We also know that for girls the following are often true:

- Symptoms get worse at puberty with hormonal changes. Premenstrual syndrome, for example, presents additional problems, worsening ADHD symptoms by adding to irritability, low frustration threshold, mood swings, and emotionality.
- They often work exceptionally hard (compulsively so) to achieve academic success and cover up their difficulties.
- Low self-esteem is evident and begins at a young age.
- They commonly develop anxiety disorder or depression by their teen years. Quinn (2008) reports that girls with ADHD are four to five times more likely to be diagnosed with a major depression and three times more likely to be treated for depression prior to their ADHD diagnosis.
- They tend toward addictive behaviors offering immediate gratification in terms of self-medication and peer acceptance (Littman, 2012).

Positive Traits and Strengths

Parents and teachers must recognize, appreciate, and nurture the many talents and positive qualities our children possess. To develop their self-esteem and enable them to become resilient, successful adults, we must help our children value their areas of competency and strengths. The following are some common positive characteristics and traits that many of those with ADHD possess:

- Energetic
- Spontaneous
- Creative
- Persistent
- Innovative
- Imaginative
- Tenacious
- Big-hearted
- Accepting and forgiving
- Enterprising
- Ready for action
- Inquisitive
- Adventurous
- Resilient
- Resourceful
- Risk-taking
- Entrepreneurial
- Inventive

- Observant
- Empathetic
- Charming
- Full of ideas and spunk
- Intelligent
- Enthusiastic
- Outgoing, gregarious
- Optimistic
- Charismatic
- Playful
- Passionate
- Willing to take a chance and try new things
- Good at improvising
- Able to find novel solutions
- Good in crisis situations and thinking on their feet
- Talented (artistically, musically, athletically)

And they typically

- Know how to live in and enjoy the present
- Are independent thinkers
- Have a good sense of humor
- Are never boring

ADHD and the Impact on the Family

It is important to be aware of the challenges that exist in the home when one or more children (and possibly a parent) have ADHD, as this disorder significantly affects the entire family. Unfortunately, teachers are generally unaware of or underestimate the struggles that families face. Typically, in homes of children with ADHD, there is a much higher degree of stress than the average family experiences, along with depression or other pathology in one or more family members.

Living with a child who has ADHD often takes a heavy toll on marriages. It is common for parents to be in different stages of a "grieving process" about having a child who struggles compared to other children. For example, one parent may be in the denial or anger stage, and the other parent has progressed to acceptance and is eager to begin a course of intervention for the child. It is common for parents to disagree about treatment, discipline, management, structure, and other issues. There are generally major issues surrounding the battle with homework as well as with morning and evening routines (getting ready for school and bedtime).

Parents may blame one another for the child's problems or be highly critical of one another in their parenting role. This discord causes a great deal of marital stress. Often it is the mother who must cope with the brunt of the issues throughout the day, which is physically and emotionally exhausting. As any parent of a toddler knows, having a child who needs constant supervision and monitoring is very time-consuming and interferes with the ability to get things done as planned (for example, housework and other chores). In single-parent homes, it is even more challenging.

Parents of children who have ADHD are constantly faced with needing to defend their parenting choices as well as their child. They must listen to negative press about this disorder and reject popular opinion in order to provide their child with necessary interventions and treatment. Parents must deal with criticism and "well-meaning" advice from relatives, friends, and acquaintances regarding how they should discipline and parent their child. They may feel unsupported by extended family and also experience social isolation. This causes a lot of parental self-doubt and adds to the stress they are already living with day in and day out.

The family must frequently deal with social issues, such as the exclusion of the child from out-of-school activities. It is painful when your child is not invited to birthday parties or has difficulty finding someone to play with and keeping friends. Siblings are often resentful or even jealous of the central role their ADHD sibling plays in the family's schedule, routines, and activities, as well as the extra time and special treatment this child receives. In addition, siblings feel hurt and embarrassed when their brother or sister has acquired a negative reputation in the neighborhood and school.

Parents of children with ADHD have a much higher degree of responsibility than is typical for other parents in working with the school, communicating closely with teachers, and advocating for the needs of their child. There is also the financial impact of treatment costs that may or may not be

covered by insurance. All of these issues can be stressful for families.

It is likely that more than one family member (a parent or sibling) also has ADHD. In many cases, other family members who have ADHD were never diagnosed and have been struggling to cope with their own difficulties without proper treatment and support. That is why the clinicians who specialize in treating children with ADHD say it is important to view treatment in the context of the family. Learning about the family (for example, the ways the members communicate and their disciplinary practices) helps in designing a treatment plan that is most effective for the child.

Commonly a parent recognizes for the first time that he or she has been suffering with undiagnosed ADHD for years when a son or daughter receives an ADHD diagnosis. This realization can result in a positive change in the family dynamics.

Without question, families of children with ADHD need support and understanding. Fortunately, there are many supports available and ways to help.

section
1.2

ADHD and Executive Function Impairment

Extensive research has led to ADHD now being recognized as a disorder in the development of *executive functions*—a person's self-management and self-regulatory abilities. People with ADHD experience a wide range of executive dysfunction issues that can vary from person to person.

What are executive functions, and how is executive function (EF) impairment related to ADHD? Dr. Russell Barkley (2012) explains:

> ADHD is a disorder of self-regulation. Self-regulation requires that a person have intact executive functions (EFs). The EFs are specific types of self-regulation or self-directed actions that people use to manage themselves effectively in order to sustain their actions (and problem-solving) toward their goals and the future. (p. 7)

Definitions of Executive Function (EF)

EFs have been described in many ways:

- The management functions (overseers) of the brain
- The self-directed actions individuals use to help maintain control of themselves and accomplish goals
- The range of central control processes in the brain that activate, organize, focus, integrate, and manage other brain functions and cognitive skills
- The higher-order cognitive processes involved in the self-regulation of behavior
- Cognitive processes or brain functions that enable a person to engage in problem-solving and goal-directed behaviors
- The broad set of cognitive skills used to organize, self-monitor, control, and direct our behavior toward purposeful goals

EF Analogies and Metaphors

Executive function and EF impairment are sometimes explained using the following analogies and metaphors:

> **Conductor of a symphony orchestra.** Dr. Thomas E. Brown and others use this popular analogy of EFs having a role like that of the conductor of a symphony orchestra, responsible for integrating and managing all of the different components for a successful performance. If the conductor fails to do his or her job well, even with very skilled musicians, the performance will be poor.

Chief executive officer (CEO). Many experts explain the role of executive functions as being similar to that of a successful corporate CEO: analyzing a task, planning, prioritizing, being flexible, making midcourse corrections as needed, being able to assess risk, being able to delay immediate gratification to achieve long-term goals, keeping an eye on the big picture, making informed decisions, and completing tasks in a timely way (Silver, 2010; Willis, 2011).

Iceberg. Chris A. Zeigler Dendy (2002, 2011), Martin Kutscher (2010), and others have described ADHD as an iceberg, with the visible core symptoms (inattention, impulsivity, hyperactivity) as just the tip. Looming under the surface are often the most challenging aspects of ADHD: the EF impairment (and co-occurring conditions).

Air traffic control center. Just as the air traffic control center coordinates all of the different planes coming and going, the executive functions involve managing a lot of information, resisting distractions, exercising inhibitory control and mental flexibility, and so forth (Center on the Developing Child, Harvard University, n.d.).

EF Components

It has not as yet been determined exactly what constitutes all of the executive functions. However, most experts agree that they involve the following:

Inhibition (controlling impulses, being able to stop and think before responding, being able to resist temptations and distractions). This is considered by many to be a primary executive function because inhibitory control is necessary for all of the other EFs to adequately develop.

Working memory (holding information in mind long enough to act on it, complete a task, or do something else simultaneously; a mental desktop for holding information active while working with other information)

Planning and prioritizing (thinking through what needs to be done, structuring an efficient approach to accomplish those tasks, making good decisions about what to focus on)

Organization (imposing order and structure to manage information, efficiently communicate one's thoughts, and carry out goal-directed behavior)

Arousal and activation (being able to arouse effort and motivation to start or initiate tasks and activities, particularly those that are not intrinsically motivating)

Sustaining attention (maintaining alertness and focus and resisting distractions, especially when the task is tedious or not of interest)

Emotional self-control (modulating or self-regulating one's frustrations and emotions)

Time awareness (being aware of how much time has passed and how long things take, keeping track of time, planning and acting accordingly)

Goal-directed persistence (persevering, maintaining the effort and motivation to follow through with actions needed to achieve goals)

Shifting and flexibility (being adaptable and making adjustments when needed, mentally shifting information around, making transitions, ending one task to move to the next)

Self-monitoring and metacognition (being aware of and self-checking one's own behavior, thought processes, strategies, and

comprehension; evaluating one's own performance, monitoring strategy, and revising)

Self-talk and private speech (using your inner voice, mentally talking to yourself to control and guide your behavior or work through a problem)

EF Dysfunction in ADHD

Research has found that children and teens with ADHD lag in their development of EF skills by approximately 30 percent compared to other children their age. So, expect that a ten-year-old with ADHD will have the EF maturity of a seven-year-old, and a fifteen-year-old to have some EF skills more like those of a ten- or eleven-year-old. It is very important for teachers and parents to be aware of this developmental delay and adjust their expectations for self-regulation and self-management accordingly. EF weaknesses can also be expected to cause some academic and work-related challenges to varying degrees (mild to severe), irrespective of the child's intelligence.

The frontal lobes (particularly the prefrontal cortex and extended neural networks) are the primary center of executive functions. This region of the brain has been found to be underactive, smaller, and less mature in people with ADHD than in those without ADHD.

For all people, the prefrontal cortex (PFC) matures and develops gradually from childhood into adulthood (the late twenties), with the most rapid development occurring during the school years. The PFC is the last part of the brain to fully mature, and for those with ADHD, it is delayed in development by a few years. It is not just the PFC that is involved in executive functions. The brain's executive system is complex, as other regions of the brain and neural networks interact with the PFC.

Models Explaining Executive Function Impairment in ADHD

Drs. Russell Barkley and Thomas E. Brown, two world-renowned researchers and authorities on ADHD, have been key leaders in the field, and their work and teachings have fundamentally changed our understanding of ADHD to being that of a disorder of executive functioning—our self-management system. Both Barkley and Brown have developed their own conceptual models of ADHD as a disorder of executive functions, which are best understood by going directly to their books, websites, and other resources, some of which are provided in the references and the Part 1 Additional Sources and Resources.

Barkley's Model of EF and ADHD

According to Barkley, each of the executive functions is actually a type of self-regulation—a special form of self-directed action that people do to themselves (usually mentally and not visible to others). These self-directed actions are what people do in order to modify their own behavior so that they are more likely to attain a goal or change some future consequence to improve their welfare.

Barkley says that there are things people do to themselves for self-regulation:

1. Self-direct their attention (self-awareness)
2. Visualize their past to themselves
3. Talk to themselves in their minds
4. Inhibit and modify their emotional reactions to events
5. Restrain themselves (self-discipline)
6. Play with information in their mind (take it apart, manipulate it in various ways, and recombine it to form new arrangements)

See Barkley's resources at the end of Part 1 and on his website (www.russellbarkley.org).

Brown's Model of EF and ADHD

Brown's conceptual model is that of six clusters of executive functions that are impaired in ADHD. These symptoms of impairment often appear and work together in various combinations in people with ADHD.

1. *Activation.* Organizing, prioritizing, and activating work
2. *Focus.* Focusing, sustaining, and shifting attention to task

3. *Effort.* Regulating alertness, sustaining effort, and processing speed
4. *Emotion.* Managing frustration and modulating emotions
5. *Memory.* Using working memory and accessing recall
6. *Action.* Monitoring and self-regulating action

See Brown's resources at the end of Part 1 and on his website (www.drthomasebrown.com).

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Both doctors have also developed executive function assessment tools: the Barkley Deficits in Executive Functioning Scale—Children and Adolescents (BDEFS-CA) and the Brown ADD Rating Scales for Children, Adolescents and Adults. These and other EF inventories and tools, such as the Behavior Rating Inventory for Executive Function (BRIEF) and Comprehensive Executive Function Inventory (CEFI), are listed in Section 1.3.

Other Information about Executive Functions

- Executive dysfunction is not exclusive to ADHD. EF impairment to some degree is also common in learning disabilities, ASD, OCD, bipolar, and some other developmental and psychiatric disorders, and can also be acquired by damage to the PFC, such as by traumatic brain injury or stroke.
- Studies have shown that self-discipline has a bigger effect on academic performance than does intellectual talent (Duckworth & Seligman, 2005; Tangney, Baumeister, & Boone, 2004).
- A growing body of research has demonstrated that children's EFs (along with their skills in modulating emotion) are central to school readiness in early childhood (Raver & Blair, 2014).
- EFs may be a better predictor of school readiness than one's IQ or entry-level reading or math skills (Diamond, Barnett, Thomas, & Munro, 2007).
- There is growing evidence that because of the brain's neuroplasticity, a person's environment, supports, and opportunities to practice skills have direct, beneficial effects on the way in which the PFC develops; in other words, self-regulation and executive skills can be strengthened with practice.
- Tools of the Mind is an example of one early childhood school program that has been studied by researchers and has shown impressive results. In this program, teachers spend most of each day promoting EF skills with their preschool and kindergarten children (Diamond et al., 2007). See www.toolsofthemind.org and Section 1.8.

What Parents and Teachers Should Keep in Mind

EF weaknesses cause academic challenges to some degree (mild to severe), irrespective of one's intellectual and academic capabilities. Every individual with ADHD will be affected differently in EF areas of strength and weakness. Many highly intelligent, gifted children and teens with ADHD (even those who manage to get good grades) struggle in their daily functioning because of their EF impairment. Most students with ADHD will need supportive strategies and some accommodations to compensate for their deficit in EF, whether they are part of a formal plan (IEP or 504 accommodation plan) or not.

Every aspect of schooling involves a student's EFs. From the beginning of a school day to the end, children and teens need executive skills in order to get to school and classes on time, respond appropriately to peers and adults, follow directions, find and organize materials, get started and follow through to complete assignments, and much more.

When students have executive dysfunctions, support from teachers and parents and efforts to teach and strengthen EF skills are critical for school success. There are many proactive strategies and interventions that can be helpful—supporting the development of students' EFs as well as compensating for their weaknesses.

Many students with ADHD manage to do well in elementary school because of the high degree of support provided by teachers and parents (who often take on the role of the younger child's PFC). But by middle and high school, the executive demands for organizing, planning, time management, problem solving, and other EF skills can become overwhelming. As students with ADHD move up through the grades, the expectations for self-management and independence are often unrealistic, and many teens who did well in elementary school fall apart at this time.

Dendy (2011) reminds us that, unfortunately, kids with ADHD and EF deficits are often mistaken for being lazy,

> because it can seem as if he or she has chosen not to get started on or complete work; and they are often admonished to try harder. In reality, these children and teens may work very hard, but because of attention and executive function deficits, their productivity does not match their greater level of effort. (p. 39)

Numerous strategies, supports, and accommodations for helping students with ADHD compensate for their EF impairments and strengthen skill development are found throughout this book. The following points describe a few general ways to help:

- Environmental structuring to provide a great deal of external structure, such as visual and auditory cues, prompts, reminders, and clear organization of the classroom and home environment.
- Explicit teaching of executive skills to model and provide a high degree of guided and independent practice with clear feedback and reinforcement. Executive skills such as planning, organizing, time management, goal setting, and self-monitoring need to be taught, with lots of practice opportunities. The same applies for explicit teaching of learning strategies and study skills that are typically affected by EF weaknesses, such as note taking, test-taking strategies, and memorization.
- Management techniques and strategies that enable procedures, routines, and transitions to become smooth and automatic; clear rules and expectations that are effectively taught, practiced, and reinforced.
- Supports and accommodations to compensate for memory weaknesses, such as use of checklists, recorded messages, visual aids, and technology.
- Academic assistance or intervention in areas affected by working memory or other EF weaknesses.
- Reenergizing the brain by providing frequent breaks in activities (brain breaks) and physical exercise to avoid cognitive fatigue.
- Strategies and supports for focusing attention, initiating tasks, and maintaining on-task behavior.
- Supports and strategies for dealing with and managing emotions and for teaching, practicing, and motivating use of self-control.
- Supports and accommodations as needed for organization, time management, classroom work production, and homework difficulties, particularly for long-term projects and assignments.

section
1.3

Making the Diagnosis: A Comprehensive Evaluation for ADHD

The diagnosis of ADHD is not achieved through a simple or quick process. There is no laboratory test or single measure to determine if a person has ADHD, and no particular piece of information alone can confirm or deny the existence of ADHD. Nevertheless, ADHD can be diagnosed reliably.

Clinical Evaluation for ADHD

The cornerstone of an ADHD diagnosis is meeting the criteria described in the fifth edition of the *Diagnostic and Statistical Manual of Mental Health Disorders* (*DSM-5*), published by the American Psychiatric Association in 2013. The *DSM* is the source for diagnosing ADHD as well as other developmental and mental health disorders, and it has been updated and revised over the years. The fifth edition (*DSM-5*) is the most current at this time, replacing *DSM-IV* (1994) and text-revised *DSM-IV-TR* (2000).

When evaluating for ADHD, the doctor, mental health professional, or other qualified clinician must collect, synthesize, and interpret data from multiple sources, settings, and methods to determine if there is enough evidence that *DSM-5* criteria for ADHD have all been met. This cannot be done in a short office visit. An appropriate evaluation for ADHD takes substantial time and effort.

In 2011, the American Academy of Pediatrics (AAP) published guidelines for primary care doctors for the diagnosis, evaluation, and treatment of ADHD. These guidelines were revised and updated from the initial guidelines of 2000. The current guidelines (AAP, 2011) for primary care physicians state the following:

- Doctors should evaluate children four through eighteen years of age for ADHD if they present with academic or behavioral problems and symptoms of inattention, hyperactivity, or impulsivity.
- To make a diagnosis of ADHD, all *DSM* criteria must be met.
- Any alternative cause for the symptoms (other than ADHD) should be ruled out, and the evaluation should include, if indicated, assessment for other conditions that might coexist with ADHD (emotional, behavioral, developmental, physical).

DSM-5 Criteria

- The *DSM-5* (as in previous editions) lists nine specific symptoms under the category of inattention and nine specific symptoms under the hyperactive-impulsive category. These eighteen symptoms are listed in

Section 1.1 (italicized under the categories of inattention and hyperactivity-impulsivity).

- For someone to be given a diagnosis of ADHD, the evaluator must determine that the person often presents with a significant number of symptoms in either the *inattentive* category or the *hyperactive-impulsive* category or in *both* categories. What constitutes a significant number varies by age: six out of nine symptoms (in either or both categories) must occur often for children through age sixteen; only five symptoms out of the nine is the requirement for individuals seventeen years old and above.
- Several symptoms need to be present in two or more settings (for example, at both home and school).
- The symptoms are inappropriate and out of norm for the individual's developmental level (compared to others his or her age).
- The symptoms are not new. They must have been present for at least the past six months.
- Symptoms are to the degree that they interfere with or reduce the quality of the person's functioning (for example, academic, social, work) or development.
- Other conditions or disorders (such as anxiety or depression) do not better account for these symptoms.

Three Presentations of ADHD

As noted in Section 1.1, a person may receive a diagnosis of one of these three different presentations of ADHD, depending on the specific symptoms:

- *Predominantly inattentive presentation.* If enough symptoms of inattention but not hyperactivity-impulsivity were present for the past six months.
- *Predominantly hyperactive-impulsive presentation.* If enough symptoms of hyperactivity-impulsivity but not inattention were present for the past six months.
- *Combined inattentive and hyperactive-impulsive presentation.* If enough symptoms in the category of inattention and in the category of hyperactivity-impulsivity were present for the past six months.

Note: *Because symptoms can change over time, a person's type or presentation of ADHD may change at some time during his or her life.*

Changes in the *DSM* Criteria

Although much remains the same in *DSM-5* as in earlier editions, there have been some significant changes to the diagnostic criteria:

- In the previous editions of the *DSM,* the criteria were designed to help clinicians diagnose ADHD in children. As the research has proven that ADHD is not just a childhood disorder, it became clear that the criteria did not adequately reflect the experiences of teens and adults with the disorder. The *DSM-5* has adapted the criteria to more effectively diagnose ADHD in teens and adults, as well as in children.
- ADHD is no longer in the "Disruptive Behavior Disorders" section of the *DSM*. It is now found in the "Neurodevelopmental Disorders" section.
- As symptoms tend to be reduced with age, *DSM-5* accounts for this by reducing the number of required symptoms for diagnosis in individuals over seventeen to five out of nine (rather than six out of nine).
- The age of onset changed in the criteria, reflecting our understanding that not all symptoms are evident at a young age. Now symptoms need to occur by age twelve, instead of the previous requirement that symptoms must occur before seven years of age.
- The impairment criteria and wording has been changed. It used to be a requirement that symptoms must cause *impairment* in at least two settings. This has been changed to "clear evidence that the symptoms *interfere with, or reduce the quality of*, social, academic, or occupational functioning" [emphasis mine].
- Although the nine symptoms in each category remain the same, *DSM-5* has added further descriptions to the

symptoms—including what the symptoms may look like in teens and adults. Examples in *DSM-IV* were only of what symptoms may look like in children.
- Instead of being referred to as the three *types* of ADHD, the wording is now three *presentations* of ADHD.
- Now people with Autism Spectrum Disorder (ASD) can also receive a diagnosis of ADHD. It is now recognized that ASD can be a coexisting disorder with ADHD.
- There is now a severity level of ADHD (mild, moderate, severe) that is to be specified under the new *DSM-5* criteria.

Components of a Comprehensive Evaluation for ADHD

Clinical Interview

This is the single most important feature of the evaluation process, during which the clinician spends a significant amount of time speaking with parents to obtain the following information:

- The child's *medical history* (for example, during pregnancy and fetal development, birth, illnesses, injuries), developmental history (approximate dates of milestones reached in language, motor, self-help, learning skills), and school history
- The *family history* (of medical, psychiatric, psychological problems and diagnoses of parents and other family members—particularly looking for known or possible ADHD and coexisting conditions in parents, siblings, grandparents, or other relatives)
- Information about any *significant family circumstances or stressors* (which may be causing some of the symptoms), such as death or serious illness in the family, parental separation or divorce, and so forth
- *Parents' perceptions, insights, and observations* regarding, for example, the following:
  - — The child's difficulties in learning, behavior, health, and social relationships
  - — The child's strengths, interests, and motivators
  - — The child's responses to discipline and disciplinary techniques used in the home
  - — How the child responds when upset, angry, or frustrated
  - — How the child gets along with siblings, neighborhood children, and others
  - — The child's feelings (worries, fears, frustrations)

The interview also involves *talking with and observing the child.* The length of the interview with the child or teen, and what questions are asked will vary, of course, depending on the child's age.

An *interview with the teacher* is also recommended. By directly speaking with the teacher, the evaluator will be able to obtain a much better picture of the child's functioning and performance at school (academic, behavioral, social-emotional) and can hear the teacher's observations of the child compared to other students in the classroom.

Questionnaires (such as Barkley's home and school situations questionnaires) or rating forms that may have been sent to parents and teachers prior to the evaluation may be reviewed with further questions asked of parents, the child, or teachers during the interview process.

Note: *It is helpful if, prior to the evaluation, parents are prepared by having the information (particularly the child's history) readily available to share.*

Rating Scales

Rating scales are very useful in determining the degree to which various ADHD-related behaviors or symptoms are observed in different key environments (for example, home and school). Not only teachers and parents but also others who spend time with the child, such as the school counselor, special education teacher, child care provider, or other relative, can fill out rating scales.

The evaluation typically involves filling out one or more rating scales. A variety of scales and questionnaires can be used as part of the diagnostic process for obtaining information from parents and teachers. Scales that provide information specific to the *DSM* diagnostic criteria for ADHD should be used. These include the Vanderbilt

Parent and Teacher Assessment Scales; Conners Parent and Teacher Rating Scales; Attention Deficit Disorders Evaluation Scale (ADDeS); Swanson, Nolan, and Pelham (SNAP-IV-C); and the ADHD Rating Scale-IV.

There are other broadband rating scales that may be used *in addition to,* but not instead of, the ADHD rating scales. These broadband scales may pick up on anxiety, depression, and other possible mental health disorders (which may coexist with ADHD).

There are also scales for executive functioning that the clinician may use for obtaining additional information, such as the Comprehensive Executive Function Inventory (CEFI), Behavior Rating Inventory of Executive Function (BRIEF), Barkley Deficits in Executive Functioning Scale—Children and Adolescents (BDEFS-CA), and Brown Attention Deficit Disorder Scales (BADDS).

Rating scales list a number of items that teachers or parents rate according to the frequency with which they observe the child exhibiting those specific behaviors or problems. Sometimes the ratings range from "never" to "almost always" or from "not at all" to "very much." Some rating scales are numerical (ranging from 1 to 5 or 0 to 4). The scales are standardized, enabling the evaluator to compare a child's behavioral symptoms with those of other children of that age or developmental level.

In some of the instruments, various situations in the home or school are described, and parents or teachers rate whether they see the child presenting difficulty in any of those situations and to what degree (mild to severe).

Teachers may be asked to rate the student in comparison to others in the class on the existence or degree of disruptive behavior, moodiness, oppositional behavior, distractability, organization skills, forgetfulness, on-task behavior, activity, aggressiveness, ability to display self-control, paying attention, and so forth.

Physical Exam

A clinical evaluation for ADHD generally includes a routine examination to rule out other possible medical conditions that could produce ADHD symptoms or that may require medical management. The routine exam may include measuring the child (height, weight, head circumference), screening to rule out poor vision or chronic ear infections, screening for gross motor skills or neurological signs of a developmental disorder.

The child's physical exam and medical history (through interview and questionnaire) may prompt a physician to look for evidence of other possible causes for the symptoms or additional issues that may need to be addressed, such as sleep disturbances, allergies, bed-wetting, or anxiety.

Other medical tests (blood work or imaging scans such as CT, SPECT, PET, EEG) are not done in an evaluation for ADHD. It is the doctor's responsibility to determine the need for additional medical testing or referral to other specialists if indicated.

Observations

Directly observing the child's functioning in a variety of settings can provide helpful diagnostic information. Most useful are observations in natural settings where the child spends much of his or her time, such as school. How a child behaves and performs in an office visit is not indicative of how that same child performs and behaves in a classroom, on the playground, in the school cafeteria, or in other natural settings.

Academic and Intelligence Testing

An evaluator should have at least a general indication of a child's academic achievement level and performance, as well as a rough estimate of his or her cognitive (thinking and reasoning) ability. Some means of obtaining this information include a review of the student's report cards, standardized test scores, classroom work samples, or curriculum-based assessment, or informal screening measures. Information can also be gleaned from the interviews with the child, teacher, and parents.

If there are indications of possible learning disabilities, a psychoeducational evaluation should be considered, which assesses the child's cognitive, processing, and academic strengths and weaknesses—providing information about how the child learns and his or her educational needs.

Parents may seek a professional in the community or request an evaluation from the school district. See Part 6 for more on this topic.

Performance Tests

Additional tests are sometimes used by some evaluators to obtain more information about how a child functions on various performance measures. Some clinicians use computerized tests that measure the child's ability to inhibit making impulsive responses and to sustain attention to tasks. However, these tests are not standard practice or routinely conducted in ADHD assessments; they are not necessary for making the diagnosis.

More Tips and Information

- A thorough history is critical in making an accurate diagnosis of ADHD, which is obtained through the interview, use of questionnaires or rating scales, and a review of medical and school records. With regard to the school history, a great deal of useful data is located in the student's school records, which might include past report cards, IEPs, district and state achievement testing and other school evaluations (such as psychoeducational and speech-language), referrals to the school team, and so forth. Parents may provide some of this information, or it can come from the school.
- *An appropriate assessment for ADHD cannot be made* if the school has not been communicated with and has not provided the evaluator with information about the student's current functioning, and if teacher input and observations have not been provided.
- When indicated, evaluation of the child should include screening or assessment for conditions that mimic (produce similar-looking symptoms) or that may coexist with ADHD.

Pursuing an ADHD Evaluation

Some children have significant behavior problems and ADHD symptoms as early as preschool. For others, the symptoms become of concern in the early elementary grades, when the child must function all day in a classroom with twenty to thirty other children. For many other children, it is not until third or fourth grade that they start to struggle in school as the academic demands become much harder, and expectations for on-task behavior, work production, and self-control intensify.

There are many children with ADHD who manage to perform adequately in an elementary school setting with a high degree of support and structure provided by parents and teachers, but who then fall apart in middle school and high school with the increased academic demands and high expectations for self-management and executive skills, and the challenge of multiple classes and teachers.

At whatever point parents decide to pursue an ADHD evaluation for their child, it is a very important step. A proper diagnosis is key to getting the necessary help and intervention that a child with ADHD needs in order to achieve success and minimize risks of any negative outcomes. Parents are advised not to wait and see when they have concerns, especially if the child is struggling in learning, behavior, or social skill competence.

Who Is Qualified to Diagnose ADHD?

A number of professionals have the qualifications to evaluate children for ADHD: child psychiatrists, pediatricians, neurologists, psychologists, social workers, family practitioners, nurse practitioners, and other licensed medical and mental health professionals. Specialists in childhood medical and mental health, such as child psychiatrists, child psychologists, child neurologists, and developmental or behavioral pediatricians, have the most training and are recommended for complex cases.

A key qualification is the professional's knowledge of and experience in evaluating children and teens for ADHD. If the child is being evaluated by his or her pediatrician, that doctor should be following the American Academy of Pediatrics clinical practice guidelines for the diagnosis, evaluation, and treatment of ADHD (AAP, 2011) and *DSM-5* diagnostic criteria. Not all

primary care doctors are aware of or follow these, and in such cases, parents should seek another professional to evaluate their child.

Finding a Professional to Evaluate Your Child

Parents are advised to share concerns with their child's pediatrician or other primary care physician and let the doctor know that you want your child evaluated and why. You may request a referral to a specialist, or the primary care doctor may inform you that he or she can do the evaluation.

Parents need to be proactive and not be embarrassed to ask the doctor about his or her experience evaluating for ADHD and what will be involved in the diagnostic process. If parents feel they are being hurried and not listened to carefully or if their concerns are brushed off and their questions are not satisfactorily answered, they should seek a different professional to evaluate their child.

When it comes to finding a professional, it helps to have recommendations. Your community's chapter of CHADD (www.chadd.org) is an excellent resource, as other parents of children with ADHD who have already been through the process can best recommend local professionals who have expertise in diagnosing and treating ADHD. School nurses and school psychologists are also good resources and are generally knowledgeable about health care providers in the community who have expertise in diagnosing ADHD and coexisting conditions. Local university medical hospitals and children's hospitals are often good resources you may want to explore as well.

Working with the School in the Evaluation Process

It is always important to communicate with your child's teachers regarding any of your concerns. You likely have been doing so prior to reaching this decision to pursue an evaluation for ADHD. If not, the first step should be to set up an appointment and have a conference with the teacher.

The next step is often a school multidisciplinary team meeting to discuss your child and your concerns, and to strategize a plan of support and intervention. This team goes by various names, such as student support team (SST), student assistance team (SAT), or child study team (CST). It may also be the Response to Intervention (RTI) team in your child's school.

At the meeting, share your concerns and ask for input regarding your child's performance from teachers and other staff who know your son or daughter and observe his or her functioning in the classroom and other settings.

The SST meeting is especially helpful when considering an evaluation for ADHD because the school can share with you its role in the assessment and obtain your written permission to begin gathering relevant data from school for the evaluation (such as records, reports, observations, and behavior rating scales). It is more likely that efforts will be coordinated when a school team is informed and involved.

As parents, you have the right to request a school-based evaluation at any time to determine if your child is eligible for special education, related services, or accommodations under federal laws protecting children with disabilities (IDEA and Section 504). See Sections 6.2 and 6.4 on this topic. Sometimes a school evaluation to determine educational needs and possible services and supports is initiated concurrently with a clinical evaluation for ADHD.

What Teachers and Other School Professionals Need to Know

Information about Current School Functioning

As described earlier, the diagnosis of ADHD is dependent on gathering sufficient information from multiple sources to get a clear picture of how ADHD symptoms are affecting a child's functioning in more than one setting. School is a key setting; it's where the child spends much of his or her life. No one is in a better position than the teacher to report on the child's school performance

compared to other students of that age and grade. This includes the teacher's observations and objective information indicating the student's academic productivity and social, emotional, and behavioral functioning.

In an appropriate evaluation for ADHD, teachers will be asked to report their observations about the student through standardized behavior rating scales, questionnaires, narrative statements, phone interviews, or other measures. The teacher should be prepared to share information regarding the student's ability to exhibit self-control, stay focused and on-task, interact with peers and adults, initiate and follow through on assignments, and other behaviors.

Other indicators of a student's current school performance (academic and behavioral) may be helpful as well—for example, disciplinary referrals (among the records of guidance counselors or administrators) and work samples.

Information about the School History

Data indicating the existence of symptoms in previous school years, when those symptoms started to become apparent, and difficulties the student experienced in prior grades can generally be obtained from the school records, which might include past report cards, district and state achievement testing, other evaluations (such as psychoeducational and speech-language), referrals to the school's multidisciplinary team, and any school-based support or intervention plans.

Points to Keep in Mind

- It will be necessary for parents to sign a release-of-information form before school personnel are permitted to communicate with other professionals outside of school or provide documentation and data regarding the student. Teachers need to make sure this form is on file with the school district before sharing information requested by a doctor or other evaluator.
- The school is responsible for determining educational impairment due to a suspected or known disability. Schools have the responsibility of initiating and following through with a comprehensive evaluation if the student is suspected of having ADHD or any other disability impairing educational performance. (This includes behavioral, not just academic, performance.) If the student meets eligibility criteria, the school is then responsible for providing supports and services under either of the two federal laws: IDEA or Section 504 of the Rehabilitation Act of 1973 (which are discussed in Section 6.4).
- Up to 50 percent of students with ADHD also have coexisting learning disabilities. If a student with ADHD is struggling academically (for example, in learning to read or write), the school should consider the probability of learning disabilities (such as dyslexia or dysgraphia) and provide a more comprehensive evaluation to determine the child's learning needs.

section

1.4

Multimodal Treatment for ADHD

Once a child receives an ADHD diagnosis, there are many ways to help the child and the family. It is important to realize that ADHD is not something that can be cured, but it can be treated and managed effectively. The best way of doing so is through a multifaceted approach—a "multimodal" plan that combines medical, behavioral, educational, and other interventions.

ADHD is recognized as a chronic condition (like asthma or diabetes) and follows a chronic care plan of action (American Academy of Pediatrics [AAP] & National Initiative for Children's Healthcare Quality, 2002; AAP, 2011). This means looking at the long-term picture. Various supports and treatments may be needed throughout the individual's lifetime or employed at different times in life as needed. In addition, because of the long-term management involved, the treatment plan requires vigilance on the part of parents, educators, and health providers in monitoring and following up on the effectiveness of the plan, and adjusting as needed.

There are a variety of medical and mental health professionals (physicians, psychologists, social workers) who may be involved at different points in the child's life. The school team also may comprise a number of different school professionals (classroom teachers, guidance counselors, school nurse, administrators, special educators, and other special/related service providers). Parents may bring in to their team anyone who spends much time interacting with the child or teen (extended family, child care providers, tutors, coaches).

A primary intervention is education—particularly of parents and teachers (and the child or teen)—about ADHD. Awareness and understanding of the disorder and of how to structure and modify the environment and employ strategies to manage and respond to the ADHD-related behaviors are extremely important and come with education and training.

When their child receives the diagnosis, parents, as their child's case managers, must do everything they can to learn about ADHD. This is the start of the parents' journey of becoming "ADHD experts"—equipping themselves with the knowledge that will enable them to make the best-informed decisions regarding their child's care and the management of his or her ADHD.

The AAP (2011) established clinical guidelines for the diagnosis, evaluation, and treatment of ADHD in children and adolescents. According to the AAP guidelines, the primary goal of treatment is to maximize the child's

functioning at home, at school, and in the community. The guidelines recommend that the treating clinician, the parents, and the child, in collaboration with school personnel, should specify appropriate target outcomes to guide management. Examples of target outcomes include

- Improved relationships with parents, siblings, teachers, and peers
- Improved academic performance (particularly in volume of work, efficiency, completion, and accuracy)
- Increased independence in self-care or homework
- Improved self-esteem
- Fewer disruptive behaviors
- Safer behavior in the community (for example, when crossing streets or riding bicycles)

Important Points to Keep in Mind

- The most positive outcomes for youngsters with ADHD are achieved when parents, teachers, other involved school professionals, and treating medical and mental health providers have good communication and collaborate well.
- The two research-validated interventions known to be most effective at this time are *medication* and *behavioral therapy.* One, the other, or a combination of both is the main treatment for ADHD. The scientific evidence clearly shows that these are the treatments that make the biggest difference with regard to improvement of symptoms and degree of impairment. These interventions have been extensively tested with controlled studies and proven effective in managing ADHD.
- Educational supports and interventions addressing the child's areas of weakness are also a critical component in the success of students with ADHD.
- There are additional complementary supports and interventions to enhance the plan and benefit the individual with ADHD.

Multimodal Intervention

Parent Training

As noted, education is a crucial component of ADHD treatment. Parents must be provided with the following information to best help their child:

- Accurate and reliable information about ADHD in order to understand the impact and developmental course of the disorder, the treatment options, and available resources
- A new set of skills for managing their child's challenging behaviors
- Training in effective behavioral techniques and how to structure the home environment and other aspects of their child's life
- How to best navigate the educational and health care systems

Note: *The Parent to Parent training program offered through CHADD is highly recommended. See www.chadd.org.*

Medication Therapy (Pharmacological Intervention)

Pharmacological treatment is the use of medication to manage ADHD symptoms. This has been proven by an abundance of research to be a highly effective intervention—the most effective as a single intervention—for managing symptoms and improving the functioning of children and teens with ADHD (Adesman, 2003; MTA Cooperative Group, 1999). Stimulant medications have been proven effective in treating approximately 70 to 90 percent of children with ADHD (Barkley, 2013; Brown, 2005).

These medications work to increase the action of the neurotransmitters (brain chemicals) available in certain brain regions and circuits that are not working efficiently in individuals with ADHD. Some FDA-approved nonstimulant medications are also used successfully in ADHD treatment. Appropriate medical treatment requires well-managed and carefully monitored use of medication(s) for ADHD. When there are coexisting disorders, various medications may be prescribed in the treatment of those other conditions as well. See Section 1.5 on medication therapy.

Behavioral Therapy

Behavior modification and specific behavioral strategies implemented at home and school are also research-validated interventions for children with ADHD, and another key component of the overall treatment plan. This involves parents and teachers learning skills and strategies to manage the behaviors of children with ADHD, such as how to provide clear, consistent structure and follow-through, and effective use of rewards (to increase desired behaviors) and negative consequences (to decrease unwanted, undesirable behaviors).

Behavioral therapy provides specific techniques and interventions adults can implement, such as a token economy system or home-school daily report cards (DRCs), and help in recognizing and adjusting the antecedents or triggers to problem behavior. Behavioral interventions for children with ADHD include those learned through parent training and implemented at home, those provided at school by teachers and other school personnel, and skills and strategies that the child learns to improve his or her behavior and interactions with others. See Section 1.6 on behavioral therapy and strategies throughout Part 2 for much more on this topic.

Other Psychosocial Interventions

Social skills training. This training is usually provided in small groups with curriculum addressing specific skills that children with ADHD tend to have difficulties with in their interpersonal relationships (for example, how to disagree respectfully, share and take turns, and play a game and accept losing appropriately). The children are taught through role playing and other techniques, and then practice in natural settings the skills they have learned, receiving feedback and reinforcement. See more on this in Sections 1.6 and 2.7.

Parent counseling. This is the parent training described earlier, which is a vital part of any treatment plan.

Family counseling. The whole family is often affected by issues relating to ADHD. Family therapy can address concerns that affect parents and siblings and improve family relationships.

Individual counseling. The child may work with a therapist in learning coping techniques, problem-solving strategies, and ways to deal with stress, anger, or frustration.

Psychotherapy. This counseling (for teens or adults) helps the person with ADHD who has a history of school, work, personal, or relationship problems talk about his or her feelings and deal with self-defeating patterns of behavior.

Vocational counseling. This can be a helpful intervention for teens and adults.

Educational Interventions

Differentiated instruction. Teachers who recognize that one size does not fit all embrace the challenge of using multiple approaches in teaching the curriculum and enabling students to demonstrate their learning.

Accommodations. Teachers should provide accommodations (environmental, academic, instructional, behavioral) as needed to enable students to succeed, whether those accommodations are provided informally or as per a student's IEP or Section 504 accommodation plan.

Special education and related services. Some students with ADHD qualify for special education and receive an IEP and related services provided through the school district.

Other school interventions. Various supports and safety nets may be available at the school that students in general education are able to access, such as homework or organizational assistance, mentoring, peer or adult tutoring, school counseling, and Response to Intervention (RTI) tier 1, 2, and 3 academic and behavioral interventions.

Tutoring or academic supports. Parents may pursue private tutoring or other academic interventions to help their child in specific areas of academic weakness or with study skills. Learning specialists and educational therapists are recommended for working with students with learning disabilities because of their training and expertise in teaching children with learning challenges and disorders.

Teacher (and other school staff) training about ADHD. Such training to understand the disorder and learn effective instructional and management strategies and supports for helping students with ADHD is a key educational intervention.

See Part 6 for information about Section 504, IDEA, and educational rights of students with ADHD under these two federal laws, as well as more about IEPs, 504 plans, and other school-based educational interventions.

Complementary Interventions

Complementary treatments for ADHD are those that are used *in addition to* the standard treatment of FDA-approved ADHD medication and behavioral therapy for added benefit and improved functioning. As noted, decades of research and scientific evidence have proven medication and behavioral therapy to be most effective in the treatment of ADHD, and these treatments are, therefore, the primary ones recommended by the experts and the major national professional organizations and associations. But there are several complementary interventions and supports that may be helpful for individual children and teens as part of their multimodal treatment plan.

ADHD coaching. This is a service that many teens and adults find beneficial in learning and applying strategies to be more focused and productive and to help them with organization and time management. Coaching generally assists with planning, scheduling, breaking work tasks down into reasonable short-term goals, checking in regularly (for example, over the phone, by text or email, or via Skype or other webcam format), and keeping the ADHD client accountable and on target with his or her individual short- and long-term goals. ADHD coaches assist their clients in understanding ADHD and its impact on their life while developing skills and strategies that draw on their strengths and aim to bypass their weaknesses. See the Part 1 Additional Sources and Resources for more information about coaching.

Exercise and physical activity. It is important for children and teens with ADHD to engage in sports, dance, or other physical activities. Studies suggest a link between physical activity and the behavioral and academic performance of children with ADHD—regular exercise boosts their functioning and performance (Ratey, 2008). Research shows that exercise improves the attention system by increasing the levels of the brain chemicals dopamine and norepinephrine. There are numerous benefits of exercise, such as enhancing mood, alertness, and self-regulation. Sports and dance not only are fun and motivating activities but also teach and provide opportunities to practice focused attention, self-discipline, and self-control.

The key is to find the sports or physical activities that are right for the individual child. Some children with ADHD have difficulty in team sports, especially those that have a lot of downtime and require having to wait patiently for their turn to participate. Many children with ADHD do best in individual sports, such as swimming, diving, tae kwon do or other martial arts, gymnastics, track and field, tennis, skating, or horseback riding. According to Ratey (2008), for those with ADHD, highly structured exercise that requires complex movements, such as martial arts, gymnastics, ballet, figure skating, or rock climbing, have a greater positive impact than aerobic exercise alone. As mentioned,

team sports are not the best for some children with ADHD, but others do fine or excel in them, and they are perfect activities for learning and practicing social skills, such as cooperation.

Neurofeedback (EEG biofeedback). Neurofeedback has been used as a complementary or alternative treatment for ADHD for a number of years, but has been controversial because of limited scientific support from controlled studies and random assignment of subjects. In recent years, there has been more controlled research support, and a number of experts in the field believe that neurofeedback does hold promise as a complementary treatment. EEG biofeedback involves brain exercises that take place during a series of treatment sessions in which the child wears headgear lined with electrodes and performs video games and computerized tasks while brainwave activity in the frontal lobe (the part of the brain that is underaroused in those with ADHD) is measured. The treatment is supposed to increase the activation of brain waves in that part of the brain and train patients to eventually produce on their own the brain wave patterns associated with focus.

Other brain-training technologies. In recent years, various software programs and technologies have been developed to help train and strengthen certain cognitive skills that are weak in children with ADHD. Although still in their infancy, and requiring much more research to validate their positive effects, these types of programs show promise as possible useful complementary interventions. The most well known and well researched of these programs at this time is Cogmed Working Memory Training Program (www.cogmed.com). Some others include the Activate program (www.c8sciences.com), Play Attention (www.playattention.com), Jungle Rangers (www.focuseducation.com), and Brainology (www.mindsetworks.com/brainology).

Meditation practices and mindfulness. Practices involving meditation and attention to one's breathing have been used for centuries. Recent research has been looking at the positive effects of such practices on people with ADHD. According to Lidia Zylowska (2012), codeveloper of UCLA's Mindful Awareness Program for ADHD, mindfulness awareness practices help improve a person's ability to resist distractions, manage emotions, and notice an impulse arising without acting on it. According to the website of UCLA's Mindful Awareness Research Center (http://marc.ucla.edu), the practice of mindful awareness can guide students to improve relationships, create relaxation and calmness, self-soothe, increase memory, enhance focus, reduce stress, manage reactions and emotions, increase self-acceptance, and feel more at ease with test taking. Children may benefit as well from learning and practicing yoga, progressive relaxation, and visualization techniques.

Diet. All children and teens should have a well-balanced diet, high in nutrition (plenty of protein, fruits, and vegetables). Certain dietary factors may affect some children, and parents should discuss with their doctor or a nutritionist any concerns they have that their child's diet may be a factor—worsening his or her ADHD symptoms. For example, omega-3 fatty acids are important in brain and nerve cell function and increase the level of dopamine in the brain. There may be some evidence supporting omega-3 fatty acid supplements as beneficial for individuals with ADHD (Barrow, 2008). Protein is digested more slowly than carbohydrates and can prevent surges in blood sugar, which may increase hyperactivity. Protein for breakfast in the morning is highly recommended ("Special Report: Diet Matters," 2008). Deficiencies of certain minerals (zinc, iron, and magnesium) may worsen symptoms of inattention, impulsivity, and hyperactivity, which may be improved through diet or a multivitamin that contains the

recommended daily allowance of key vitamins and minerals. Some children have food sensitivities, such as to gluten, eggs, or dairy. If parents suspect that to be the case, they may wish to try an elimination diet of certain foods under the supervision of their child's doctor. Food sensitivities do not appear to be a specific problem for most children with ADHD, but more recent studies suggest a small effect for all children regardless of whether or not they have ADHD (Goodman, 2008). *Note:* It is strongly advised that parents consult with their child's doctor before giving their child any supplements or trying an elimination diet.

Other healthy lifestyle choices. Getting a good night's sleep is very important but often problematic for many children and teens with ADHD. Parents are advised to discuss sleep problems with their child's physician. More outdoor activities as opposed to indoor ones (glued to a screen of some type) are good choices for everyone and may be even more important for those with ADHD. A few studies have shown that exposure to green, outdoor settings can be beneficial for children with ADHD, with improved symptoms, particularly in attention.

Music therapy and music lessons. Music is well known to have many positive benefits for people. Brain imaging shows that music stimulates and activates certain brain regions, and neuroscience is learning more and more about the effects of auditory stimulation on the brain. "The rhythm and structure of music may be helpful in regulating the ADHD brain. It can be used as a tool to help train the brain for stronger focus and self-control" (Rodgers, 2012, p. 47). Studies have shown that musical training can enhance reading-related skills and language abilities (McGavern, 2015). Recent studies (Hudziak et al., 2014; McGavern, 2015) showed evidence that early music instruction also positively affected prefrontal regions in the brain associated with emotional regulation and inhibitory control. "Although speculative, it is possible that music training's influence on cortical maturation, particularly in the prefrontal regions, may serve to mitigate aspects of ADHD symptomology" (Hudziak et al., 2014).

Parent support groups. Having the opportunity to share and network with other parents who have children with ADHD is very helpful. CHADD (www.chadd.org) is the nation's main ADHD organization, with local chapters across the United States. CHADD is an excellent source of reliable information and support for parents of children with ADHD. Some communities have other ADHD groups with informational meetings and networking as well. There are also online chat groups that parents in the ADHD community may find helpful.

Developing and nurturing the child's strengths and interests. Very important to the child's happiness and successful future is enabling him or her to participate in such activities as arts and crafts, music, dance, sports, creative and performing arts, or scouts. This is a very important part of a multimodal therapeutic plan for children with ADHD—to help them find their strengths and have areas in their life in which they shine.

Other. See the bonus section "Healthy, Fun, and Therapeutic Ways to Help Manage ADHD Symptoms," available online at www.wiley.com/go/adhdreach (password 37785), for more information on activities that may be of benefit in a multimodal treatment plan—for example, yoga and other controlled exercises, breathing and progressive relaxation techniques, and music and art therapy.

Note: *See the resources list in the Part 1 Additional Sources and Resources for much more on these standard and complementary interventions and supports.*

Additional Points to Keep in Mind

Children, especially teens, should be included as active partners in their treatment program. For them to be motivated to actively cooperate and participate in the treatment, they need to understand the disorder, the reason for various interventions, and how those treatments are intended to have a positive effect on their daily lives.

As mentioned earlier, interventions need to focus not just on improving the child's areas of weakness but also, just as important, on helping the child or teen recognize, develop, and build on his or her strengths.

Caution about Alternative Treatments

Although complementary interventions are those used *in addition to* the standard ADHD treatments, alternative treatments are those that are used *instead of* the proven ADHD treatments of medication therapy and/or behavioral therapy.

Many parents are reluctant to treat their child with medication, or are outright opposed to doing so. The many advertisements in magazines, TV, radio, or the Internet making claims about various alternative products or treatments that cure ADHD symptoms can sound very convincing and believable. Parents need to be cautious and informed consumers when considering alternative treatments. Be aware of the following:

- Most make their claims based on a small sample of people supposedly studied.
- Most tend to use testimonials in their advertisements and do not have reputable scientific evidence to support the product's effectiveness or to back up their claims.
- Although they may cite a few studies as evidence, these studies are not controlled research that meets the scientific standards for evaluating treatment effectiveness. This would require, among other things, proper controls and random assignment of test subjects, measurement techniques enabling the scientific community to evaluate the findings, peer reviews by other professionals prior to publication of results in scientific journals, and replicated studies by other teams of researchers to see if they achieve similar results.
- Various so-called natural products may be harmful because they have not been through rigorous scientific testing for safety.
- Any treatment that is advertised as miraculous or groundbreaking is generally bogus.
- Some of these treatments have been discredited, some lack the scientific evidence to back up their claims, and some show promise but warrant further study and for now remain unproven.
- It is very important to talk to your doctor about any alternative treatment you are considering for your child.
- A number of alternative treatments have been claimed to be effective in treating ADHD. Those without scientific evidence or that have been disproven include supplements of megavitamins and antioxidants, chiropractic adjustment and bone realignment, optometric vision training, anti–motion sickness medication, vestibular stimulation, herbal remedies, and treatment for candida yeast infection, among others.

For reliable information regarding alternative and complementary interventions, go to these websites: National Resource Center on AD/HD (www.help4adhd.org) and National Institutes of Health, National Center for Complementary and Alternative Medicine (http://nccam.nih.gov).

section

1.5

Medication Treatment and Management

An Optic View of ADD

If corrective lenses did not exist
No well-meaning parent could hope to resist
A pill that enabled their child to see
And increase that child's ability
For better sight and clear vision
No, this would not be a tough decision.
Then why wouldn't the same analogy
Apply to the problem of ADD?
For brains are a lot like eyes, I believe . . .
They both need to focus in order to see!
Medication as treatment might be prevented
If ADD lenses were someday invented.

Karen Easter, 1996

Medications have been used safely for decades to treat ADHD. They do not cure the disorder, but do help in controlling and reducing the symptoms. The most commonly used medications for treating ADHD are stimulants.

There continues to be much attention (media sensationalism and public controversy) regarding the use of stimulant medication in treating children with ADHD. A great deal of misinformation exists, which makes it difficult for parents trying to make an informed decision.

Parents need to consult with their physician or other medical professionals about any medication issues, questions, or concerns. The information presented in this section is meant only as a general reference.

Stimulant Medications in the Treatment of ADHD

Stimulant medications (the methylphenidates) have been regularly used since the 1960s in the treatment of children and adolescents with ADHD (although it was not called ADHD at that time). There are two main classes of stimulants: the *methylphenidate* formulas (for example, Ritalin, Concerta, Methylin, Daytrana) and the *amphetamine* formulas (Adderall, Dexedrine, Vyvanse).

Methylphenidates are among the most carefully studied drugs on the market. Thousands of children have been involved in research evaluating the use of these drugs in the

treatment of ADHD, and they have been used safely with millions of children for at least fifty to sixty years.

Stimulants have been studied more extensively than any other psychoactive drug prescribed for children. Hundreds of controlled scientific studies demonstrating their effectiveness in treating children with ADHD have been conducted. Stimulants have been proven to work for 70 to 90 percent of children with ADHD. They are also effective in adults. There are very few people with ADHD who do not respond to stimulant medications, and the results can be very dramatic. Because the scientific evidence so strongly supports the effectiveness of stimulants in managing the symptoms and reducing impairment, they are recommended as the first choice of medications used in treating children with ADHD.

How Stimulants Are Believed to Work

Researchers suspect that stimulant medications act to normalize biochemistry in the parts of the brain (primarily the PFC and frontal-subcortical systems) that are underactive and not working efficiently in those with ADHD. These are the regions of the brain responsible for attention, inhibition of behavior, regulation of activity level, and executive functions.

Stimulants increase (or stimulate) the production of neurotransmitters (brain chemicals) to a more normal level in these key brain regions. The brain chemicals involved are dopamine and norepinephrine. Scientists believe that medications that increase the availability of these neurotransmitters help nerve-to-nerve communication, thereby boosting the signal between neurons.

The stimulants are thought to be working within the system involved in the release of these brain chemicals into the synapse (the gap between two neurons), and their reuptake or reabsorption out of the synapse. They are believed to act by helping keep the proper level of these neurotransmitters in the synapse long enough to efficiently transmit messages from one neuron to the next.

Stimulant Medications Prescribed for Treating ADHD

There are several stimulant medications. In the following list, the italicized name is the generic name, and the names in parentheses are the brand names. Also, SR stands for "sustained release," LA is "long acting," and ER and XR mean "extended release."

- *Methylphenidate* (Ritalin, Ritalin LA, Ritalin SR, Concerta, Metadate CD, Metadate ER, Methylin, Methylin ER, Quillivant XR, Daytrana patch)
- *Dexmethylphenidate* (Focalin, Focalin XR)
- *Dextroamphetamine* (Dexedrine, Dexedrine Spansule, DextroStat, ProCentra)
- *Mixed amphetamine salts* (Adderall, Adderall XR)
- *Lisdexamfetamine dimesylate* (Vyvanse)

Some of the stimulant medications come in tablets or capsules to swallow whole, some are chewable or can be dissolved in liquid, and others can be sprinkled on food. Daytrana is a patch adhered to the skin, and ProCentra is a liquid.

The different stimulant prescriptions vary in their onset (when they begin working), how they are released into the body (immediately or over an extended or sustained period), and how long the medication effects last. Each of the stimulants has a high response rate. A child who does not respond well (in symptom improvement) to one stimulant medication will often respond well to another. The initial choice is generally a matter of doctor and parent preference.

The **short-acting and immediate-release formulas** of the stimulants (such as Ritalin or Methylin)

- Start to work about twenty to thirty minutes from the time the medication is taken
- Metabolize quickly and are effective for approximately three to four hours
- Reach their peak effect within one to three hours
- Generally require an additional dosage to be administered at school

- May require a third dose (often a smaller one) to enable the child to function more successfully in the late afternoon and evening hours
- May be prescribed as an additional booster dose later in the day when a longer-acting stimulant wears off (to provide symptom relief in the late afternoon and evening)

The **longer-acting, extended release** stimulants have a time-release delivery system. These stimulants

- Take longer for the effect to begin
- Vary from approximately five to eight hours of coverage for some of the medications to ten to twelve (and even longer) for others
- Provide a smoother, sustained level of the drug throughout the day
- Minimize fluctuations (peaks and troughs) in blood levels
- Minimize rebound phenomena (a worsening of symptoms as the effects of the drug wear off)
- Eliminate the need for a midday dose at school, which is very beneficial for many children and teens, particularly those who are forgetful or who are embarrassed to take medication at school

About Stimulant Medications

- Stimulants take effect quickly (generally within thirty to sixty minutes).
- For some children, their initial prescription and dosage will work well. Many others require adjustments in dosage or trying others among the stimulant medications and formulas to get the best effect.
- For most children with ADHD taking a stimulant medication, once the optimal dosage has been found, they experience improvement (often very significant) in behavior and symptoms.
- Stimulants are found to improve the core symptoms (hyperactivity, impulsivity, inattention) and many of the secondary or associated problems these children experience (for example, oppositional behavior, difficult interpersonal relationships, and lack of work production and school performance).
- On a therapeutic dosage of stimulant medication, there are many positive effects that often occur: reduced disruptive behavior and emotionality; improved ability to get started on and complete assignments, pay attention, stay focused, produce work, follow directions, interact with others, and tolerate frustration; and improved handwriting and academic accuracy.

Side Effects of Stimulant Medications

The side effects that are most common are appetite suppression, weight loss, and mild sleep disturbances. Some children may also experience headaches, stomachaches, irritability, moodiness, agitation, an emergence of tics, and a rebound effect (a worsening of symptoms as the medication wears off, such as irritability, less compliance, more activity). Most side effects from stimulant medications are mild, and they tend to diminish over time and respond to changes in dosage or the particular stimulant prescribed.

A small number of children develop or unmask latent tics (involuntary muscle movements) in the form of facial grimaces, sniffing, coughing, snorting, or other vocal sounds. *Note:* These are rare, and in most cases tics do not continue if the medication is stopped.

The Titration Process

Medication treatment begins with a titration phase: a trial period when the physician is trying to determine the appropriate medication and dosage. The correct dosage of a stimulant is determined not by the child's weight or age but according to how efficiently his or her body metabolizes the medication, which varies in every child and teen.

The titration process involves the following steps:

- Starting with a very low dosage and raising it gradually while observing the effects

- Closely monitoring symptoms and behavioral changes (at home and school) while progressively changing the dosages and sometimes adjusting their timing
- Trying to achieve the most improvement in symptoms and optimal effects from the medication with a minimum of side effects

Parents and teachers must communicate with the physician and provide the feedback necessary for the doctor to determine the child's response to the medication so that benefits are being achieved at each dosage level and side effects are minimized.

Nonstimulant ADHD Medications

Atomoxetine (brand name Strattera) is the first nonstimulant ADHD medication approved by the Food and Drug Administration and was released in 2002. This drug works differently from stimulants. It is a selective norepinephrine reuptake inhibitor, believed to work by blocking the reuptake or recycling of norepinephrine and increasing the availability of this brain chemical in the affected areas of the brain. Whereas stimulants mostly work to improve the level of dopamine, Strattera works on increasing the norepinephrine level and activity.

Atomoxetine has demonstrated effectiveness for improving ADHD symptoms in children and adults and may also help with oppositional and defiant behavior and anxiety.

It has the advantage of providing smooth, continuous coverage for twenty-four hours, and can therefore help functioning around the clock. This nonstimulant medication is also easier to reorder because it is not a controlled substance.

Whereas the stimulants take effect immediately once they enter the bloodstream, Atomoxetine takes weeks of daily use before it shows its benefits. The most common side effects are upset stomach (nausea, vomiting), sleep problems, fatigue, nervousness, and dry mouth.

Other Medications

Antihypertensives (alpha agonists) are another type of drug that is sometimes used in the treatment of ADHD. They include *guanfacine* (Tenex) and extended-release guanfacine (Intuniv) and *clonidine* (Catapres) and extended-release clonidine (Kapvay). Intuniv and Kapvay are more commonly prescribed for children. These medications may improve oppositional and defiant behavior, anxiety, aggression, and tics as well as ADHD symptoms. Intuniv was FDA approved in recent years in the treatment of ADHD in children. It is taken once a day and used along with a stimulant to help children who don't respond well to a stimulant alone.

Certain *antidepressants* have also been found effective in treating ADHD, particularly if a child is not responding to the stimulant or nonstimulant or shows signs of depression, anxiety, or tics, as well as ADHD. They are not, however, FDA approved as an ADHD medication. These antidepressants include the tricyclic antidepressants *imipramine* (Tofranil), *amitriptyline* (Elavil), *desipramine* (Norpramin), and *nortriptyline* (Pamelor and Aventyl), and the atypical antidepressant *bupropion hydrochloride* (Wellbutrin).

The tricyclic antidepressants take some time to build up in the bloodstream and reach a therapeutic level. Besides helping improve symptoms of hyperactivity and impulsivity, they also help with insomnia, mood swings, anxiety, depression, tics, sleep disturbances, and emotionality.

Some side effects of the tricyclic antidepressants are fatigue, stomachache, dry mouth, rash, dizziness, accelerated heart rate, and possible risk of cardiac arrhythmias. *Note:* These are not all the possible side effects of the various medications mentioned here. Parents need to discuss risks and side effects of any medication with their doctor.

Additional Information

- Every child has a unique response to medication, and it takes fine-tuning and patience to get it right.
- It is important that the medical professional whom parents choose to treat their child is very knowledgeable about ADHD and the various medications used in treatment for this disorder.

- Children with ADHD and coexisting disorders require more complex medical treatment, which may involve use of a combination of medications. Generally a specialist with expertise in treating these complex cases, such as a child and adolescent psychiatrist, is recommended.
- All medications can have adverse side effects. Parents need to be well informed of the risks versus the benefits in any medical treatment.
- Kalikow (2013) offers this advice to parents in making a decision about whether or not to try medication:
  - — Start with a good evaluation by a trusted professional.
  - — Consider how your child might benefit from medicine.
  - — Get accurate information regarding the side effects.
  - — Don't feel rushed to make a decision. You have time to do your research and consider your decision.
  - — Know that your decision is reversible. If your child does not benefit from a trial of medicine, or experiences intolerable side effects, the medicine can be stopped.
- There are excellent resources about medication treatment for ADHD, including those listed at the end of Part 1, such as those from CHADD and the National Resource Center on AD/HD.

Note: *For all matters related to medications, consult with your physician or other medical professionals.*

If a Child or Teen Is Taking Medication: Advice for School Staff and Parents

What Teachers Need to Know

- Parents do not easily make the decision to try their child on medication. They often are fearful of the long-term effects. In addition, they are frequently made to feel guilty by well-meaning relatives, friends, or acquaintances who are uneducated about proven treatments or biased against the use of medication because of misinformation.
- The school's role is to support any student receiving medication treatment and to cooperate fully. School personnel need to communicate their observations so that the doctor can determine the child's response to the medication. These observations and frequent feedback to the doctor are necessary particularly in the titration process when a new medication is started, assisting the physician in determining the right medication and dosage—one that is providing the desired symptom improvement with minimal side effects. During the titration stage, in which medication dosage is increased every few days until the optimal dosage is determined, teachers will be asked for their feedback each time the dosage is adjusted or the timing is changed.
- The teacher is an integral part of the therapeutic team because of his or her unique ability to observe the child's performance and functioning (academically, socially, and behaviorally) on medication during most of the day. Teachers will need to carefully monitor and observe students on medication and report any changes (positive or negative) they observe.
- All students on medication for ADHD (regardless of how long they may be on the medication) need to be monitored for the effects of the medication during school hours. This is necessary to ensure that the child or teen is benefiting from the medication. For these students, teachers should also be prepared to share their feedback on the student's functioning (which will occur much less frequently than during titration periods).
- Physicians (or their office personnel) should be initiating contact with the school for feedback on how the treatment plan is working. Generally this is done through follow-up behavioral rating scales or other observational forms teachers are asked to complete. The

doctor's office may send the teacher rating forms directly, or parents may deliver the rating scales or medication forms to the school.

- Generally it is the school nurse who acts as the liaison between the parent and teacher in helping manage the medication at school as appropriate. Coordination and communication between all parties involved are important for optimal results.
- Medications, dosages, and times to be administered are often changed or adjusted until the right combination is found for the child. It is important to communicate with parents and report noticeable changes in a student's behaviors. Sometimes parents do not disclose to the school that their child has started taking medication (or has had a change of medication or dosage) and are waiting to hear if the teacher notices any difference.
- Children metabolize medication at different rates. To ensure that the medication is providing coverage throughout the school day, teachers should take note of changes of behavior or problems occurring at certain times of the day (for example, in the afternoon).
- Teachers need to let parents (and the school nurse, if available) know about any concerns that may indicate side effects of a medication. Children taking ADHD medications should be showing improved functioning and behavior and not experience a change in personality or appear sedated or lethargic. If they do, the dosage may be too high, or the child needs a different medication. It is important to share these observations so that the parent can let the physician know.
- Stimulant medications suppress appetite, and students with ADHD who take stimulants may not be eating much breakfast or lunch. They may get hungry at different times and would benefit from being allowed a snack if needed.
- Most students with ADHD who are prescribed medication are now taking the longer-acting, sustained-release forms—no longer needing a second dose of medication to be administered at school. This has helped significantly in terms of school responsibility and management of ADHD medications.
- For students who do take a short-acting stimulant, it is important that the second dose that is administered during school hours is given on time (as prescribed by the doctor). Be aware that some children experience a rebound effect when the medication wears off. When the next prescribed dose is not given on time, these children may be found crying, fighting, or otherwise in trouble on the playground or in the cafeteria, and disruptive on returning to the classroom. It takes approximately thirty minutes for the next dose of medication to take effect. Careful timing to avoid this rebound effect helps considerably.
- Students with ADHD have a hard time remembering to go to the office at the designated time for medication because of the very nature of ADHD and executive function impairment. It is the responsibility of the teacher or other members of school staff to help remind them discreetly. Strategies for doing so may include a beeper watch or vibrating alarm, private signals from the teacher, pairing the medication time with a natural transition (for example, on the way to the cafeteria), coded verbal reminders, as well as a sticker chart where the medication is dispensed, rewarding the child for remembering.
- Schools have specific policies and procedures for administering medication—for example, a signed consent form on file; medication in the original, labeled prescription container stored in a locked place; and maintenance of careful records of the dosage, time of dispensing, and person administering the medication.
- It helps if parents are notified well before the school's supply of medication runs out so that they have plenty of time to renew the prescription and deliver it to school.

What Parents Need to Know

- If your child or teen is taking medication, it is important that he or she receive it as prescribed in the morning—on time and consistently—under your supervision. Close monitoring and management of the medication are crucial. If it is administered inconsistently, the child is better off without it.
- Because appetite suppression is a common side effect, it is best to seek advice from the doctor regarding how to manage this—for example, by planning for breakfast and other meals at times your child is most likely to have an appetite.
- When your child is on a long-acting medication and the school isn't involved in administering a midday dose, you may be tempted not to inform the school that the child is taking a medication for ADHD. This is not advised. It is best to inform the school of any medical treatment for the disorder and not keep it a secret.
- It requires teamwork and close communication among the family, school staff, and physician for a child to receive the most benefits from medication treatment. Be prepared to lead this communication effort to make sure that the doctor receives the necessary feedback from the school regarding your child's functioning on medication.
- Follow-up visits with the child's doctor are necessary for monitoring the medication's effectiveness.
- For appropriate medical care, the doctor needs to obtain feedback from you *and the school* when your child is on medication. You may need to facilitate this connection. Follow-up ADHD rating scales (such as the Vanderbilt scales) filled out by you and teachers are helpful in monitoring treatment effects. A free downloadable form that can be used is one created by David Rabiner, PhD, found at www.helpforadd.com/monitor.pdf.
- As discussed earlier, when a child is started on medication therapy, there is always a trial period when the physician is trying to determine the most effective medication and dosage. Some children are fortunate to have a brief and successful trial period, experiencing significant symptom improvement quickly. Others will take longer, and some will not benefit from or be able to tolerate the medication. However, for 70 to 90 percent of children with ADHD, medication is found to be effective. Be prepared for this process to take some time to get right, and therefore be patient. If one of the medications doesn't seem to work, chances are that another one will.
- Because the commonly prescribed stimulants are classified by the Drug Enforcement Administration as schedule II medications, there are strict laws regarding how they are prescribed and dispensed. The FDA has restrictions that pharmacists must follow. This makes it more difficult for refilling prescriptions. For example, the medication cannot be called in, and doctors can write a prescription for only one month at a time. It is important that you pay close attention and communicate with the school nurse to make sure the school has the medication on hand if it is a short-acting stimulant prescription.
- Children should be counseled about their medication and why they are taking it. They should be aware that the medication is not in control of their behavior—they are—but that medication helps them (pay attention, get school and homework done, put on the brakes so they can make better choices, and so forth). There are various resources available that can help children better understand ADHD and why they are taking medication to treat it. Some wonderful books geared for children and teens that explain ADHD in kid-friendly, age-appropriate ways are those by Dendy and Zeigler (2015), Nadeau and Dixon (2004), and Quinn and Stern (2009), found in Part 1 Additional Sources and Resources.

INTERVIEW WITH MIKE
Graduate Student in Colorado

Mike was in his twenties when he received an ADHD diagnosis and began treatment.

What are your memories of school?

"Grade school through high school, I rarely did my homework. I got through on my test scores. On all of my scholastic aptitude tests, I scored above the 90th percentile. I was lucky to be an avid reader. I could get the course syllabus and do the reading without even attending class. But I had a very hard time coping in school. I was highly frustrated, and considered by most of my teachers as a 'problem child.' I wasn't shy about challenging teachers."

Which teachers did you do best with?

"Those who had interesting things to say, lectured well, would go with the flow, and had a sense of humor. I did well with teachers who appreciated an original or challenging thought, who gave latitude for originality, and who weren't rigid."

What is your advice to teachers?

"Kids with ADHD are going to need structure. When you find a kid is not making it, start lending a little structure and see if it will help. I still need a little more structure from my bosses than my co-workers do."

What was it like for you, once you received the diagnosis and started treatment?

"When I started medication, it was a revelation to me that I can start something and be able to accomplish it within a reasonable amount of time—even something like cleaning my apartment. If only I'd been caught at eighteen or even eight."

section

1.6

Behavioral Therapy for Managing ADHD

Behavioral therapy is one of the two research-validated interventions proven most effective in the management of ADHD. Behavioral therapy combined with medication therapy is often the optimal intervention for many children with ADHD, providing the greatest improvement in the child's functioning, behavior, and relationships. For any child not receiving medication, behavioral therapy is essential to treat and manage the disorder.

According to the American Academy of Pediatrics (AAP, 2011) guidelines for treating ADHD in children, primary care physicians should prescribe behavioral therapy as the first line of treatment for preschool-age children (four through five years of age); for children ages six through eleven, the physician should prescribe FDA-approved medications for ADHD or evidence-based behavioral therapy (administered by parents and the teacher) as treatment for ADHD—preferably both.

Behavioral therapy requires training of the parent and teacher in behavior modification techniques and the commitment of the adult to implement strategies learned. This is not easy; it takes time and effort, but the benefits are well worth it.

Behavioral therapy helps adults improve children's behavior by teaching the adults behavioral principles and strategies to implement in managing and responding to problem behavior, with professional guidance. Behavioral treatments work by teaching new skills to parents, teachers, and the children for handling problems and interacting with others.

Behavioral interventions for ADHD may include the following:

- Proactive parenting and classroom management, and effective discipline practices at home and school
- Parents and teachers using behavior modification techniques effectively
- Communicating in ways to increase compliance—that is, helping the child listen to and follow parent and teacher directions
- Structuring the environment and being aware of antecedents or triggers to misbehavior to prevent problems at home and school
- Using strategies to best deal with the challenging behaviors associated with ADHD and poor self-regulation in school, home, and other environments
- Classroom and schoolwide behavioral and social-emotional learning programs and supports
- Improving the child's peer interactions and social skills

- Use of well-designed behavioral programs, such as daily charts and school-to-home report cards, token economy programs, and individual behavioral contracts

Note: *A variety of behavioral charts and examples are found in Part 2 and in the appendix. Some of the behavioral charts and daily report cards that are in the appendix are also online at www.wiley.com/go/adhdreach.*

General Principles of Behavior Modification

Behavior modification techniques are a cornerstone of behavioral intervention for ADHD. They are based on the three-part "ABCs" of behavior: **a**ntecedent, **b**ehavior, and **c**onsequence. In general, the *antecedent (A)* is the situation, event, or stimulus that triggers the *behavior (B).* The *consequence (C)* is what occurs immediately after the behavior (B) is demonstrated. The consequence either increases or decreases the likelihood that the behavior will reoccur.

Behavior modification is based heavily on learning how to recognize and adjust the antecedents or triggers that set off behavioral problems, and thereby reduce or avoid them. It also teaches the effective use of consequences to increase those positive behaviors we want to continue and encourage, and to decrease those negative, undesirable behaviors we want to reduce or eliminate.

Behavior modification techniques use incentive systems (such as points or token systems). Rewards are very important in improving behavior. They are particularly necessary for children with ADHD, who require more external motivation than other children typically need. Children and teens with ADHD also need more frequent rewards because their internal controls are less mature, and they have trouble delaying gratification. When they are implemented correctly and judiciously, negative consequences or punishments—particularly use of time-out procedures and loss of privileges—are also effective in changing behavior.

Home-Based Behavioral Treatment

Parents of children with ADHD must become far more knowledgeable and skilled in behavior management principles and techniques than other parents. They need training in how to handle the daily challenges and behavioral difficulties resulting from the child's disorder.

Parent training is key to understanding ADHD and how to best manage it. Parent training programs incorporate techniques to improve parent-child interactions, decrease noncompliance, reduce behavior problems, and facilitate family communication patterns (Teeter, 2000). Parents learn preventive strategies (adjusting or manipulating the antecedents to misbehavior), instructive strategies (directed at providing the child with different and more appropriate ways to accomplish a goal), and consequence-based strategies, including effective use of rewards and punishments (Wolraich & DuPaul, 2010).

Behavior modification training is typically for parents managing the behaviors of preschool and elementary school children. With adolescents, other techniques and skills, such as behavioral contracting and problem solving, are taught to parents and the teen (Wolraich & DuPaul, 2010).

Parent education can be conducted in a group format or with individual sets of parents in training sessions over a series of weeks. Parent trainings are generally provided in eight or more weekly or biweekly sessions, with specific strategies parents are to implement as homework between sessions.

Parents typically learn such strategies as establishing daily routines, organizing and structuring for success at home, praising and giving positive attention for appropriate behaviors, giving effective directions and commands to increase compliance and cooperation, effectively using rewards and negative consequences, avoiding power struggles and conflicts, and using incentive systems (daily charts, point and token systems, school-home note systems).

In order to effectively change their child's behavior, parents must also understand how behavioral principles operate on their own behavior. For example, frustrated parents often respond to

children's misbehavior by giving consequences that actually increase rather than decrease that problem behavior's occurrence.

CHADD (www.chadd.org) offers a unique educational program called Parent to Parent (P2P), which is given in the community, online, and on demand, and is facilitated by a P2P trainer.

See Barkley's book *Taking Charge of ADHD* (2013b) for an excellent summary of his recommended steps in parent training, and his program for clinicians in *Defiant Children: A Clinician's Manual for Assessment and Parent Training* (2013a).

The following are some other parent training programs:

- COPE (Community Parent Education Program) (Cunningham, 2005; Cunningham, Bremner, Secord, & Harrison, 2009)
- Triple P (Positive Parenting Program) (www.triplep.net/glo-en/home/)
- Incredible Years Parenting Program (http://incredibleyears.com/programs/parent/)
- Parent-Child Interaction Therapy (www.pcit.org/)

School-Based Behavioral Treatment

There are a number of school-based behavioral approaches that have been found effective in decreasing problem behavior in children. School-based behavioral interventions are implemented by the teacher in most cases and involve the following actions:

- Proactive classroom management
- Creating an ADHD-friendly classroom environment
- Preventing behavior problems during transitions and other challenging times of the school day
- Using class (group) behavior management systems
- Implementing individualized behavioral programs, supports, and interventions, such as daily report cards and behavioral contracts
- Implementing targeted strategies to help students with inattentive, off-task, impulsive, or hyperactive behaviors
- Effectively managing students' anger, frustration, and poor self-regulation

Note: *All of these topics will be addressed in Part 2 of this book.*

School districts throughout the United States are shifting their focus toward promoting positive behavior and away from reacting to negative behavior, initiating a systematic and structured whole-school effort. This involves modeling and teaching—in all classrooms and schoolwide—the rules and expected behaviors, creating a supportive and consistent environment for all students, and employing a number of early intervention strategies ("Early Intervention," 2014).

Many schools are now implementing a multitiered system of support (MTSS), which is a continuum of increasingly intense supports for students. Schools that use a Response to Intervention (RTI) model and a Positive Behavioral Interventions and Supports (PBIS) model, which are both MTSS models, are well structured to provide effective behavioral treatment to students in need. PBIS schools, for example, teach and reinforce prosocial behaviors as a tier 1 intervention for all students, and provide more targeted and intense supports (tier 2 and tier 3) as needed by individual students, with close monitoring of student responses to the interventions to ensure that all students receive the level of help they need. See www.pbis.org and the other resources for implementing schoolwide behavioral interventions listed in the Part 1 Additional Sources and Resources.

An effective program for preschool is Teaching Pyramid, developed at Vanderbilt University Center for Social and Emotional Learning (http://csefel.vanderbilt.edu). It promotes the healthy social-emotional development of young children.

For an outstanding program and model proven highly effective in transforming public schools in communities with high levels of needs, see Turnaround for Children (http://turnaroundusa.org/). Turnaround creates a partnership with schools that accomplishes the following:

- Builds a high-capacity student support system that gets all children, including those with intense needs, help either in school

or in partnership with a community-based mental health provider
- Trains all teachers in proven classroom strategies that foster a safe, engaging learning environment and strong student-teacher relationships
- Works with school leaders to drive school-wide improvement, aligned to Common Core State Standards and district guidelines, and creates a high-performing culture that involves the entire school community

Another very useful school-based behavioral intervention, and one that should be provided for students whose behavior is impeding learning, is a functional behavior assessment (FBA), which is a procedure to gather and analyze data to determine the ABCs of the student's problem behavior. Then, based on that information, a behavioral intervention plan (BIP) is designed. Strategies in the BIP will address the antecedents (such as adjustments made in the environment, skill performance demand, or teacher-student interactions) in order to prevent problems. The plan also addresses the consequences of the problem behavior (changing the responses or reactions to the behavior) and more appropriate replacement behaviors to teach the student to use instead of what he or she is doing. See Section 2.4 for more on FBAs and BIPs.

Child-Based Behavioral Treatment

Child-based interventions focus on peer relationships. They usually occur in group settings, such as classrooms, small groups at school, office clinics, and summer camps. Research-validated child-based interventions involve teaching, practicing, and reinforcing social skills and behaviors that improve peer relations. They do not include play therapy or talk therapy approaches.

Some children with ADHD have social skills deficits. They may lack the knowledge of or have not yet learned certain social skills, in which case they may benefit from being taught specific social skills. These are usually taught within small groups of children in the same age range with use of social skills curricula, such as *ACCEPTS: The Walker Social Skills Curriculum* (Walker et al., 1983), *Skillstreaming the Elementary School Child* (McGinnis & Goldstein, 1999), *Stop and Think Social Skills Program* (Knoff, n.d.), and *Second Step* (Committee for Children, 2008).

Social skills training programs are designed to systematically teach specific social skills for getting along with other children, such as sharing and taking turns. Social skills training typically involves the following:

- The trainer provides a brief introduction to the skill (and the rationale for learning it), defines it clearly, and demonstrates the appropriate skill and inappropriate behavior through positive and negative examples.
- Children role-play and rehearse the appropriate skill with adult and peer feedback.
- The bulk of the session involves actually playing an indoor or outdoor game or engaging in some other activity. Children are prompted and coached in the use of the skill.
- There is a short debriefing with feedback and reinforcement for demonstrating the use of the targeted skill, and children are encouraged to self-monitor their use of the skill.

Quite often children with ADHD have learned social skills and know what to do, but their ADHD-related impairments interfere with their ability to perform the skills with consistency or at an acceptable level. For these performance deficits, they don't need social skills training programs, but do need prompting, cueing, and reminders about the appropriate behavior and consequences. They need lots of practice of the social skills, with feedback and reinforcement of the use of these skills in activities and environments where they have problems (for example, the playground, at the bus stop, in the cafeteria, and when playing competitive games with siblings or friends).

Often a child with ADHD is not socially accepted because of poor skills in playing games and sports. It is a helpful intervention for parents to build their child's skills and competencies in playing sports and games to raise their status with other children. Provide opportunities to learn and

practice general sportsmanship and the strategies, rules, and skills of those sports and games, so that their peers will want to include them in their play.

Developing the interpersonal skills for forming and keeping friendships is an important child-based intervention that can be facilitated by parents and teachers (for example, through planned play dates, partnering with compatible classmates for paired and cooperative group activities). Parents often need to be their child's friendship coach.

Barkley (2013b) recommends that parents set up a home reward token program focusing on one or two social behaviors to work on over a week or two, which are posted on a chart. The child is reminded about the rewards and consequences (earning or losing a point or token) for demonstrating (or not demonstrating) the target skills when interacting with other children. Then, as the child is playing with others, parents monitor discreetly, and when observing their child's use of the appropriate skills, find an opportunity (when the playmate is not aware) to praise and reward with the token. Mikami (2011) suggests that when coaching, parents should keep feedback brief (for example, "Nice job of letting your friend go first") and specific ("If you lose, you can say 'good game' to the winner").

There are some highly effective summer camps and summer treatment programs designed for children with ADHD that have a strong focus on teaching, practicing, and reinforcing social skills throughout the day while children participate in fun activities and interactions with one another. For information about such programs and a listing of some camps and summer programs, see www.additudemag.com/directory.asp.

See information from CHADD and the National Resource Center on AD/HD for more expert advice on this topic.

A leading authority on psychosocial (behavioral) interventions for children with ADHD is Dr. William Pelham Jr. I recommend listening to or reading the transcript of his CHADD "Ask the Expert" chat (Pelham, 2014) and view the free resources that Pelham and his team have developed, available online at http://ccf.buffalo.edu/resources_downloads.php.

For additional behavioral resources, see those listed in the Part 1 and Part 2 Additional Sources and Resources.

INTERVIEW WITH JOE
Forty-one Years Old, California

Joe received a diagnosis of learning disabilities and ADHD as an adult.

"Watch Joseph. He's one of the most intelligent children I've ever seen." This was the comment made to Joe's parents when he and his siblings were tested at a young age by their neighbor, a professor of psychology in New York—Joe, who never received higher than a D from sixth grade through high school. Joe, who was constantly ridiculed by his teachers and was a "big disappointment to his parents."

Joe was "left back" in the seventh grade while living in Connecticut. He remembers the trauma of having all his friends moving on to another school when he repeated seventh. He flunked algebra four times. He graduated from high school "dead last" in his class. "After a while I had defaulted into a discipline problem. You gravitate toward those students who have absolutely no respect for the system. Otherwise you have to agree that the only other thing that could be wrong is YOU."

Community college was an uphill battle all over again. He saw his classmates "cruise through all their subjects" to get their degrees. "The only difference between them and me was that I never knew what to do with numbers. Reading is extremely difficult for me. I have to do it very slowly and put everything into my own translator to assimilate the material and have it make sense."

Joe's adult life has been "a patchwork of jobs." Up until a few years ago, the average time he stayed with a job was one year. "There were so many days I was beaten to a pulp, and completely down and out until I was thirty years old. I knew there was something wrong with me, but no one knew what it was."

One significant change came in his adult life when a friend took him "under his wing" and mentored him for three years in his business. "Now I have a good job as a technician in a good company. But it never lets up. I can't get a reprieve. In the real world of high tech, it requires constant training and schooling."

What would have made a difference for you growing up?

"No one saw or was interested in my strengths. The spoken word came easily to me; the written word was very difficult. I was able at a young age to take an engine apart and put it back together. I have an excellent understanding of mechanical things. I was always musically talented . . . and I knew everything there was to know about reptiles and amphibians.

"If one person would have interceded on my behalf. If one person would have said, 'This is not a stupid person we're dealing with . . . There's something more involved here that we need to get to the bottom of,' the weight of the world would have been lifted from my shoulders."

section

1.7

Critical Factors in the Success of Students with ADHD

Knowledge and Understanding of ADHD. It is essential that teachers be aware that students with ADHD have a problem that is physiological and neurobiological in nature. Training about the disorder itself is very important so that adults working and interacting with these students every day at school understand what is underlying the challenging behaviors the children often exhibit and realize that the behaviors are not deliberate in intent. In fact, most of the time children with ADHD are oblivious to the impact their behaviors are having on those around them. A better understanding helps teachers, other school personnel, and parents maintain their patience, tolerance, sense of humor, and ability to deal with the student and his or her behaviors in a positive way. Every school (elementary, middle, and secondary) needs professional development devoted to educating all school personnel about ADHD. All educators need to understand how the disorder affects students' learning and school functioning and to be trained in effective strategies and interventions.

Teacher Flexibility and Positive Attitude. Placement with a teacher who has a positive mind-set and attitude about teaching *all* students in the classroom (including those with learning and behavioral challenges) is essential to the success of students with ADHD. The teacher needs to be flexible in working with the individual student, parents, and other teachers and service providers, and to understand the necessity of making adaptations and accommodations. The teacher also must be willing to put forth the extra time, energy, and effort it takes to provide the supports and implement the strategies needed to help the child or teen succeed.

Clarity and Structure. Students with ADHD need a structured classroom. Some people may have the misconception that a structured classroom is one that is "traditional" in room arrangement and teaching style (as adults remember from their school days). What appears to an observer as a structured teacher and classroom may very well not be.

The key structural components to be looking for in any classroom are clear communication, expectations, rules, consequences, and follow-up; academic tasks with clear directions and standards; long-term, lengthy assignments structured, for example, by breaking them into shorter,

manageable increments with feedback after each part; assistance with structuring of students' materials, work space, group dynamics, handling of choices, and transitional times of the day; and a school day structured with alternating active and quiet periods. No matter what the particular teaching style or the physical environment of the classroom, any teacher can and should provide structure for student success.

Powerful, Research-Based Teaching Strategies. Instruction that enables students to be highly engaged, involved, and interacting with their peers is critical in the classroom—especially for students with ADHD. All students need and deserve a curriculum that is enriching and motivating, and that employs a variety of research-validated approaches. In order for teachers to be successful in enabling all students to achieve and acquire the skills, standards, and content mastery for the grade level, they must be adept at differentiating instruction. Teachers need to be trained and skilled in the use of strategies that offer a high degree of active learning and student response opportunities. They also need a large repertoire of strategies and techniques that draw on the diverse learning styles and strengths of students in the classroom. All students need to be given the daily opportunity to work in a variety of formats (for example, with partners, in small groups, individually, and in large groups) and to be instructed through a combination of motivating techniques and methods.

Effective Classroom Management and Positive Discipline. All students deserve to be in classrooms in which there is a positive, respectful climate. Fundamental to school success is creating an environment in which everyone feels part of a caring, supportive community. Students with ADHD are in particular need of a classroom placement in which the teacher structures the classroom environment, procedures, routines, and instruction with a focus on problem prevention. Teachers must be aware of what may trigger behavioral problems and avoid those triggers through careful planning. They need to teach and reinforce appropriate behavior and to employ positive, proactive discipline practices.

Close Communication between Home and School. It is critical for teachers and parents to make every effort to establish a good working relationship and maintain open lines of communication. Early in the school year, it is best to discuss which avenues of communication are preferred by both parties (for example, phone calls, emails, text messaging, home-school notes, journals, daily/weekly reports). This population of students needs far more frequent and regular contact between home and school than is necessary for most other students in the class. The success of students with ADHD depends strongly on the mutual support, communication, and cooperation between home and school.

Environmental Modifications and Accommodations. Classroom environment is a very important factor in how students function. To accommodate a variety of learning styles, there should be options for students as to where and how they work in the classroom. Where the student sits can make a significant difference. Lighting, furniture, seating arrangements, visual displays, color, areas for relaxation, and provisions for blocking out distractions during seatwork should be carefully considered. Teachers should organize the classroom with the awareness that most students with ADHD need to be within close proximity to the teacher (to enable easy prompting and cueing) and to be seated in less distracting, low-traffic areas near and among well-focused students. There are many environmental factors that can be adjusted to improve the functioning and performance of students with ADHD.

Collaboration and Teamwork. The partnership that is developed between parents, educators, and clinicians is a key element in the successful management of ADHD. This disorder affects many aspects of the child's or teen's life, and it takes a team approach to improve his or her functioning—not just at school but at home and in other settings. Parents are truly the leaders of the team. They have the main role in seeking out and trying to assemble the optimal team for treating, caring for, and educating their son or daughter. The team may involve medical and mental health professionals, the teacher and other school personnel, before- or after-school caregivers, tutors, coaches, and so forth.

What about other teaming for school success? Many teachers find that team teaching is extremely helpful. Being able to switch or share students (particularly very challenging ones) for part of the school day may reduce the behavioral problems and minimize the teacher's stress level. Switching or sharing also provides for a different perspective on each child. Various student support services, such as those provided by guidance/school counselors, are often very helpful for students with ADHD. Some of those supports might include working with the teacher in the implementation of behavior modification techniques and training and practice in conflict resolution, peer mediation, social skills, and anger management.

Of course, if the student is receiving special education or related services, successful outcomes involve communication and collaboration among classroom teachers, special educators, and other service providers. There is an IEP team involved when students are being evaluated for and receiving special education services.

The school's multidisciplinary team (which may be called the student support team, teacher assistance team, Response to Intervention team, or something else) can be a great resource and provider of direct and indirect help to the teacher and student. The team often includes the school psychologist, school nurse, and other school-based support professionals. Administrators can be instrumental in obtaining extra intervention and support for the student, as well. You are all part of the same team! Everyone's focus needs to be on the best interests of the student and on ways all parties can help that child or teen experience school success.

Developing and Bringing Out Students' Strengths. Many children with ADHD are gifted and talented (intellectually, artistically, musically, athletically). It is very important for teachers to draw on and foster these children's strengths and interests. Teachers need to provide numerous opportunities—particularly for students who struggle in school—to be able to showcase their strengths and demonstrate to their peers what they do well. Unfortunately, their classmates are all too familiar with the ADHD student's areas of weakness and his or her vulnerabilities. It is important for parents to provide as many opportunities as possible outside of school to help their child discover areas of interest and participate in activities that develop those skills and give him or her a source of motivation, self-esteem, and joy.

Help and Training in Organization and Study Skills. Students with ADHD commonly have major problems with organization, time management, and study skills. They will need direct help and additional intervention to make sure that assignments are recorded correctly, their work space and materials are organized, notebooks and desks are cleared of unnecessary collections of junk from time to time, and specific study skills are learned to enable them to achieve academic success. There are numerous strategies and study skills that will improve the performance of children and teens with ADHD, and teachers and parents can do much to help build these skills.

Limiting the Amount of Homework. If the parent complains that an inordinate amount of time is spent on homework, teachers should be flexible and reduce the homework to a manageable amount. Teachers need to be aware of the terrible homework hassles and stress in many homes of children with ADHD. This, of course, has to do with all the executive function–related difficulty with sustaining the attention, mental effort, and motivation to get through work, such as the average homework assignment. Students with ADHD typically take much longer than the average student to complete homework tasks, and they need more supervision and monitoring than most children of that age to complete homework assignments.

In addition, students with ADHD, who may be medicated and therefore more productive during school hours, often are not receiving medication benefits in the late afternoon or evening hours. It depends on the medication and how long the therapeutic effect. Many teachers have the practice of sending home any incomplete class work. It is important for teachers to keep in mind that if the student was unable to complete the work during an entire school day, it is unlikely that he or she will be able to complete it that evening. Instead of piling on all the incomplete work, teachers should prioritize, communicate closely with parents, set realistic goals, make accommodations, and find ways to modify the homework assigned without compromising the student's learning.

Modifying Assignments and Written Workload. What takes an average child twenty or thirty minutes to do may take a student with ADHD hours to accomplish (particularly written assignments). There is no need to do every problem on the page to practice a skill or reinforce new learning. Teachers need to be open to adapting or modifying assignments when needed for certain students. Remember that ADHD is a disorder that affects performance, production, and output. These students typically cannot produce the same amount of work at the same rate as the average child of the same age or grade. Teachers must be willing to make accommodations so that the amount of work assigned is reasonable for that particular student (for example, every other problem, half a page) to learn the material and demonstrate his or her knowledge. The following are some suggestions for teachers:

- Accept methods of demonstrating learning through means other than in writing (for example, allowing the student to answer questions orally, having the student dictate and a scribe write or record, doing hands-on projects and demonstrations).
- Seek other more fun, creative, and artistic ways for the student to practice skills and show his or her mastery of concepts.
- Ease up on handwriting demands for students if they struggle with the physical task of writing.
- Be sensitive to the extreme effort it often takes children with ADHD and learning disabilities to put down in writing what appears simple to you and what other students can do with ease.

More Time, More Space. To compensate for the difficulty many students with ADHD have with speed of output, providing more time is often a necessary accommodation. This may mean extra time to complete assignments or exams. Some students with ADHD also have slower processing speed. They may, for example, need extra time to process and think about a question and what to say before responding.

Students with ADHD often have a tendency to intrude in others' space. They frequently need more room to themselves (for example, table top or desk space, and more distance and buffer space when sitting on the carpet) in order to stay better organized and reduce problems interacting with their

peers. Of course, teachers in upper grades and crowded classrooms have fewer options in how to provide more space without getting very creative.

Support of Administration. It is critical that administrators also be aware of the characteristics and strategies for effectively managing and educating students with ADHD and support the teacher in dealing with disruptive children. Some students are extremely difficult to maintain in the classroom and require highly creative interventions. In these cases, administrative support is very much needed in assisting the teacher. Such support can come in many forms (for example, student time away from the classroom—in other classrooms or settings; more push-in adult help at certain times of the day in the classroom; facilitating meetings with parents and other team members; helping with developing a proactive plan of behavioral intervention).

Administrators need to be sensitive to and receptive of input from parents and teachers regarding classroom placement each year. As instructional leaders of their schools, they must help teachers develop their skills and learn effective strategies for working with and instructing students with ADHD or learning disabilities, and others with diverse learning needs. This can be done by providing the necessary professional development and training. The school climate for academic and social/behavioral success is best established when the administrator takes the lead in setting, modeling, and reinforcing positive expectations in the building (for staff and students).

Valuing and Respecting Learning Styles and Differences, Privacy, Confidentiality, and Students' Feelings. Teachers who are going to be successful in reaching and teaching students with ADHD, and all the diverse learners in the classroom, must value and respect the different learning styles and differences each child possesses. These are part of what makes each student unique. Teachers and other school personnel must also be very conscious and respectful of privacy and confidentiality issues (evaluation results, medication issues, test scores and grades, family information). Self-esteem is fragile in students with ADHD. Because of the high degree of negative feedback they commonly receive over the years, many students with ADHD perceive themselves as failures. We must avoid ridicule and never humiliate any child or teen. Preservation of students' self-esteem is critical in truly helping them succeed in life.

Belief in the Student—Doing What It Takes. Students with ADHD need teachers, parents, and other adults who are on their side, who believe in them and their ability to succeed. These supportive adults must also realize that it takes vigilance and willingness to frequently come back to the "drawing board" to reexamine or revise the original plan. When Plans A, B, and C no longer seem to be working well, there are always Plans D, E, F, and so forth. These students are worth the extra time and effort, and we must never give up!

INTERVIEW WITH SPENCER'S MOTHER
Colorado

What are some of the hurtful comments you remember from Spencer's teachers?

"One teacher told me, 'If he gets enough F's, he'll learn how to do what is expected of him in fifth grade,' referring to his homework. Another teacher said, 'He slipped a few times and has shown us how bright he is. He's just playing games with us.'"

Tell me about his best teacher.

> "Spencer's third-grade teacher was wonderful. She read to the class with the lights off . . . made sure there wasn't a lot of clutter on the board or his desk. She seated him to reduce distractions . . . right up front near her. She spoke softly to him, and every criticism was coupled with something positive."

section

1.8

ADHD in Preschool and Kindergarten

Most children with ADHD are not diagnosed until the elementary school grades. With very young children, it is harder to distinguish between what is normal rambunctious, inattentive, and uninhibited behavior from what is abnormal and symptomatic of ADHD. Inattention and high activity level are typical behaviors of preschoolers, but of course, most do not have ADHD.

Although most children do not receive a diagnosis of ADHD until they are six years or older, those youngsters exhibiting significant difficulties with ADHD symptoms are now being identified at a younger age, enabling them to receive earlier intervention. Recent and ongoing research as well as the American Academy of Pediatrics (2011) revised guidelines for the diagnosis, evaluation, and treatment of ADHD in preschool-age children and how to best treat the disorder in this population.

Early identification of ADHD or any related developmental problems and early intervention can make a huge positive difference in the life of the child and family. They can significantly minimize the social, behavioral, or learning difficulties the child experiences as a result of the disorder and prevent a lot of struggle down the road.

Preschool and kindergarten teachers are in the best position to catch children early who are showing signs and symptoms of a developmental delay or disability, or who are at risk for struggles in learning and school. Teachers need to be aware of symptoms—sharing observations and concerns with parents and other school specialists (such as members of the school's multidisciplinary team). Through screening, evaluation, and targeted interventions, many learning and behavioral problems can be prevented.

Developmental Signs and Symptoms in Young Children

Teeter (1998) summarized the research regarding key characteristics of ADHD during the preschool stage, some of which are the following:

- Parental stress is at its zenith.
- The child is often difficult to toilet train.
- The child responds impulsively.
- The child exhibits hyperactivity during structured activities.
- Inattention to tasks and distractibility are high.
- The child shifts from one activity to another.
- Peer rejection is common.

Mahone (2012) describes these additional symptoms of ADHD that are common in preschool children:

- Dislikes or avoids activities that require paying attention for more than a minute or two (such as playing with a toy or listening to a story)
- Talks a lot more and makes more noise than is typical of other children the same age
- Is nearly always restless
- Has gotten into dangerous situations because of fearlessness and has been injured because of moving too fast or running when not supposed to
- Is aggressive with playmates

Schusteff (2007, p. 49) explains that with ADHD in preschoolers, "the tipping point in diagnosis is usually a matter of degree." These kids are much more extreme in their behaviors than the average three-year-old.

If a child receives an ADHD diagnosis in the preschool or kindergarten years, the symptoms are typically quite severe and are persistent over time and across settings. The child experiences many behavioral, social, and interpersonal difficulties. It is not uncommon for these children to be kicked out of one or more early childhood programs—often because of aggressive and oppositional behavior.

If a child has ADHD, the preschool or kindergarten teacher will find the behaviors to be very problematic and excessive in comparison to other children. The teacher should share observations and concerns with parents and support staff and implement strategies and supports to address the needs of the child. Almost all of the teaching and parenting techniques recommended throughout this book are applicable and effective for children in this age bracket as well.

Red Flags for Possible Learning Disabilities

Commonly, a child with ADHD may have other developmental weaknesses or delays in some areas (for example, speech-language, motor skills, or acquiring academic readiness skills—such as learning and remembering ABCs, numbers, shapes, and letter-sound associations). It is important to be aware that children with ADHD often have coexisting learning disabilities, such as dyslexia. Some warning signs of learning disabilities in preschool and kindergarten (Inland Empire Branch of the International Dyslexia Association, 2003; "LD Basics," n.d.; National Joint Committee on Learning Disabilities, n.d.) include the following:

Language

- Slow development in speaking words or sentences ("late talkers")
- Pronunciation problems
- Difficulty learning new words; slow vocabulary growth
- Difficulty finding the right word to use when speaking
- Difficulty understanding and following simple (one-step) directions
- Difficulty understanding questions
- Difficulty expressing wants and desires
- Difficulty recognizing or learning rhyming words
- Lack of interest in storytelling
- Immature grammar (syntax)
- Infrequent or inappropriate spontaneous communication (vocal, verbal, or nonverbal)

Emergent Literacy Skills

- Slow speed for naming objects and colors
- Limited phonological awareness (for example, rhyming, syllable blending)
- Difficulty understanding that written language is composed of phonemes (individual sounds) and letters that make up syllables, words, and sentences
- Minimal interest in print and limited print awareness
- Difficulty recognizing and learning the letters of the alphabet
- Slow learning of the connection between letters and sounds

Cognition

- Trouble memorizing the alphabet or days of the week

- Poor memory for what should be routine (everyday procedures)
- Difficulty with cause and effect, sequencing, and counting
- Difficulty with basic concepts such as size, shape, and color

Motor Skills

- Clumsiness
- Poor balance
- Difficulty with fine motor skills and manipulating small objects (for example, stringing beads, tying shoes, buttoning)
- Awkwardness with running, jumping, or climbing (delayed gross motor skills)
- Difficulty or avoidance of drawing, coloring, tracing, or copying

Social Behavior

- Has trouble interacting with others; plays alone
- Is prone to sudden and extreme mood changes
- Is easily frustrated
- Is hard to manage, has temper tantrums
- Has difficulty following directions and routines

Attention and Behavior

- Distractibility and inattention
- Impulsivity
- Hyperactivity
- Difficulty changing activities or handling disruptions to routines

Note: *Many of the listed behaviors are also indicators of some other developmental disorders.*

What the Research Shows

PATS 2006

The first long-term comprehensive study of ADHD treatment in this population was the Preschool ADHD Treatment Study (PATS), sponsored by the National Institute of Mental Health, conducted by researchers at six sites. The study included more than three hundred preschoolers with severe ADHD symptoms, ages three to five. All children and their parents first participated in a ten-week behavioral therapy and training course in behavior modification techniques, such as consistent use of positive and negative consequences.

More than a third of those children were treated successfully with behavior modification and did not proceed to the medication stage of the study. The children who did not improve after the behavioral therapy course were included in the medication part of the study. They were given low doses of methylphenidate (stimulant medication), monitored very closely, and compared to those taking a placebo. Although most of the children tolerated the drug well, 11 percent had to drop out of the study as a result of intolerable side effects.

The findings were that those children taking the medication had a more marked reduction of their ADHD symptoms compared to children taking a placebo. The conclusion of this 2006 PATS was that preschoolers with severe ADHD benefit when treated with behavior modification only or a combination of behavior modification and low doses of methylphenidate. Although medication was found to be generally effective and safe, preschoolers appear to be more prone to side effects than older children and need close monitoring for side effects (National Institute of Mental Health [NIMH], 2006).

PATS Six-Year Follow-up

There was a six-year follow-up to the PATS (Riddle et al., 2012). Approximately 70 percent of the original children participated in the follow-up study, and most all still met criteria for ADHD. ADHD in preschoolers was found to be a relatively stable diagnosis over a six-year period. The course is generally chronic, with high symptom severity and impairment in very young children with moderate to severe ADHD, despite treatment with medication. Development of more effective ADHD intervention strategies is needed for this age group.

Evaluation, Diagnosis, and Intervention

Parents should discuss concerns with their pediatrician or other developmental specialist and their child's preschool or kindergarten teacher. When ADHD symptoms are problematic and exceed what seems normal for other children their age and when symptoms are persistent and observable in different settings (such as home and the preschool or day-care environments), an evaluation should be considered.

Any developmental disorder, such as ADHD, is best identified early so that appropriate intervention can be started. A wait-and-see approach is typically not in the child's best interest. When a child has ADHD, behaviors that affect social and academic performance generally do not improve by just providing more time for the child to mature. In addition, children who have specific developmental delays benefit from early intervention, such as speech-language therapy, occupational therapy, or other needed services.

Wolraich (2007) recommends that parents of preschool children who exhibit symptoms of ADHD take the following steps:

1. Begin with a parent training program: a group program, such as the CHADD-sponsored Parent to Parent program (see www.chadd.org) or an individual program for more intense training, such as Parent Child Interaction Training (www.pcit.org), which works with the child and parent or other caregiver together to improve overall behavior and to reduce parenting stress. The child does not need a diagnosis of ADHD for parents to participate in these programs and learn the skills. *Note:* Other parent training programs are listed in Section 1.6.
2. If parent training does not sufficiently address the problems, parents should have their child evaluated by their pediatrician (if the doctor is knowledgeable about ADHD in young children) or other clinician, such as a child psychiatrist, child psychologist, or developmental behavioral pediatrician.
3. Depending on the results of the evaluation, parents can consider a more intense behavior modification program, treatment with stimulant medication, or a combination of both.

AAP Clinical Practice Guidelines for Diagnosis, Evaluation, and Treatment of Preschool Children

The American Academy of Pediatrics (AAP) wrote and published clinical practice guidelines for the diagnosis, evaluation, and treatment of ADHD in children and adolescents (AAP, 2011), which expanded on those written a decade before. The 2011 AAP guidelines take into account what was learned from the research about the benefits of diagnosis and treatment of ADHD for children who are younger than six, and now include these recommendations for treating children ages four and five with ADHD:

- The primary care clinician should prescribe evidence-based parent- or teacher-administered behavioral therapy as the first line of treatment and may prescribe methylphenidate if the behavioral interventions do not provide significant improvement and there is moderate to severe continuing disturbance in the child's function.
- When behavioral therapy is not available, the clinician needs to weigh the risks of starting medication at an early age against the harm of delaying treatment.

Parent Concerns and Recommendations

Parents should have a general idea of what is typical development. Particularly when the child is their first, it is difficult for parents to know what may or may not be normal development. There are checklists available of developmental milestones for children at different ages—what most children are able to do or demonstrate by the time they are three, four, or five years old. These address social, emotional, language and communication, and cognitive (learning, thinking, problem solving) skills, and movement or physical development. See, for

example, such online checklists published by the National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention (2014a, 2014b, 2014c).

Parents should talk with their child's doctor if concerned that their son or daughter is not meeting developmental milestones for his or her age. The child may then be screened by the doctor using a standardized, validated developmental screening tool, such as the Battelle Developmental Inventory/Screening Tool, 2nd ed. (BDI-ST), Brigance Screens-II, Child Development Inventory (CDI), Denver-II Developmental Screening Test, or Parents' Evaluation of Developmental Status (PEDS).

If screening indicates that there may be a delay, parents may request a referral to a specialist, such as a developmental pediatrician, to conduct a more in-depth evaluation of the child.

For more information about ADHD evaluations, see Section 1.3, which applies to young children as well as to older children, teens, and adults.

Child Find and School District Evaluation

A young child (even before school age) suspected of having a disability may also be evaluated by the local school district. There is a component of the federal law IDEA that requires states and local education agencies (school districts) to identify, locate, and evaluate all children with disabilities who reside within their state. This is called "Child Find." The process begins with a review or screening of available information about the child. When screening indicates the possibility of an educational disability, the child is evaluated in relevant areas. When results indicate that a child has a disability and is in need of special education services, an Individualized Education Program (IEP) is developed.

Young children found eligible for special education or related services receive those educational interventions at no cost to parents. To inquire, parents should contact their local school district or office of special education and can self-refer for an evaluation. See Section 6.4 for more on IDEA, IEPs, and educational rights of children with disabilities under federal law. For more on Child Find, see http://www.wrightslaw.com/info/child.find.index.htm.

More Strategies and Tips for Parents

Share any of your concerns with your child's pediatrician. Discussing concerns and asking for the input and observations of the teacher or child care provider are also important and helpful in determining how your child is developing and functioning compared to other children of his or her age.

It is difficult for many parents to decide whether or not their children (particularly those with late birthdays) are ready to start kindergarten. Be aware that boys are typically later in their development than girls, and children with ADHD are developmentally behind their peers in self-regulation and executive skills. Visit the kindergarten classes at the school, speak with teachers, ask to see the district's academic performance standards and expectations, seek advice from your child's pediatrician or others, and try to make the most informed decision you can—based on your knowledge of your own child and his or her needs. There are many kinds of early childhood programs and, of course, teaching styles. Some are better suited for certain children than others. Your gut feeling after doing your research is probably your best guide.

As noted earlier, when a child has ADHD or learning disabilities, behaviors that have a negative impact on social and academic performance generally do not improve by just allowing the child more time to mature. Other interventions will be necessary to specifically target the child's areas of weakness and build his or her skills, and early intervention is best.

There are social, emotional, and behavioral competencies that preschool and kindergarten children need to develop in order to do well in school. These include being able to

- Listen
- Follow rules and the teacher's directions
- Share and take turns
- Display reasonable self-control

- Interact appropriately and cooperatively with children and adults
- Function in large and small groups
- Work on tasks independently
- Handle mild frustrations or minor disappointments, such as sharing teacher's attention and waiting
- Cope with the structure of a school day

It is highly recommended that children with ADHD experience preschool (a program appropriate to their needs) and start learning these skills early.

You can help your child in his or her development of self-regulation and social and behavioral skills. It is important to clearly teach your young child what is acceptable and unacceptable behavior and to consistently enforce limits calmly and respectfully, yet firmly. You can prepare your child by exposing him or her to a number of social situations and settings in which you can observe from a distance how the child interacts with other children. Is she bossy or cooperative? Is he too physical or aggressive? Can she take turns and accept losing a game without crying? Does he speak to others with friendly words and tone of voice? You can and should teach all these social behaviors through modeling, role playing, frequent practice with feedback, and reinforcement. It is very important to praise children frequently when observing their display of positive behaviors. "I noticed how nicely you shared your toys with Michael. That's being a good friend."

To build a sense of independence and accomplishment, enable your child to do things for himself or herself that the child is capable of (simple chores, tasks). You can also help your children use words to express feelings and solve problems—for example, "I'm angry," "I don't like that," "That makes me feel sad," " I'm worried." Coach the child in problem-solving language—for example, "What could you say to Lisa if that bothers you?"

Many children, not just those with ADHD, have difficulty adjusting to a classroom environment, the hours away from home, the structure and expectations of their preschool or kindergarten teacher, and relating to the other children. Sometimes it just takes time for them to make the adjustment, learn the routine and structure, and feel comfortable in the new environment with their new teacher and peers. But if behaviors remain problematic and do not diminish much after a reasonable adjustment period, you should investigate further and seek help.

Kindergarten Academic Skills and Expectations

Kindergarten today has a much more academic curriculum than in past years—even five to ten years ago. In many ways, kindergartners are now expected to demonstrate skills that had not been expectations until first grade. Parents should be familiar with the kindergarten grade-level standards in their school district, which may or may not be Common Core State Standards (CCSS). To view all of the Common Core State Standards (the learning goals or expectations for kindergarten and other grade levels), see www.corestandards.org.

It is particularly important to be aware of the standards and expectations in the area of English Language Arts (ELA) for kindergarten students. Children who struggle in learning foundational reading, writing, and language skills (such as alphabet recognition, letter-sound association, writing a simple sentence with phonetic spelling) need to receive more direct and intensive instruction and practice. Dyslexia—a language-based learning disability—is a common coexisting condition in children with ADHD. Early intervention is critical for children who show signs of dyslexia in order to prevent or minimize their reading and writing struggles.

There are numerous ways that parents can help their young child build foundational and language-related skills, and resources to guide parents in doing so, including my books *The Dyslexia Checklist*: *A Practical Reference for Parents and Teachers* (Rief & Stern, 2010), *Alphabet Learning Center Activities Kit* (Fetzer & Rief, 2002), and *Ready, Start, School: Nurturing and Guiding Your Child through Preschool and Kindergarten* (Rief, 2001). For more information, see the Part 1 Additional Sources and Resources.

Research-Supported Intervention Programs for Preschool and Kindergarten

Two intervention programs that researchers have found of benefit for preschoolers with ADHD have been reviewed by Dr. Mark Katz (2009a).

First Step to Success

This program, developed under the direction of Hill Walker, is recognized nationally as an effective early intervention for reducing aggression in children who display such behaviors during their early school years. Researchers also are finding this program helpful for young children who exhibit symptoms of ADHD. The preschool version of the First Step program is a home-school intervention for teaching sharing, cooperation, following rules, and other social skills. It is proven to reduce serious behavior problems, such as aggression and opposition-defiance, and to improve school readiness and interpersonal skills. For more information, see First Steps to Success Preschool Edition by Voyager Sopris Learning at www.firststeptosuccess.org or www.voyagersopris.com.

Tools of the Mind

This program teaches preschoolers how to use different mental tools to gain greater control of their social, emotional, and cognitive behaviors (Katz, 2013). A 2007 study conducted by neuroscientist Adele Diamond showed that children enrolled in preschool classrooms using Tools of the Mind improved in their ability to resist distractions and temptations (inhibitory control), mentally hold information in mind (working memory), and flexibly adjust to change (cognitive flexibility). According to Katz (2009b, p. 7), "Tools of the Mind is currently being implemented in more than 450 preschool and kindergarten regular education and special education classrooms throughout the United States. Schools are finding the program compatible with Response to Intervention." For more information, see www.toolsofthemind.org.

Strategies and Tips for Preschool and Kindergarten Teachers

In preschool and kindergarten, every behavioral expectation and social skill must be taught. Teachers need to explain, model, and role-play each desired behavior and provide practice until all students know precisely what is expected of them, such as how to line up, stand in line, walk in line, move to groups and learning centers, sit on the rug or at the table, raise a hand to get the teacher's attention, and use indoor voices.

Behavior management techniques for children with ADHD in preschool and kindergarten are similar to those in higher grades: establishing clear rules, procedures, and routines; supplying visual prompting and cueing; offering a high degree of feedback and proximity control; setting up group positive reinforcement systems; consistently applying corrective consequences; and providing individualized behavioral supports. (See strategies throughout Part 2.)

Teaching, practicing, and monitoring behavioral expectations. Have children practice expectations with teacher observation and feedback—for example, "Show me what to do when you have something you want to say." "Who wants to show us how we get our lunch boxes and line up for lunch?" Check for specific behaviors. Ask, "Are your eyes on me?" "Are your ears open and on full power?" "Where should you be sitting right now?" "Are we sitting 'criss-cross applesauce'?"

Literature that has manners and appropriate behavior, such as sharing and being a good friend, as a theme is helpful in teaching behavioral expectations and social skills. So are puppets, music, games, visual display, role playing, and other such means.

Schedules and consistency. Children need the security of knowing their schedule and what they can expect to have happen throughout their school day—which for young children is presented graphically by referring to pictures depicting the flow of the

day's activities. A predictable schedule and sequence of activities and consistent routines are necessary parts of the structure for school success.

Quiet space. Sometimes children with ADHD are on sensory overload and can become agitated or disruptive. It is important to allow them time and space to settle, regroup, and get away from some of the overstimulation. It helps to have an area that is designed for this purpose, with pillows, stuffed animals, and calming music they can listen to with headphones, for example. Teachers may ask, "Do you need to move?" or "Is there a better place to do your work?" Or they can redirect the child to a quieter, calmer area by whispering to him or her, "Go to the pillow area and read [look at] a book."

Diversionary tactics. The perceptive teacher will watch for signs of children beginning to get restless or agitated and try diverting their attention (for example, "Sara, come help me turn the pages of this book") to redirect their behavior. Most young children love to be the teacher's helper. They can be given a task such as wiping down tables, putting up chairs, or passing out papers.

Positive attention from the teacher. Watch for positive behaviors and recognize children for what they are doing right. "I see how nicely Coby and Jason are taking turns. Thank you for working so cooperatively." "Emma, I noticed that you are really catching yourself from yelling out in class. I am very proud of you." "Noah, I like the way you came over here and sat down next to Marcus even though someone else took your chair."

Positive attention from classmates. Besides specific praise from teachers, positive recognition and appreciation from peers is important as well: "Let's give a big round of applause to . . ." (children clap finger-to-finger in a large circular movement). "Let's give ourselves a pat on the back" (children reach over and pat themselves on the back). "Let's give the silent cheer for . . ."

Visual prompts. Use these for all behavioral expectations. For example, make class charts with pictures depicting the behaviors you want students to demonstrate. Point to and refer to those visuals frequently. Keep your camera handy and take photos of children who are sitting appropriately or raising their hand to speak, for example, and use those photos as reminders of appropriate behaviors.

Environmental structuring. Children with ADHD often have difficulty knowing and understanding their physical boundaries. They tend to invade other people's space and react adversely to being crowded or bumped into. They are helped by having concrete visual structuring of their space, such as with colored duct tape to indicate their boundaries on the carpet area or at tables. Also, placing them in the front or back of the line (not in the middle) can avoid some problems when walking in lines.

Behavior charts and rewards. Some children need individualized behavior modification charts for working to improve one or two specific behaviors, such as staying in their assigned place or keeping hands and feet to themselves. Young children need to be reinforced frequently; short time frames of appropriate behavior can earn the child a star, a smiley face, a sticker on a chart, or other reward. When using behavior charts and incentive systems, it is important to identify what an individual child will find to be motivating and reinforcing. Some children have no interest whatsoever in earning a sticker or tangible reward, but would love to work hard for the chance to play with bubbles, use certain "special materials or equipment," or care for the class rabbit.

Movement and exercise. Children—particularly young ones—need numerous opportunities to move. Teachers build movement into the day at frequent intervals. Some teachers have a regular routine of stretching, warm-up, jogging, and cool-down every morning—as well as physical education and motor skills training. In the classroom, there are songs and rhymes with motions (hand and whole body) that are integrated throughout the day. Early childhood programs need to provide children with many opportunities to engage in large and small muscle movements in fun ways throughout the curriculum.

Strategies and Tips for Early Childhood Teachers*

What to Do About . . .

Handling Disappointments. Kindergarten children can become very upset if they are not chosen for certain privileges or responsibilities. Many do not deal well with the disappointment of not being selected or having to wait their turn. One kindergarten teacher teaches her students an "Oh well" signal. With a snap of the fingers in a big, sweeping motion, she leads her children in saying, "Oh well . . . maybe next time." The class has practiced this technique repeatedly in response to disappointments. When students use the "Oh well" response, the teacher reinforces with much praise, telling them: "You are so grown up. I am very proud of you."

The Tactile-Defensive Child. There are some children, especially among those with neurobiological disorders, who have poor tolerance for the feel of anything rubbing or touching the body, such as certain textures or clothes, or being crowded in line. Many overreact to being bumped into or may refuse to wear socks because the seam across the toes is bothering them. These children have what is called "tactile defensiveness." For some children, this means that sitting on the carpet may be almost intolerable. It is highly recommended that teachers consult with an occupational therapist if a child is showing signs of being tactile defensive or having unusual reactions to various sensory stimuli. There are many strategies to help.

The Child Who Has Trouble Sitting. Most young children can sit still for only a relatively short amount of time. Teachers and parents sometimes forget this, and inadvertently place unreasonable expectations regarding the length of time the child is asked to sit quietly and pay attention. For children with ADHD, the length of time they can sit is substantially shorter than their peers; some cannot sit for more than a few moments. Teachers may permit the child to get up and walk around quietly, and try to redirect when possible. Sometimes it is necessary to provide the child space and ignore when he or she lies down, rolls around on the rug, or engages in other behaviors.

Sometimes a child's inability to sit is blamed on behavior when in reality the child does not have the physical tone to sit up on the carpet with his or her legs crossed (a common sitting position in early childhood classrooms). Again, an occupational therapist or adapted physical education teacher should be consulted.

One teacher said that she tries to have an adult sit down with the child, with a gentle hand on the shoulder or back—some physical contact to help keep the child seated and focused. It often helps when a child has trouble (for example, sitting on the rug listening to a story) to give him or her some object that he or she can hold while sitting.

The Perception That a Certain Child Is Being "Bad." Children generally have a real sense of understanding and compassion, and they almost always take the teacher's lead.

* Note: See Section 5.1 describing Vincent's developmental history - problems he experienced during his preschool and kindergarten years, as well as strategies found to be helpful for him at home and school.

Sometimes there is one child who is so disruptive or aggressive that children think of him or her as "bad." One kindergarten teacher shared how she always corrects and softens, for example, by saying, "There are no bad children. Sometimes Michael has trouble remembering the rules. It doesn't mean he is bad. Sometimes he can't help it. We need to help him. How do you think we can help Michael remember the rules?"

INTERVIEW WITH JOE
Fifteen Years Old, Minnesota

Joe received a diagnosis of ADHD and LD at a young age.

Tell me about your favorite teacher in elementary school.

"My second-grade teacher was my favorite. When I was held back a grade, she always checked on me and asked how I was doing. I still go back and visit her."

I understand you have seen many different doctors over the years. How do you feel about that?

"Yeah. I saw all kinds of doctors, including different psychologists and psychiatrists. I took those psychological tests so many times, but the doctors didn't really talk to me. I went to two doctors at the same time, one who took care of my medication, and one because of my psychological problem. I didn't like him. He talked down to me, and I didn't like that."

How did you get along with other kids?

"I'm really good with adults. It's kids who were kind of tough for me. I took offense at what they said. I tried to ignore it, but it took a while. I realize that those kids I had trouble with were just jerks. I'm getting much better now. I've learned that it doesn't happen overnight. It takes a while—everything takes time."

What do you want teachers to be aware of?

"Teachers should be as respectful of kids as kids are to be respectful of them. Class should not be stressful, but relaxed. Teachers shouldn't ever make fun of students. I like active things like research, projects, and reports (especially oral reports)."

What do you want to tell parents?

"Parents need to be aware that kids have a tough time, too, and don't need problems at home. Parents may have had a hard time at the office. Well, we have a hard time, too. My dad (a lawyer) does every day what he learned to do and likes to do. In school we're learning new things, and we have to do what we've never done before, and reach our teacher's expectations. It's tough. Parents have to be aware and know what their kid is doing in school . . . be involved and make teachers tell you more."

section

1.9

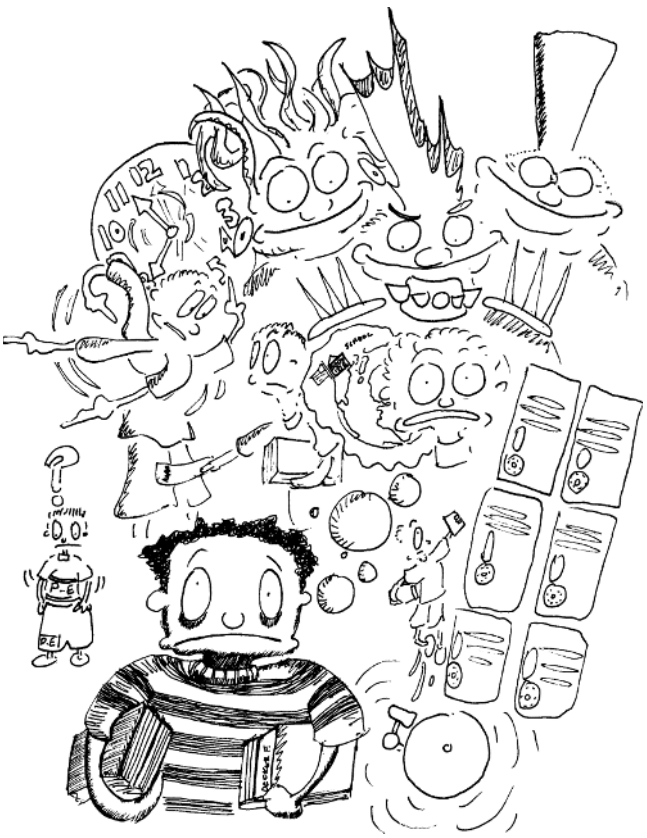
ADHD in Middle School and High School

For most children with ADHD, the symptoms continue into adolescence to varying degrees. Some symptoms may diminish, but other problems may emerge or intensify during middle school and high school. For example, hyperactivity in adolescence generally manifests more as restlessness rather than as the overt hyperactivity seen in younger children.

Many preteens and teens find these years to be the most difficult and stressful for them and their families. Impulsivity can be more problematic during the teen years. As noted earlier, poor self-control and lack of inhibition in adolescence are associated with many risk factors, including significantly more than the average number of traffic violations, accidents, and teen pregnancies, as well as conduct that results in conflict with school authorities, parents, and law enforcement.

Many children with ADHD who were able to cope and stay afloat academically in elementary school find themselves overwhelmed and unable to do so with the heavy workload and high executive function demands of middle and secondary school. For some students with ADHD—particularly those with the predominantly inattentive presentation—this is the time they first receive the diagnosis of the disorder.

These are years when it is very difficult for parents and teachers to find the proper balance between teaching the child to assume responsibility for his or her own learning and behavioral choices, and intervening as we guide and support the child to success.



For All Kids This Age

All adolescents have certain needs and experience many unique challenges, regardless of whether or not they have ADHD.

Challenges of Adolescence

- Transitioning and adjusting to a different school environment with many new adults and students
- Getting to know and manage the expectations of several teachers
- Learning their way around campus
- Needing to feel accepted and "fit in"
- Undergoing physical changes and raging hormones
- Dealing with the pressure of high academic and cognitive demands and heavy homework load
- Facing enormous social and peer pressures and sometimes having to cope with being the victim of teasing, bullying, and social isolation

What All Adolescents Need

Adolescents need the feeling of "connection" and of being valued. They are seeking a sense of community and belonging. Protecting their image and being treated with respect are of utmost importance. They need to feel safe and comfortable in their classroom environment, knowing that they will be treated with dignity and not deliberately criticized or humiliated in front of their peers.

This is a critical time for students to learn how to learn—how to study and access information and take advantage of their own best learning styles. Adolescents often complain about school being boring, and they don't see the connection between what is being taught in school and their own lives. Instruction at this level must be meaningful, challenging, and relevant—eliciting students' active participation and involvement. The curriculum and schedule at this level have to provide for options and variety. Teachers must be able to motivate and tap into the interests and strengths of their students. They must stimulate their students' curiosity and desire to think, work hard, challenge themselves, and take risks as learners.

Adolescents still require structure and frequent monitoring both at home and school (even as they complain and resist). During the middle school and high school years, many youngsters are vulnerable and insecure. Students of this age may appear mature enough to need less adult guidance. However, this is the stage when there is probably a greater need for guidance, interaction with caring adults, and open channels of communication than ever before. This is especially true given all of the outside pressures and influences to which our children are exposed. Parental involvement at school and presence on campus frequently decline during these years, but should be strongly encouraged. Schools must explore ways to make parents feel comfortable and welcome on campus.

In addition to the aforementioned common challenges of adolescence, preteens and teens with ADHD must also contend with several other struggles and issues related to their disorder, which makes these years even harder.

ADHD-Related Challenges and Needs

Executive function weaknesses typically become much more problematic in middle and high school, impairing academic performance for many students with ADHD. As discussed in Section 1.2, poor executive skills (for example, planning, organizing, time management, and working memory) greatly interfere with school success. Adolescents with ADHD may appear physically mature and grown up, but looks are deceiving. They are typically far less mature behaviorally and emotionally than their same-age peers. They do not act their age because they have a developmental delay of approximately 30 percent in their self-regulation and executive skills. A fifteen-year-old with ADHD will likely behave like a ten- or eleven-year-old in some respects, and a twelve-year-old may behave more like an eight- or nine-year-old because of this developmental lag. Do not let their intelligence and physical maturity mislead you.

Although these children may be of an age when the expectation is for them to demonstrate more independence, responsibility, and self-control, the reality is that preteens and teens with ADHD take longer to exhibit those behaviors. They need more adult monitoring, supervision, and direct supports than their peers.

Key to school success is teacher flexibility and willingness to put in the extra time and effort to support and work with the student with ADHD. Unfortunately, middle and high school teachers often receive little or no training in ADHD, resulting in less understanding of the disorder, and therefore less empathy and willingness to accommodate these students' individual needs.

Middle and high school students with ADHD need the following from parents and teachers:

- Awareness and understanding of ADHD, and strategies to help them deal with their challenges at this age
- Reasonable and realistic expectations
- Use of a positive discipline approach rather than punishment as the primary mode of dealing with behavior
- Monitoring and supervision (although they may fight this bitterly)
- Open channels of communication with mutual problem solving and involvement in decision making
- Lots of encouragement and support
- A plan to prepare them for whatever their goals are once they graduate high school

Addressing Coexisting Disorders

It is very important for parents and teachers to be aware that at least two-thirds of children and teens with ADHD have or will develop at least one other coexisting disorder—for example, anxiety disorder, oppositional defiant disorder, conduct disorder, or sleep disorder. Any coexisting disorder needs to be diagnosed and treated in addition to the ADHD. The preteen or teen needs the support and treatment for these or other conditions or disorders from medical and mental health professionals.

Learning disabilities (LDs), such as dyslexia, are very common coexisting disorders. Students with LDs need educational interventions (specialized instruction and related services, as well as academic supports and accommodations) to do well in school. Many students with ADHD are never evaluated for LDs, and many with known LDs have undiagnosed ADHD. It should always be suspected that a child or teen with ADHD who is struggling in learning (reading, writing, or math) also has LDs and should be evaluated to determine their learning and academic needs.

It is very important to reevaluate when other conditions are suspected or current treatment is not working well, and to implement whatever interventions may be necessary at this time: academic assistance, medical treatment or adjustment in medication, counseling, or something else.

School Supports

One of the advantages in middle and high school is the availability of more options in scheduling. Sometimes the best intervention is a change of classes or teachers. Other times, rescheduling a class with the same teacher but at a more optimal time of day makes a difference (for example, scheduling the hardest classes in the morning when the student is most alert and energetic).

It is helpful when there is an adult at school who is willing to be a case manager (officially or unofficially)—someone who will be able to monitor progress, advise, and intervene in school situations. For students on IEPs, the special education teacher (for example, the resource teacher) is generally that case manager. Sometimes it is a school counselor, one of the classroom teachers (for example, the advisory or homeroom teacher), or a coach who serves this function.

It also helps if middle and high schools have in place supportive interventions available to students in need, such as mentors, homework and organization assistance, study skills and learning strategies classes, and tutoring. Students with ADHD would benefit from such school supports, as well as the opportunity to participate in clubs, sports, and electives to build on their interests and showcase their areas of strength.

Essential to the success of adolescents with ADHD is the teacher's

- Training, awareness, and understanding of ADHD
- Use of effective classroom management strategies
- Monitoring of behavior and academic progress
- Willingness to work with the student and parents to provide extra support and follow-through (for example, daily or weekly report cards, contracts, checking of the assignment calendar, and organizing materials)

Aiding the Transition to Middle or High School

Chris A. Zeigler Dendy (2000), a leading authority on teens with ADHD and author of several books, suggests the following to teachers or other school personnel to help with the transition to middle or high school:

- Encourage parents to notify the new school about their child and his or her needs.
- Check with the guidance counselor at the new school to find out when student schedules are developed. Parents and the current school should provide input on the fall schedule.
- Develop an IEP or 504 plan for eligible students before they transition to the next school.
- Schedule a student support team (SST) meeting.
- Assign an upper-class mentor to help with the transition.
- Give parents an update on grades after two or three weeks in the new school.

Transition Plans

When IDEA was reauthorized by Congress in 2004, new provisions in transition planning for high school students with IEPs were added in the effort to improve postsecondary results for students with disabilities.

> A transition plan is the section of the Individualized Education Program (IEP) that outlines transition goals and services for the student. The transition plan is based on a high school student's individual needs, strengths, skills, and interests. Transition planning is used to identify and develop goals which need to be accomplished during the current school year to assist the student in meeting his or her post–high school goals. (Stanberry, n.d., p. 1)

By the time a student is sixteen years old (although it may occur sooner), plans for transition services are required under IDEA 2004 to become part of the IEP. The IEP team looks at what the student intends to do after high school—perhaps get a higher education or enter the work world. Transition plans address such needs as preparation for college entrance examinations, consideration of career choices, development of extracurricular interests, and job training possibilities (Rief & Stern, 2010).

Transition planning and services include the following new requirements:

- Appropriate, measurable postsecondary goals based on age-appropriate transition assessments related to training, education, employment, and, when appropriate, independent living skills
- Goals that reflect the student's strengths, preferences, and interests (not just the student's deficits)
- A process designed to be results oriented and to focus on improving the academic and functional achievement of the student so as to facilitate movement from school to post-school activities
- A statement of the transition services needed to help the student reach those goals, which includes courses of study

Tips for Parents

- When your child is transitioning from elementary to middle school or from middle to

high school, it helps to have a dry run before school starts to walk around the campus, see where the classes are located, and practice quickly opening and closing his or her combination lock.

- Be aware that your ADHD teen may be of driving age but is developmentally less mature. Drivers with ADHD have more speeding citations and accidents in which they were at fault than other drivers. I recommend that you establish firm guidelines and an agreement between you and your son or daughter regarding your driving expectations once they get their license. A driving contract to help enforce rules, encourage responsibility, and keep everyone safe may be helpful, such as the one *ADDitude* magazine shares as an example (see the link in the Section 1.9 references at the end of Part 1).
- Consider hiring a tutor, learning specialist, or ADHD coach to help your son or daughter keep up with school assignments and improve academic and executive skills. This can be a very helpful support for your teen and alleviates some of your burden. Adolescents typically resent parental micromanagement, which becomes the source of conflict between teens and their parents. Having someone else involved in keeping your child on track and following through with school assignments can help foster not only your child's school success but also your relationship.
- "Parents play an important role in preparing their child for, and guiding them through, the middle school transition. Relatively simple steps such as establishing a homework management plan, monitoring friendship patterns and facilitating positive social interactions can make a big difference in the development process" (Evans, Serpell, & White, 2005, p. 31).
- Kids with ADHD need a lot of reminders from parents, but the way those reminders are given can make a difference in how they are accepted by the preteen or teen. Guare, Dawson, and Guare (2013) recommend that you avoid nagging and send your teens reminders that are more indirect, such as a note, voicemail, or text message.
- "If your child has a 504 Plan, maintaining that plan throughout high school is a critical element in keeping your high school student with ADHD academically on track" (Lepre, 2008, p. 46). Lepre also recommends that parents not only meet with the teen's teachers early in the year but also meet and develop a working relationship with the guidance counselor, who is the "link between the school and your adolescent" (p. 46).
- Parents of an adolescent with ADHD need to be vigilant in monitoring their child's performance in his or her classes and not wait until regular progress reports, by which time the student may be too far behind to get caught up. Teachers may be asked to send more frequent progress reports or to keep parents informed by email or other communication systems throughout the grading period.
- Dendy (2002, p. 17) recommends these actions you can take to influence a successful outcome for your teen: "seeking accommodations at school, fine-tuning medication, using positive parenting practices, providing supervision, avoiding hostile interactions and harsh punishments, avoiding nagging and personal attacks, and last and perhaps most importantly, believing in your child!"

Warning Signs (Red Flags) in Middle School and High School

It bears repeating that detecting a problem in its early stages and beginning intervention as quickly as possible will greatly increase the chances of a better outcome. The following signs (Parker, 1999) may alert parents or teachers to the possibility of a problem warranting investigation. At a minimum, parents should schedule a conference with the teacher. I also recommend a school team meeting with parents. If the student has an IEP or 504 plan, the team (including parents and the student) may need to meet to review the plan and

determine whether additional services or interventions are indicated. Watch for the following warning signs:

- Frequent complaints of boredom
- Excessive absenteeism from school, including unauthorized absences from class
- Drop in grades
- Lack of interest in doing homework
- Frequent tardiness
- Talk about dropping out
- Resentment expressed toward teacher(s)
- No books or papers brought to or from school
- Reports from teachers that the student is not doing in-class assignments or completing work
- Disorganization—books and papers not appropriately cared for
- Work done sloppily or incorrectly
- Lack of care about school attitude
- Low self-esteem
- Complaints by teacher(s) of frequent inattention in class
- Hyperactivity
- Hanging out with other students who are doing poorly in school (reported by teacher)
- Lack of comprehension of assignments when trying to do them

Warning Signs of Learning Disabilities in Teens

Because coexisting learning disabilities (LDs) are common in children and teens with ADHD, parents and teachers should be aware of signs of LDs. Some children may have LDs that have gone undetected to this point. Academic performance problems most likely had been attributed to their ADHD. To determine whether or not a student has LDs requires a psychoeducational evaluation. Educational interventions should be provided, addressing the student's individual learning needs.

The following is a list of warning signs of possible LDs in teens (Inland Empire Branch of the International Dyslexia Association, 2003). *Note:* These would be "red flags" only if they show up as a pattern of behaviors, to a significant degree, and over time.

Language/Mathematics/Social Studies

- Avoidance of reading and writing
- Tendency to misread information
- Difficulty summarizing information
- Poor reading comprehension
- Difficulty understanding subject area textbooks
- Trouble with open-ended questions
- Continued poor spelling
- Poor grasp of abstract concepts
- Poor skills in writing essays
- Difficulty in learning foreign language
- Poor ability to apply math skills
- Difficulty staying organized
- Trouble with test formats such as multiple choice
- Slow work pace in class and in testing situations
- Poor note-taking skills
- Poor ability to proofread or double-check work

Social Behavior

- Difficulty accepting criticism
- Difficulty seeking or giving feedback
- Problems negotiating or advocating for himself or herself
- Difficulty resisting peer pressure
- Difficulty understanding another person's perspective

Understanding Their ADHD and Self-Advocacy

Preteens and teens should be educated about ADHD to understand the disorder and ways to better manage the symptoms. If they receive medication, they need to know what medication does and does not do. Learning that so many highly successful people in every walk of life have ADHD

and that the disorder does not limit their potential can be very encouraging.

As students with ADHD enter the middle and high school grades, they need to learn to advocate for themselves and how to politely request help when needed. Parents still need to take an active role in monitoring and communicating with teachers, but it is important for students of this age to speak directly with their teachers about their needs and the kinds of supports or accommodations they think will help them learn and perform better in their classrooms. Teachers are generally impressed when students care enough about wanting to do well in their classes that they ask for help when needed.

High school students with ADHD who have IEPs should be actively involved as part of the IEP team in developing their own transition plan to be most meaningful and motivating for them.

The Value of Mentorship

A positive role model or mentor can make a significant impact on a child's life. Often a school employee (teacher or other staff member) will give his or her time to an individual student, and that connection and mentorship can make an enormous difference in the success of that student. Parents are in the position of being able to facilitate finding a role model or mentor outside of school to develop their child's interests and skills as well. Parents can connect their child with friends or relatives with a similar interest, take him or her to visit facilities that relate to the child's interests, or call professionals and ask if they would be willing to give fifteen or thirty minutes to share information about their work or interest. These experiences can lead to ongoing mentoring if both parties are willing to sustain the relationship. The following story illustrates the positive impact of a mentor on the life of one young man.

DAN'S STORY
First Published in 1993, Shared by His Mother

Dan was a child with ADHD. He had a history of physical and emotional distress, which centered around his experiences in school. His behavior was impulsive, and his teachers frequently telephoned home to tell his parents that Dan would not stay in his seat and was disruptive, and that they should try to better control his behavior at school. By fifth grade, Dan had several interventions, including stimulant medication and counseling. Although he achieved fairly well, but not "up to his potential," he had been held back a grade due to emotional immaturity. Dan now had much difficulty with peer relationships. His parents pursued every avenue they could find in their search to help him, but not enough changed.

During sixth grade, Dan learned to cook, an activity that really held his interest. At the beginning of seventh grade, he learned about a restaurant with a sports theme that interested him. He asked if he could see it and eat there sometime. His mother, Marla, promised to take him there as soon as she could. One night, Dan's mother and father unexpectedly ended up at the restaurant. Marla mentioned to the hostess that her thirteen-year-old son really wanted to visit the restaurant. The hostess said that if Dan wanted to visit about 1:00 p.m. on a weekday, she would take him on a tour of the kitchen and he could watch the chef at work. The hostess gave Marla her card.

On their next mutual weekday off, Marla and Dan had lunch at the restaurant. When Marla made reservations, she reminded the hostess of their conversation. Dan not only enjoyed the meal but also met the chef, Peter, and watched him work. Peter told Marla and Dan that he was impressed with Dan's mature behavior and interest. He said that Dan could come back and observe sometime during the summer.

As soon as school ended for summer vacation, Dan called Peter and asked if he could come in to visit. It was a thirty-minute drive from his home to the restaurant, but his parents agreed to transport him. Once each month, Peter allowed Dan to come in. First Dan observed, but gradually Peter allowed him to assume certain tasks. Dan loved it! Peter and the rest of the cooking staff began to include Dan in their exchanges of music and in their friendship.

One day after about four months, Peter asked Marla for a "parent-chef conference." Peter asked whether Dan was really learning anything and whether he liked it. Marla's first thought was that Dan was "messing up," but she told Peter that Dan was baking desserts and showing her "meal presentation" tips. Peter said he was concerned about whether Dan was truly interested. Marla thought he was.

Months went by, and Dan continued to help out. He got A's in cooking, and his organizational skills improved, as did his relationships with others, including his peers. Gradually, as he began to perceive himself as competent in his work at the restaurant, Dan seemed to feel more competent in other areas.

Dan was really excited when Peter told him that he had "graduated" and could come in every other week. After over a year invested, Peter told Dan that he really needed him to help with preparation for Saturday nights. Dan was really "staff" now, and Peter gave him his own staff T-shirt. Soon after that, some of the young staff members asked Dan to go to a concert with them. Dan's confidence swelled.

Dan continues to work at the restaurant. Currently he is working on his driver's training, anxiously awaiting the time he can transport himself to the restaurant more often. Dan plans to graduate from high school in three years instead of the usual four and is taking effective steps toward that goal. When he graduates, he knows he wants to enroll in a four-year college hotel and restaurant management program. He has even selected colleges to apply to. Marla reports that, so far, Dan has maintained the academic credentials that will help ensure his college admission.

No one can be sure what contributed to Dan's personal growth—age, the neurochemical changes of puberty, and the attention Dan received at school and at home probably all helped. What seems pivotal, however, is the attention and skill Dan has gained from Peter. Dan knows what he enjoys and that he can become a competent professional one day. He also knows that Peter cares about him and believes in him. In terms of his education and how he feels about what Peter has taught him, Dan told me the following:

"Peter is such a good communicator. He takes his time and tells me how to do things. He taught me what it means to do 'teamwork.' Peter 'cultures me,' and he has fun when he's mentoring me, too. Peter is my top learning experience!"

Follow-Up to Dan's Story (2015)

Note: *I am very grateful to Dan for sharing this follow-up to the original "story" published twenty-two years ago.*

Although he was active in debate and speech, Dan opted for postsecondary enrollment for the last two years of high school. He was mostly interested in subjects not offered by his high school, and quite frankly felt that kids his age were not what he considered to be intellectual peers. He really wanted more from his education and used this program to gain freedom from the issues that high school presented.

Dan became heavily involved in the radio station at his college. By the end of his freshman year, he had achieved a director's position within the governing body of the station. In college, he

designed his own major in theater production and double majored in fine arts. He graduated with a strong GPA in four years.

After graduation, he worked as an artist in electronic arts and had installations in local galleries. Dan tried his hat at teaching, but felt as though it was not his calling to educate others in an institution.

With a turn of fate, Dan entered the restaurant management industry and eventually managed multimillion-dollar facilities. Ultimately he went back to his true desire to be part of an information technology career. Today he is a software systems architect for one of the largest banks in the United States and is happily married.

Part 1 References

Section 1.1

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

American Psychological Association. (2008, February). ADHD: Delay or deviation? *Monitor on Psychology, 39*(2), 12. Print version, retrieved online at http://www.apa.org/monitor/feb08/adhd.aspx

Barkley, R. A. (1998). Attention-deficit hyperactivity disorder: A psychological model of ADHD. *Scientific American,* pp. 66–71. Retrieved from www.sciam.com/1998/0998issuebarkley.html

Barkley, R. A. (2013). *Taking charge of ADHD: The complete, authoritative guide for parents* (3rd ed.). New York, NY: Guilford Press.

Barkley, R., Cook, E., Dulcan, M., Prior, M., Gillberg, C., Halperin, J., . . . Pelham, W., Jr. (2002, January). International consensus statement on ADHD. *Clinical Child and Family Psychology Review, 5*(2), 89–111. Retrieved from http://russellbarkley.org/factsheets/Consensus2002.pdf

Brown, T. E. (2013a). Ten myths about ADHD and why they are wrong. *Attention, 20*(3), 6–9.

Brown, T. E. (2013b). Understanding attention deficit: The new ADHD. Retrieved from http://www.additudemag.com/slideshow/28/slide-1.html

Centers for Disease Control and Prevention. (n.d.). Attention-deficit/hyperactivity disorder: Data and statistics. Retrieved from http://www.cdc.gov/ncbddd/adhd/data.html (reporting findings from *Key Findings: Trends in the Parent-Report of Health Care Provider-Diagnosis and Medication Treatment for ADHD: United States, 2003–2011*)

Centre for ADHD Awareness, Canada. (n.d.). What is attention deficit hyperactivity disorder? Retrieved from http://www.caddac.ca/cms/page.php?67

Goldstein, S. (2007, February). Research briefs: The genetics of AD/HD. *Attention, 14*(1), 37–39.

Goldstein, S. (2009, February). Comorbidity in AD/HD. *Attention, 16*(1), 32–33.

Goldstein, S. (2010, February). AD/HD and autism spectrum disorders. *Attention, 17*(1), 32–34.

Goodman, B. (2010, February). Compulsively impulsive/impulsively compulsive. *Attention, 17*(1), 20–23.

Hinshaw, S. P., Owens, E. B., Zalecki, C., Huggins, S. P., Montenegro-Nevado, A. J., Schrodek, E., & Swanson, E. N. (2012). Prospective follow-up of girls with attention-deficit/hyperactivity disorder into early adulthood: Continuing impairment includes elevated risk for suicide attempts and self-injury. *Journal of Consulting and Clinical Psychology, 80,* 1041–1051.

Kutscher, M. L. (2010). *ADHD: Living without brakes.* Philadelphia, PA: Jessica Kingsley.

Littman, E. (2000, July/August). We understand far too little about girls with ADHD. *ADDvance, 3*(6), 17–21.

Littman, E. (2012, December). The secret lives of girls with ADHD. *Attention, 19*(6), 18–21.

MTA Cooperative Group. (1999). A 14-month randomized clinical trial of treatment strategies for attention deficit hyperactivity disorder. *Archives of General Psychiatry, 56,* 1073–1086.

Nadeau, K. G. (2000a, July/August). Elementary school girls with AD/HD. *Attention, 7*(1), 44–49.

Nadeau, K. G. (2000b, September/October). Middle school girls with AD/HD. *Attention, 7*(2), 61–71.

Nadeau, K. G. (2004a). *High school girls with AD/HD.* ADDvance.com. Retrieved from http://addvance.com/help/women/high_school.html

Nadeau, K. G. (2004b). *Helping your daughter with ADD (ADHD) to feel good about herself.* ADDvance.com. Retrieved from http://addvance.com/help/women/daughter.html

Nadeau, K. G., Littman, E., & Quinn, P. (2015). *Understanding girls with AD/HD, updated and revised: How they feel and why they do what they do.* Silver Spring, MD: Advantage Books.

National Resource Center on AD/HD. (n.d.). The science of ADHD. Retrieved from http://www.chadd.org/Understanding-ADHD/About-ADHD/The-Science-of-ADHD.aspx

National Resource Center on AD/HD. (2015). ADHD and coexisting disorders. Retrieved from http://www.chadd.org/Portals/0/Content/CHADD/NRC/Factsheets/coexisting.pdf

Nigg, J. T. (2006). *What causes ADHD: Understanding what goes wrong and why.* New York, NY: Guilford Press.

Norr, M. (2015, October). Recent brain imaging findings in ADHD. *Attention, 22*(5), 16–19.

Polanczyk, G., de Lima, M. S., Horta, B. L., Biederman, J., & Rohde, L. A. (2007, June). The worldwide prevalence of ADHD: A systematic review and metaregression analysis. *American Journal of Psychiatry, 164,* 942–948.

Quinn, P. O. (2008, December). AD/HD in women and girls. *Attention, 15*(6), 20.

Quinn, P. O. (2009, October). Women and girls with AD/HD. *Attention, 16*(5), 10–11.

Quinn, P. O. (2012). How girls and women can win with ADHD. *ADDitude* magazine webinar. Retrieved from http://www.additudemag.com/RCLP/sub/9796.html

Quinn, P. O., & Nadeau, K. G. (2000, May/June). Understanding preschool girls with AD/HD. *Attention, 6*(5), 42–45.

Quinn, P. O., & Nadeau, K. G. (2004). ADD (ADHD) checklist for girls. ADDvance.com. Retrieved from http://addvance.com/help/women/girl_checklist.html

Shaw, P., Eckstrand, K., Sharp, W., Blumenthal, J., Lerch, J. P., Greenstein, D., . . . Rapoport, J. L. (2007, December 11). Attention-deficit/hyperactivity disorder is characterized by a delay in cortical maturation. *Proceedings of the National Academy of Sciences, 104,* 19663–19664.

Spencer, L. E. (2013, April). Helping students with ADHD and language disability. *Attention, 20*(2), 10–12.

Wolraich, M. L., & DuPaul, G. J. (2010). *ADHD diagnosis and management: A practical guide for the clinic and the classroom.* Baltimore, MD: Paul H. Brookes.

Section 1.2

Barkley, R. (2012). Fact sheet: The important role of executive functioning and self-regulation in ADHD. Retrieved from www.russellbarkley.org/factsheets/ADHD_EF_and_SR.pdf

Center on the Developing Child. (n.d.). Key concepts: Executive functions. Retrieved from http://developingchild.harvard.edu/key_concepts/executive_function/

Dendy, C.A.Z. (2002, February). Five components of executive function. *Attention,* 9(1), 26–31.

Dendy, C.A.Z. (2011). *Teaching teens with ADD, ADHD & executive function deficits* (2nd ed.). Bethesda, MD: Woodbine House.

Diamond, A., Barnett, W. S., Thomas, J., & Munro, S. (2007). Preschool program improves cognitive control. *Science*, *318,* 1387–1388. Retrieved from www.ncbi.nlm.nih.gov/pmc/articles/PMC2174918/

Duckworth, A. A., & Seligman, M.E.P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science, 16,* 939–944.

Kutscher, M. L. (2010). *ADHD: Living without brakes.* Philadelphia, PA: Jessica Kingsley.

Raver, C. C., & Blair, C. (2014). At the crossroads of education and developmental neuroscience: Perspectives on executive function. *Perspectives on Language and Literacy, 40*(2), 27–29.

Silver, L. (2010). Not your father's ADHD. *ADDitude, 10*(3), 47–48.

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, better grades, and interpersonal success. *Journal of Personality, 72,* 271–324.

Willis, J. (2011, June 13). Understanding how the brain thinks. *Edutopia* blog. Retrieved from www.edutopia.org/blog/understanding-how-the-brain-thinks-judy-willis-md

Section 1.3

American Academy of Pediatrics (AAP). (2011). ADHD: Clinical practice guidelines for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics, 128,* 1007–1022.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.) Washington, DC: Author.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Section 1.4

Adesman, A. (2003, April). Effective treatment of attention-deficit/hyperactivity disorder: Behavior therapy and medication management. *Primary Psychiatry, 10*(4), 55–60.

American Academy of Pediatrics. (2011). ADHD: Clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics, 128,* 1007–1022.

American Academy of Pediatrics & National Initiative for Children's Healthcare Quality. (2002). *Caring for children with ADHD: A resource toolkit for clinicians.* Chicago, IL: American Academy of Pediatrics.

Barkley, R. A. (2013). *Taking charge of ADHD: The complete, authoritative guide for parents* (3rd ed.). New York, NY: Guilford Press.

Barrow, K. (2008). Facts about fish oil. *ADDitude, 8*(3), 44–45.

Brown, T. E. (2005). *Attention deficit disorder: The unfocused mind in children and adults.* New Haven, CT: Yale University Press.

Goodman, B. (2008). Ask the expert: Chats with L. Eugene Arnold. *Attention, 15*(6), 10–12.

Hudziak, J. J., Albaugh, M. D., Ducharme, S., Karama, S., Spottswood, M., Crehan, E., . . . Botteron, K. N. (2014, November). Cortical thickness maturation and duration of music training: Health-promoting activities shape brain development. *Journal of the American Academy of Child & Adolescent Psychiatry, 53,* 1153–1161.e2.

McGavern, K. (2015, April). Music lessons for kids with ADHD. *Attention, 22*(2), 15–17.

MTA Cooperative Group. (1999). Fourteen-month randomized clinical trial of treatment strategies for attention-deficit hyperactivity disorder. *Archives of General Psychiatry, 56,* 1073–1086.

Ratey, J. J. (2008). The exercise solution. *ADDitude, 8*(4), 36–39.

Rodgers, A. L. (2012). Your child's brain on music. *ADDitude, 12*(4), 47–50.

Special report: Diet matters. (2008). *ADDitude, 9*(2), 41.

Zylowska, L. (2012). *The mindfulness prescription for adult ADHD: An 8-step program for strengthening attention, managing emotions, and achieving your goals.* Boston, MA: Trumpeter Books.

Section 1.5

Kalikow, K. T. (2013). ADHD and the decision to medicate. *Attention, 20*(1), 12–14.

Section 1.6

American Academy of Pediatrics (AAP). (2011). ADHD: Clinical practice guidelines for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics, 128,* 1007–1022.

Barkley, R. A. (2013a). *Defiant children: A clinician's manual for assessment and parent training* (3rd ed.). New York, NY: Guilford Press.

Barkley, R. A. (2013b). *Taking charge of ADHD: The complete, authoritative guide for parents* (3rd ed.). New York, NY: Guilford Press.

Committee for Children. (2008). *Second step: Social skills for early childhood-grade 8.* Retrieved from www.cfchildren.org/second-step.aspx

Cunningham, C. E. (2005). COPE: Large group, community based, family-centered parent training. In R. A. Barkley (Ed.), *Attention deficit hyperactivity: A handbook for diagnosis and treatment* (pp. 394–412). New York, NY: Guilford Press.

Cunningham, C. E., Bremner, R., Secord, M., & Harrison, R. (2009). *COPE, The Community Parent Education Program: Large group community based workshops for parents of 3 to 18 year olds.* Hamilton, Ontario: COPE Works.

Early intervention: Supporting student success. (2014). *Special Edge: Student Behavior, 27*(3), 3–16.

Knoff, H. M. (n.d.). *The stop and think social skills program for schools* (preK–8). Voyager Sopris. Available at http://www.voyagersopris.com/curriculum/subject/school-climate/stop-think-social-skills-program

McGinnis, E., & Goldstein, A. (1999). *Skillstreaming the elementary school child.* Champaign, IL: Research Press.

Mikami, A. Y. (2011). How you can be a friendship coach for your child with ADHD. *Attention, 18*(1), 16–19.

Pelham, W. E., Jr. (2014, November). CHADD Ask the Expert chat: Behavior management and combined treatment for children with ADHD. Archived webinar available at http://www.chadd.org/training-events/Ask-the-Expert/Ask-the-Expert-Archives.aspx

Teeter, P. A. (2000). *Interventions for ADHD: Treatment in developmental context.* New York, NY: Guilford Press.

Walker, H. M., McConnell, S., Holmes, D., Todis, B., Walker, J., & Golden, N. (1983). *ACCEPTS program curriculum guide: The Walker social skills curriculum.* Austin, TX: PRO-ED.

Wolraich, M. L., & DuPaul, G. J. (2010). *ADHD diagnosis and management: A practical guide for the clinic and the classroom.* Baltimore, MD: Paul H. Brookes.

Section 1.8

American Academy of Pediatrics (AAP). (2011). ADHD: Clinical practice guidelines for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics, 128,* 1007–1022.

Fetzer, N., & Rief, S. (2002). *Alphabet learning center activities kit.* San Francisco, CA: Jossey-Bass.

Inland Empire Branch of the International Dyslexia Association. (2003, Fall). The warning signs of learning disabilities. *Resource, 18*(2), 8. www.dyslexia-ca.org

Katz, M. (2009a). First step to success: An early intervention for children with symptoms of AD/HD. *Attention, 16*(4) 8–9.

Katz, M. (2009b). Tools of the mind: Helping children develop self-regulation. *Attention, 16*(3), 6–7.

Katz, M. (2013). Interventions at the point of performance: The power of play. *Attention, 20*(5), 6–7.

LD basics: Common signs of learning disabilities. (n.d.). LD Online. Retrieved from http://www.ldonline.org/ldbasics/signs

Mahone, E. M. (2012, November). CHADD Ask the Expert chat: ADHD in preschool children. Archived webinar available at https://www.youtube.com/watch?v=1QClbDippZY and http://www.chadd.org/ATEPDFs/ATE_EncoreADHDInPreschoolChildren.pdf

National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention. (2014a). Important milestones: Your child at three years. Retrieved from http://www.cdc.gov/ncbddd/actearly/milestones/milestones-3yr.html

National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention. (2014b). Important milestones: Your child at four years. Retrieved from http://www.cdc.gov/ncbddd/actearly/milestones/milestones-4yr.html

National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention. (2014c). Important milestones: Your child at five years. Retrieved from http://www.cdc.gov/ncbddd/actearly/milestones/milestones-5yr.html

National Institute of Mental Health. (2006, October). Preschoolers with ADHD improve with low doses of medication. Retrieved from www.nimh.nih.gov/news/science-news/2006/preschoolers-with-adhd-improve-with-low-doses-of-medication.shtml

National Joint Committee on Learning Disabilities. (n.d.). Learning disabilities and young children: Identification and intervention. Retrieved from http://www.ldonline.org/article/Learning_Disabilities_and_Young_Children%3A_Identification_and_Intervention

Riddle, M. A., Yershova, K., Lazzaretto, D., Paykina, D., Yenokyan, G., Greenhill, L., . . . Posner, K. (2012, December). The preschool attention-deficit/hyperactivity disorder treatment study (PATS) 6-year follow-up. *Journal of the American Academy of Child & Adolescent Psychiatry.* Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3660093/

Rief, S. (2001). *Ready, start, school: Nurturing and guiding your child through preschool and kindergarten.* Paramus, NJ: Prentice-Hall.

Rief, S., & Stern, J. M. (2010). *The dyslexia checklist: A practical reference for parents and teachers.* San Francisco, CA: Jossey-Bass.

Schusteff, A. (2007). Preschoolers and ADHD. *ADDitude, 7*(3), 49–51.

Teeter, P. A. (1998). *Interventions for AD/HD: Treatment in developmental context.* New York, NY: Guilford Press.

Wolraich, M. L. (2007). Preschoolers and AD/HD. *Attention, 14*(3), 9–10.

Section 1.9

Dendy, C.A.Z. (2000). Teaching teens with ADD and ADHD. Bethesda, MD: Woodbine House.

Dendy, C.A.Z. (2002, June). Finding the joy: Parenting teenagers with AD/HD. *Attention, 8*(6), 14–19.

Driving contract. *ADDitude.* Retrieved from www.additudemag.com/adhd-web/article/579.html

Evans, S. W., Serpell, Z., & White, C. (2005). The transition to middle school: Preparing for challenge and success. *Attention, 12*(3), 29–31.

Guare, R., Dawson, P., & Guare, C. (2013). Get your teen ready for life. *ADDitude, 15*(4), 26–29. Excerpted from their book, *Smart but scattered teens* (2013). New York, NY: Guilford Press.

Inland Empire Branch of the International Dyslexia Association (2003, Fall). *Warning symptoms of adolescence and adulthood. Resource, 18*(2), 11. Riverside, CA: Inland Empire Branch of the International Dyslexia Association.

Lepre, S. (2008). Ten steps to academic success. *Attention, 15*(4), 46–47.

Parker, H. (1999). *Put yourself in their shoes: Understanding teenagers with ADHD.* Plantation, FL: Specialty Press.

Rief, S., & Stern, J. M. (2010). *The dyslexia checklist: A practical reference for parents and teachers.* San Francisco, CA: Jossey-Bass.

Stanberry, K. (n.d.). Transition planning for students with IEPs. Retrieved from http://www.greatschools.org/special-education/health/873-transition-planning-for-students-with-ieps.gs

Part 1 Additional Sources and Resources

Abramowitz, A. (2005, August). Classroom interventions for AD/HD. *Attention,* pp. 27–30.

Adesman, A. (n.d.). ADHD medication guide. North Shore-Long Island Jewish Health System. Retrieved from http://adhdmedicationguide.com/

ADHD Partnership, Fairfax County Public Schools, VA. (2008). Powerpoint: Executive function deficits. Free download retrieved from http://adhdpartnership.com/

Alternative therapies—Diet dos; The right stuff. (2010). *ADDitude, 11*(2), 43–44.

American Academy of Child & Adolescent Psychiatry. (n.d.). Frequently asked questions. ADHD Resource Center. Retrieved from http://www.aacap.org/AACAP/Families_and_Youth/Resource_Centers/ADHD_Resource_Center/Home.aspx

Behavior therapy. (n.d.). ADHD and You. Retrieved from www.adhdandyou.com/adhd-caregiver/behavior-therapy.aspx

Barkley, R. A. (n.d.). How ADHD affects EF in adults and kids. *ADDitude* magazine webinar. Retrieved at http://www.additudemag.com/RCLP/sub/11118.html

Barkley, R. A. (2005). *ADHD and the nature of self-control.* New York, NY: Guilford Press.

Barkley, R. A. (2011, January 20). CHADD Ask the Expert chat: The importance of executive function in understanding and managing ADHD. Archived webinar available at http://chadd.org/training-events/Ask-the-Expert/Ask-the-Expert-Archives.aspx

Barkley, R. A. (2012). *Executive functions: What they are, how they work and why they evolved.* New York, NY: Guilford Press.

Barkley, R. A. (2013). *Taking charge of ADHD: The complete, authoritative guide for parents* (3rd ed.). New York, NY: Guilford Press.

Barkley, R. A. (2013). Understanding and improving your ADHD child's behavior. *ADDitude* magazine webinar. Podcast and transcript retrieved from www.additudemag.com/RCLP/sub/10265.html

Barkley, R. A. (2014). Sluggish cognitive tempo (concentration deficit disorder): Current status, future directions, and a plea to change the name. *Journal of Abnormal Child Psychology, 42,* 117–125.

Barkley, R. A., Robin, A. L., & Benton, C. M. (2013). *Your defiant teen: Ten steps to resolve conflict and rebuild your relationship* (2nd ed.). New York, NY: Guilford Press.

Brown, T. E. (2000). *Attention deficit disorders and co-morbidities in children, adolescents, and adults.* Washington, DC: American Psychiatric Press.

Brown, T. E. (2009, February). AD/HD and co-occurring conditions. *Attention, 16*(1), 10–15.

Brown, T. E. (2013). *A new understanding of ADHD in children and adults: Executive function impairments.* New York, NY: Routledge.

Barrow, K. (2013). The mind-body connection. *ADDitude, 14*(2), 51.

Behavior therapy. (n.d.). ADHD and You. Retrieved from www.adhdandyou.com/adhd-caregiver/behavior-therapy.aspx

Bertin, M. (2011). Mindfulness and managing ADHD. *Attention, 18*(3), 16–17.

Bertin, M. (2012). ADHD goes to school. Huff Post Parents blog. *Huffington Post.* Retrieved from www.huffingtonpost.com/mark-bertin-md/adhd_b_1517445.html

Breathing lessons: Meditative powers. (2010). *ADDitude, 11*(2), 41–42.

Brown, T. E. (2005). *Attention deficit disorder: The unfocused mind in children and adults.* New Haven, CT: Yale University Press.

Brown, T. E. (2008). Executive functions: Describing six aspects of a complex syndrome. *Attention, 15*(1), 12–17.

Brown, T. E. (2013). How our understanding of ADHD is changing. *ADDitude* magazine webinar. Retrieved from http://www.additudemag.com/RCLP/sub/10159.html

Brown, T. E. (2014). *Smart but stuck: Emotions in teens and adults with ADHD.* San Francisco, CA: Jossey-Bass.

Carpenter, D. (2007). The diagnostic puzzle. *ADDitude, 7*(3), 32–35.

Centers for Disease Control and Prevention. (n.d.). ADHD treatment. Retrieved from www.cdc.gov/ncbddd/adhd/treatment.html

Centers for Disease Control and Prevention. (n.d.). Attention-deficit/hyperactivity disorder: Symptoms and diagnosis. Retrieved from www.cdc.gov/ncbddd/adhd/diagnosis.html

Centers for Disease Control and Prevention. (n.d.). Diagnosing ADHD in children. Retrieved from www.cdc.gov/ncbddd/adhd/diagnosis.html

Cohen Harper, J. (2013). *Little flower yoga for kids: A yoga and mindfulness program to help your child improve attention and emotional balance.* Oakland, CA: New Harbinger.

Cooper-Kahn, J., & Dietzel, L. (2008*). Late, lost, and unprepared: A parent's guide to helping children with executive functioning.* Bethesda, MD: Woodbine House.

Dawson, P. (2013). Coaching: A versatile strategy for addressing executive skill weaknesses. *Attention, 20*(6), 22–25.

Dawson, P., & Guare, R. (2009). *Smart but scattered.* New York, NY: Guilford Press.

Dawson, P., & Guare, R. (2010). *Executive skills in children and adolescents: A practical guide to assessment and intervention* (2nd ed.). New York, NY: Guilford Press.

Dawson, P., & Guare, R. (2013). *Coaching students with executive skills deficits.* New York, NY: Guilford Press.

Dendy, C.A.Z., & Zeigler, A. (2015). *A bird's-eye view of life with ADHD and EFD . . . Ten years later: Advice from young survivors* (3rd ed.). Cedar Bluff, AL: Cherish the Children.

DeRuvo, S. L. (2009). *Strategies for teaching adolescents with ADHD: Effective classroom techniques across the content areas.* San Francisco, CA: Jossey-Bass.

Dodson, W. (n.d.). ADHD medications explained. Retrieved from www.additudemag.com/adhd/article/9875.html

Drugs, supplements, and herbal information. (n.d.). Medline Plus. National Institutes of Health, National Library of Medicine. Retrieved from www.nlm.nih.gov/medlineplus/druginformation.html

DuPaul, G. (2015, March). CHADD Ask the Expert chat: When preschoolers have ADHD. Archived webinar available at http://www.chadd.org/training-events/Ask-the-Expert/Ask-the-Expert-Archives.aspx

DuPaul, G., & Kern, L. (2011). *Young children with ADHD: Early identification and intervention.* Washington, DC: American Psychological Association.

Elliott, G. R., & Kelly, K. (2007). AD/HD medications: An overview. *Attention, 14*(4), 18–21.

Ellison, K. (2013). Is neurofeedback for you? *ADDitude, 14*(2), 46–48.

Executive function fact sheet: What is executive function? (n.d.). National Center for Learning Disabilities (NCLD) Retrieved from www.ncld.org/types-learning-disabilities/executive-function-disorders/what-is-executive-function

Flynn, L. (2013). *Yoga for children: 200+ yoga poses, breathing exercises, and meditations for healthier, happier, more resilient children.* Avon, MA: Adams Media.

Fowler, M. (2001). *Maybe you know my teen.* New York, NY: Broadway Books.

Gilbert, P. (n.d.). More attention, less deficit: Brain training. *ADDitude.* Retrieved from www.additudemag.com/adhd/article/10076.html

Giler, J. Z. (2000). *Socially ADDept: A manual for parents of children with ADHD and/or learning disabilities.* Santa Barbara, CA: CES.

Giler, J. Z. (2011). *Socially ADDept: Teaching social skills to children with ADHD, LD, and Asperger's.* San Francisco, CA: Jossey-Bass.

Goldberg, L. (2013). *Yoga therapy for children with autism and special needs.* New York, NY: Norton.

Goldstein, S. (2008). Educators as environmental engineers: Psychosocial interventions for AD/HD in schools. *Attention, 15*(4), 44–45.

Goldstein, S., & Brooks, R. B. (2007). *Understanding and managing children's classroom behavior* (2nd ed.). Hoboken, NJ: Wiley.

Goodman, B. (2008). Everything you ever wanted to know about ADHD coaching (but were too busy to ask): Ask the Expert interview with Nancy Ratey. *Attention, 15*(5), 10–13.

Goodman, B. (2010). Five popular approaches to treating ADHD. *Attention, 17*(3), 14–15.

Guare, R., & Dawson, P. (2013). *Smart but scattered teens: The executive skills program for helping teens reach their potential.* New York, NY: Guilford Press.

Hallowell, N. (2013). Fight back with food. *ADDitude, 14*(2), 44–45.

Holingsworth, P. C. (2015, June). Preschoolers and ADHD: Behavioral treatments first. *Attention, 22*(3), 10–15.

Horowitz, S. H. (n.d.). What's the relationship between ADHD and executive function? National Center for Learning Disabilities. Retrieved from www.ncld.org/types-learning-disabilities/executive-function-disorders/relationship-adhd-attention-deficit

Hughes, R. (2011). Research briefs: Artificial food dyes and ADHD. *Attention, 18*(3), 12–14.

Jackson, M. (n.d.). Treat ADHD symptoms with brain training. Retrieved from http://www.additudemag.com/adhd/article/5539.html

Jones, C. B. (1991). *Sourcebook for children with attention deficit disorder: A management guide for early childhood professionals and parents.* Tucson, AZ: Communications Skill Builders.

Kaiser Greenland, S. (2010). *The mindful child.* New York, NY: Atria Books. Retrieved from www.susankaisergreenland.com/book.html

Katz, M. (2008). Promising practices. Brainology: Using lessons from basic neuroscience. *Attention, 15*(5), 8–9.

Katz, M. (2012). Mindfulness and adult ADHD. *Attention, 19*(3), 7–8.

Katz, M. (2014). Executive function: What does it mean? Why is it important? How can we help? *The Special Edge: Student Behavior, 27*(3), 8–10.

Kaufman, C. (2010). *Executive function in the classroom.* Baltimore, MD: Paul H. Brookes.

Lara, M. (2012). The exercise prescription for ADHD. *Attention, 19*(3), 22–25.

Lewis-Palmer, T. (2007). Embedding social skills instruction throughout the day. Retrieved from www.pbis.org/common/pbisresources/presentations/palmer0RPBS20307.ppt#1

Lougy, R., DeRuvo, S., & Rosenthal, D. (2007). *Teaching young children with ADHD.* Thousand Oaks, CA: Corwin Press.

Low, K. (2010, December 8). The benefits of ADHD coaching: Coaching improves executive functioning for college students with ADHD. About.com. Retrieved from http://add.about.com/od/treatmentoptions/a/The-Benefits-Of-Adhd-Coaching.htm

Mahone, E. M., Crocetti, D., Ranta, M. E., Gaddis, A., Cataldo, M. Slifer, K. K., . . . Mostofsky, S. H. (2011). A preliminary neuroimaging study of preschool children with ADHD. *Clinical Neuropsychologist, 25,* 1009–1028.

Mauro, T. (2013). Executive function. About.com. Retrieved from http://specialchildren.about.com/od/behaviorissues/g/executive.htm

McCarthy, L. F. (n.d.). Behavior therapy for ADHD children: More carrot, less stick. *ADDitude.* Retrieved from www.additudemag.com/adhd/article/3577.html

McCarthy, L. F. (n.d.). What you need to know about ADHD coaching. *ADDitude.* Retrieved from www.additudemag.com/adhd/article/4002.html

McCarthy, L. F. (2007). Top 10 questions about meds . . . answered. *ADDitude, 7*(3), 36–38.

McGinnis, E., & Goldstein, A. (1997). *Skillstreaming the adolescent: New strategies and perspectives for teaching prosocial skills.* Champaign, IL: Research Press.

Meltzer, L. (2010). *Promoting executive function in the classroom.* New York, NY: Guilford Press.

Michaels, P. V. (n.d.). Alternative ADHD treatment: Neurofeedback. *ADDitude.* Retrieved from www.additudemag.com/adhd/article/3330.html

Michaels, P. V. (2008). Special report on neurofeedback: Train the brain. *ADDitude, 8*(3), 42–43.

Moyes, R. A. (2014). *Executive function "dysfunction": Strategies for educators and parents.* London, UK: Jessica Kingsley.

Nadeau, K. G. (1998). *Help 4 ADD @ high school.* Silver Spring, MD: Advantage Books.

Nadeau, K. G., & Dixon, E. B. (2004). *Learning to slow down and pay attention: A book for kids about ADHD* (3rd ed.). Washington, DC: Magination Press.

National Association of School Psychologists (NASP). (2002). Fact sheet on social skills: Promoting positive behavior, academic success, and school safety. Retrieved from www.nasponline.org/resources/factsheets/socialskills_fs.aspx

National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention. (2014). Special education services for preschoolers with disabilities. http://www.parentcenterhub.org/repository/preschoolers/

National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention. (2015). If you're concerned. Retrieved from http://www.cdc.gov/ncbddd/actearly/concerned.html

National Resource Center on AD/HD. (n.d). Complementary and other interventions. Retrieved from http://www.chadd.org/Understanding-ADHD/About-ADHD/Treatment-of-ADHD/Complementary-and-Other-Interventions.aspx

National Resource Center on AD/HD. (n.d). Preschoolers and ADHD. Retrieved from http://www.chadd.org/portals/0/content/chadd/nrc/factsheets/preschoolers.pdf

National Resource Center on AD/HD. (n.d). Psychosocial treatments. Retrieved from http://www.chadd.org/Understanding-ADHD/For-Parents-Caregivers/Treatment-Overview/Psychosocial-Treatments.aspx

National Resource Center on AD/HD. (n.d). Treatment overview. Retrieved from http://help4adhd.org/Understanding-ADHD/For-Parents-Caregivers/Treatment-Overview.aspx

National Resource Center on AD/HD. (2014). ADHD awareness month: ADHD and the *DSM-5*. Retrieved from www.adhdawarenessmonth.org/wp-content/uploads/ADHD-and-the-DSM-5-Fact-Sheet1.pdf

Oregon Developmental Disabilities Coalition. (n.d.). *Executive functioning: Skills, deficits, and strategies.* Retrieved from http://oregonddcoalition.org

Park, J. H., Alber-Morgan, S. R., & Fleming, C. (2011). Collaborating with parents to implement behavioral interventions for children with challenging behaviors. *Teaching Exceptional Children, 43*(3), 22–30.

Quinn, P. O. (2009). *Attention, girls! A guide to learn* all *about your AD/HD.* Washington, DC: Magination Press. (For ages 8–13)

Quinn, P. O. (2013, June). Successfully launching your teen or young adult with ADHD into the world. *Attention, 20*(3), 10–14.

Quinn, P. O., & Stern, J. M. (2009). *Putting on the brakes activity book for kids with ADD or ADHD* (2nd ed.). Washington, DC: Magination Press.

Rabiner, D. (n.d.). Behavioral treatment for ADHD/ADD: A general overview. Retrieved from http://helpforadd.com/add-behavioral-treatment

Rabiner, D. (2013, June). New diagnostic criteria for ADHD: Subtle but important changes. *Attention Research Update.* Retrieved from www.helpforadd.com/2013/june.htm

Rabiner, D. (2014, April). Strong new support for neurofeedback treatment for ADHD. *Attention Research Update.* Retrieved from www.helpforadd.com/2014/april.htm

Ratey, J. J., with Hagerman, E. (2008). *Spark: The revolutionary new science of exercise and the brain.* New York, NY: Little, Brown.

Ratey, N. (2008). Complete guide to ADHD coaching. *ADDitude.* Retrieved from www.additudemad.com/adhd/article/3619.html

Reimers, C., & Brunger, B. (1999). *ADHD in the young child: Driven to redirection.* Plantation, FL: Specialty Press.

Rief, S. (2008). *The ADD/ADHD checklist: A practical reference for parents and teachers* (2nd ed.). San Francisco, CA: Jossey-Bass.

Rief, S. (2015). *The ADHD book of lists: A practical guide for helping children and teens with attention deficit disorders* (2nd ed.). San Francisco, CA: Jossey-Bass.

Rief, S. (2016). *Executive function: Skill-building and support strategies for the elementary classroom.* [Six-page laminated guide]. Port Chester, NY: National Professional Resources. (Available at www.sandrarief.com or www.nprinc.com)

Rief, S. (2016). *Executive function: Skill-building and support strategies for grades 6–12.* [6-page laminated guide]. Port Chester, NY: National Professional Resources. (Available at www.sandrarief.com or www.nprinc.com)

Robin, A. L., & Barkley, R. A. (1999). *ADHD in adolescents: Diagnosis and treatment.* New York, NY: Guilford Press.

Rodriguez, D. (2014). Medications to treat ADHD. *Everyday Health.* Retrieved from www.everydayhealth.com/adhd/adhd-drugs.aspx

Semrud-Clikeman, M., & Teeter Ellison, P. A. (2009). *Child neuropsychology: Assessment and interventions for neurodevelopmental disorders* (2nd ed.). New York, NY: Springer.

Severson, H., Feil, E., Stiller, B., Kavanaugh, K., Golly, A., & Walker, H. (n.d.). First steps to success. Voyager Sopris Learning. Retrieved from www.voyagersopris.com/curriculum/subject/school-climate/first-step-to-success

Sheridan, S. M. (1995). *The tough kid social skills book.* Longmont, CO: Sopris West.

Silver, L. (2011). ADHD treatment. *ADDitude, 11*(4), 44–46.

Sleeper-Triplett, J. (2013). Is ADHD coaching right for my teen? *Attention, 20*(6), 26–29.

Special report on working memory: Programmed for success. (2008). *ADDitude, 8*(3), 46.

Tannock, R. (2014). The other ADHD. *ADDitude, 14*(4), 42–43.

Tools of the Mind. (n.d.). What is self-regulation? Retrieved from www.toolsofthemind.org/philosophy/self-regulation/

Understanding ADHD. (n.d.). Health Central. Retrieved from www.healthcentral.com/adhd/understanding-adhd-000030_4.145_2.html

Walker, B. (2004). *The girls' guide to AD/HD.* Bethesda, MD: Woodbine House. (For teenage girls)

Wendt, M. (2011). Linking fitness and academic readiness. *Attention, 18*(3), 28–29.

Wilens, T. E. (2008). *Straight talk about psychiatric medications for kids* (3rd ed.). New York, NY: Guilford Press.

Wilens, T. E. (2014, January). CHADD Ask the Expert chat: The role of medication in managing children's ADHD symptoms. Archived webinar available at https://www.youtube.com/watch?v=e6otz9LQEGE&feature=share&list=UUtIdw4TxJHT8XUlPBvYZD7A

Websites

ADDitude magazine, www.additudemag.com. See also the free webinars presented by experts on a variety of topics with audio and slides, accessible online at http://www.additudemag.com/webinars/

American Academy of Child & Adolescent Psychiatry, www.aacap.org

American Academy of Pediatrics, www.aap.org

Barkley, R. A. See Dr. Barkley's ADHD information sheets and other resources at his website: http://www.russellbarkley.org/

Brown, T. E. See Dr. Brown's information and resources at his website: www.drthomasebrown.com/

CHADD's National Resource Center on ADHD hosts monthly online webcasts (chats) with leading experts in the field of ADHD on a variety of topics. These webcasts are free, and anyone can participate. For upcoming webcasts, see http://www.chadd.org/Training-Events/Ask-the-Expert.aspx#sthash.wJaIPpFA.dpuf; to watch and listen to recordings of previous webinars, see http://www.chadd.org/training-events/Ask-the-Expert/Ask-the-Expert-Archives.aspx

Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD) (www.chadd.org) and the National Resource Center on AD/HD (www.help4adhd.org/), a program of CHADD, provide the most reliable information on ADHD diagnosis, treatment, and multiple other topics that are addressed in this part of the book. See the links on these two websites, and information provided specifically at http://chadd.org/Understanding-ADHD/About-ADHD.aspx and at http://www.chadd.org/Portals/0/Content/CHADD/NRC/Factsheets/aboutADHD.pdf

Goldstein, S. See several articles on a variety of ADHD-related topics at Dr. Sam Goldstein's website: http://samgoldstein.com/cms/index.php/articles/

Preschool Learning Foundations, www.cde.ca.gov/sp/cd/re/documents/preschoolf.pdf

Technical Assistance Center on Social Emotional Intervention for Young Children, www.challengingbehavior.org