



Essentials

of **ADHD Assessment for Children and Adolescents**

- Detailed guidance on evaluation and differential diagnosis of ADHD
- Expert advice on selecting, interpreting, and integrating evaluation components
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Elizabeth P. Sparrow

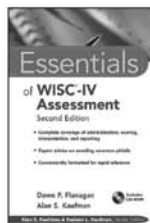
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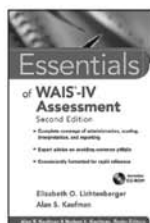
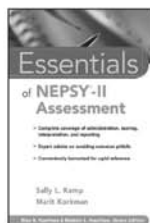
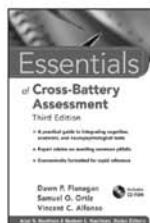
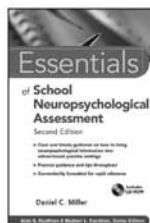
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To my family and friends—thank you for always understanding—ES
To Selma and Warren, with love and appreciation—DE
To C. Keith Conners, our valued mentor, colleague, and friend—DE & ES

CONTENTS

	Foreword	xi
	Series Preface	xiii
	Preface	xv
	Acknowledgments	xix
One	Understanding ADHD	1
	Historical Perspective	2
	Overarching Principles	8
	Core Features	11
	Associated Features and Comorbidity	14
	Etiology	20
	Epidemiology	25
	Summary	30
	Test Yourself	30
	References	32
Two	What the DSM-5 Says About ADHD	45
	Organization of the DSM-5	46
	DSM-5 Criteria for ADHD	49
	How Do I Know if It Is DSM-5 ADHD?	64
	Summary	64
	Test Yourself	65
	References	67

Three	Assessing ADHD: Goals and Guiding Principles	69
	Goals	70
	Guiding Principles	78
	Summary	99
	Test Yourself	100
	References	102
Four	Components of ADHD Assessment	107
	Sequence of Evaluation Components	109
	Record Review	111
	Interview	113
	Clinical Observation	125
	Rating Scales	128
	Cognitive Testing	133
	Summary	148
	Test Yourself	149
	References	150
Five	Putting It All Together: Integrating Findings and Drawing Conclusions	154
	Clinical Application of the DSM-5 Criteria for ADHD	155
	Differential Diagnosis and Comorbidity	163
	Dealing with Discrepant Data	179
	Beyond Diagnosis	183
	Summary	186
	Test Yourself	187
	References	189
Six	Illustrative Case Reports	191
	Psychological Evaluation	194
	ADHD Evaluation Report	223
	Neuropsychological Evaluation	245
	Annotated Bibliography	275
	About the Authors	277
	Index	279

FOREWORD

This new book by Elizabeth Sparrow and Drew Erhardt addresses important needs during this time of rapid change in our understanding of ADHD. The American Psychiatric Association continues to “tweak” the DSM criteria for recognizing ADHD. Professionals need to be aware of these changes and understand their impact on clinical practice in a variety of settings. The knowledge required to correctly assess ADHD goes well beyond the general guidelines in the DSM manual. The purpose of this book is to provide that knowledge.

With prevalence estimates of ADHD already approaching nine to twenty percent of the child population, it seems that ADHD has been diagnosed too liberally, in a slap-dash fashion. There are an ever-increasing number of children and adolescents who are misdiagnosed, and therefore mistreated, with dire consequences such as drug diversion, emergency room visits, and suicide. Conversely, there are children and adolescents who are not correctly treated due to failure to recognize ADHD when it is present. The thorough, comprehensive guidelines in this book will help prevent the common occurrences of under- and over-diagnosis of ADHD.

Although often ignored, there is a vast array of practical clinical issues relevant to the assessment of this syndrome (e.g., dealing with discrepant data, differential diagnosis, comorbidity). This book will heighten mental health professionals’ awareness of these issues and provide the tools necessary to address them successfully. A clear, concise guide for conducting state-of-the-art ADHD evaluations, this book is a valuable resource for professionals in training, for those working in schools, and for those seeking to hone their ADHD assessment skills.

I had the good fortune to mentor Drs. Sparrow and Erhardt at the beginning of their careers and continue to collaborate with them as colleagues. In this authoritative yet highly accessible book, they combine their extensive experience in clinical assessment and treatment with their backgrounds in teaching, research, and test development.

The fundamental message of this book is the importance of a *comprehensive* assessment of ADHD and related disorders. This means that the assessment must include multiple sources of information and multiple methods. There is no single test or method for this task, and appropriate selection of the tasks and sources of information is the *sine qua non* of a good assessment.

This book offers a truly comprehensive *and* evidence-based approach to assessment, without fluff, surplus speculation, or unsupported opinion. I highly applaud this significant new work by two excellent, well-informed authors.

C. Keith Conners, Ph.D.
Professor Emeritus
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SERIES PREFACE

In the *Essentials of Psychological Assessment* series, we have attempted to provide the reader with books that will deliver key practical information in the most efficient and accessible style. The series features instruments in a variety of domains, such as cognition, personality, education, and neuropsychology. For the experienced clinician, books in the series offer a concise yet thorough way to master utilization of the continuously evolving supply of new and revised instruments, as well as a convenient method for keeping up to date on the tried-and-true measures. The novice will find here a prioritized assembly of all the information and techniques that must be at one's fingertips to begin the complicated process of individual psychological diagnosis.

Wherever feasible, visual shortcuts to highlight key points are utilized alongside systematic, step-by-step guidelines. Chapters are focused and succinct. Topics are targeted for an easy understanding of the essentials of administration, scoring, interpretation, and clinical application. Theory and research are continually woven into the fabric of each book, but always to enhance clinical inference, never to sidetrack or overwhelm. We have long been advocates of “intelligent” testing—the notion that a profile of test scores is meaningless unless it is brought to life by the clinical observations and astute detective work of knowledgeable examiners. Test profiles must be used to make a difference in the child's or adult's life, or why bother to test? We want this series to help our readers become the best intelligent testers they can be.

In *Essentials of ADHD Assessment in Children and Adolescents*, the authors provide a clear and informative road map for practitioners seeking to conduct state-of-the-art assessments for one of the most common disorders of childhood. Drawing upon years of experience in conducting diagnostic evaluations of ADHD following best-practice standards, they emphasize the importance of a comprehensive evaluation, incorporating data from multiple sources, using multiple methods, and interpreting findings within the appropriate developmental and cultural contexts. The major components of an ADHD evaluation (interviews,

rating scales, cognitive testing, observation, record review) are reviewed in detail. Expert guidance is provided for resolving the most common challenges in assessing ADHD, including differentiating symptoms from normal development, dealing with discrepant data, differential diagnosis, and considering comorbidity. The latest scholarly literature is integrated with the authors' practical recommendations to provide clinicians with the concepts and tools needed for effective and accurate assessment of ADHD.

Alan S. Kaufman, PhD, and Nadeen L. Kaufman, Ed.D, Series Editors
Yale Child Study Center, Yale University School of Medicine

PREFACE

Attention-deficit/hyperactivity disorder (ADHD) is one of the most common childhood disorders in the United States (Merikangas et al., 2010), and one of the diagnoses parents worry about the most (Garbutt et al., 2012). As a result, clinicians frequently receive requests to evaluate children for possible ADHD. Although there are diagnostic criteria for ADHD (see Chapter 2) and several practice guidelines delineating appropriate assessment components (see Chapter 3), it can be difficult to bridge the gap between these aspirational guides and the nitty-gritty of actual clinical work. Even seasoned professionals can fall prey to the lure of drawing conclusions based on first impressions and incomplete data. Misdiagnosis, whether over- or under-identification, has serious consequences for children, including inappropriate or denied treatment, prolonged distress, misuse of resources (time, energy, money), and development of secondary problems. Unfortunately, there is no definitive assessment tool, no neurological signature, no blood test for ADHD. There are certainly measures that improve the accuracy of ADHD diagnosis, but none of these are sufficient in isolation.

We believe that ADHD is a widely misunderstood disorder, and that a careful and comprehensive evaluation is the *only* way to ensure that a child is accurately diagnosed so that she can receive appropriate services. As such, we have prepared this book as an expert guide for the assessment of ADHD. We blend diagnostic guidelines with research findings, and add clinical tips from our years of thinking about ADHD in individual evaluations, scientific studies, and rating scale development.

ORGANIZATION OF THE BOOK

Just as an evaluation often starts with a developmental history, this book begins with a brief history of ADHD to provide you with a context for understanding the disorder. Chapter 1 then describes the core diagnostic features of ADHD—inattention, hyperactivity, and impulsivity—as well as non-diagnostic features

associated with the disorder. Disorders that tend to co-occur with ADHD are summarized before the chapter concludes with discussions of etiology and epidemiology.

In Chapter 2, we introduce diagnostic criteria for ADHD, based on the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). We provide information for clinicians familiar with the DSM-IV-TR (American Psychiatric Association, 2000) who are transitioning to using the DSM-5 (American Psychiatric Association, 2013). If one regards the DSM criteria as the “laws” for diagnosing ADHD, then Chapter 3 elaborates on the “spirit” of ADHD assessment, including the essential goals of inclusion and exclusion as well as a number of guiding principles. Chapter 4 examines the major components of a comprehensive evaluation for ADHD, including record review, interviews, clinical observations, rating scales, and cognitive testing. For each component, we discuss what information to obtain, whom to ask, and when to implement it. We provide examples of tests that represent each of these assessment components.

Chapter 5 has two aims: (1) to guide your integration of data obtained from the assessment, and (2) to help you apply the essential concepts discussed in this book. In addition to elaborating on key ways to discriminate what *is* ADHD from what is *not*, the chapter walks you through a number of diagnostic challenges likely to arise in your clinical work. Issues like overlapping symptoms, differential diagnosis, and comorbidity are addressed. For each of these challenges, we provide information about how to compare the possibilities and reach a diagnostic determination. We share advice on resolving the inevitable discrepancies that occur as part of a comprehensive assessment for ADHD. Chapter 5 closes with the reminder that assessment does not end once you assign a diagnosis (or diagnoses), and offers some suggestions for treatment planning and providing feedback. The book concludes in Chapter 6 with three case studies of children referred for evaluation of ADHD.

FOCUS OF THE BOOK

This book focuses on the assessment of ADHD in children and adolescents. Thus, with occasional exceptions, content pertaining to ADHD in adults, ADHD in preschoolers, interventions for ADHD, general clinical practice, and general child psychopathology is excluded. Additional resources are noted in the text and annotated bibliography for readers interested in learning more about these topics.

INTENDED AUDIENCE

Our intended audience is licensed clinicians as well as those still in training. Professionals who do not have a background in child psychopathology and

development will need additional information to responsibly apply the principles outlined in this book within a developmental framework. Researchers, educators, and the general public may find some of what we discuss informative; however, they are reminded that this book cannot substitute for clinical training and supervision. The book is intended to supplement (not replace) the DSM-5; indeed, we urge clinicians to review and consult the DSM on a regular basis.

STYLISTIC CONVENTIONS

Throughout the book, we strive to be clear and straightforward. When there are essential points, we emphasize them with “Don’t Forget,” “Caution,” and “Rapid Reference” boxes. Special topics are discussed as they arise.

Out of necessity, we have adopted a few stylistic conventions used throughout the book:

- The terms *child* and *children* are used to describe school-aged children ages 6 through 18 years, rather than repeatedly specifying “children and adolescents.” The decision to split “children” (16 years and younger) from “older adolescents and adults” (17 years and older) for DSM-5 diagnosis of ADHD varies from the typical division of children from adults at 18 years old. Thus, we remind you of the distinction when relevant.
- ADHD occurs in both boys and girls, so we alternate *male and female pronouns* with no intended bias (other than when discussing gender-specific information).
- The term *parent* represents any relevant parental or caretaking figure, and should not be read as exclusively meaning “biologic parent.”
- Because the American *Psychiatric Association* and the American *Psychological Association* both use the acronym *APA*, we spell out the relevant organization name each time to avoid confusion.

SUMMARY

By gathering comprehensive data from multiple sources with multiple methods, you can establish the child’s history of symptoms, current presentation, and levels of impairment. These data will support your hypothesis testing as you evaluate the presence of ADHD and consider other explanations for the child’s difficulties. Although the core features of ADHD are behaviors that occur to some extent in most children, we believe that conducting the type of thorough assessment

described here will enable you to successfully differentiate these normal variants from the symptoms of ADHD.

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UNDERSTANDING ADHD

Attention-deficit/hyperactivity disorder (ADHD) is a common neurodevelopmental condition marked by developmentally inappropriate levels of inattention, and/or impulsivity and hyperactivity that often significantly impair functioning across multiple domains and place children at elevated risk for a variety of adverse outcomes. It is important for clinicians who work with youth to possess a basic understanding of ADHD as it is one of the most frequently diagnosed disorders of childhood and among the most common reasons for child mental health referrals in both community and school settings. However, ADHD is frequently misunderstood even by mental health professionals. This is due in part to the confusing array of labels by which it is known, misinformation disseminated through the popular press, social media, and on the web, and to the complex, heterogeneous, and highly variable nature of the disorder itself.

Fortunately, ADHD has been subject to an enormous amount of scientific research (viz. more than 10,000 journal articles and over 100 textbooks) (Barkley, 2013). As a result, we know more about ADHD than any other mental health disorder beginning in childhood. The purpose of this chapter is to provide a brief but informative overview of ADHD, including current scientific knowledge. (Numerous resources exist for readers interested in more detailed descriptions of ADHD; see, for example, Barkley, 2006; DuPaul & Kern, 2011; Evans & Hoza, 2011; Goldstein & DeVries, 2011; Hinshaw & Scheffler, 2013; Jensen & Cooper, 2002). After a short summary of the history of ADHD, the chapter addresses core and associated features of the disorder, common comorbidities, etiology, and epidemiology. Although this book focuses on ADHD in children and adolescents, there is a growing body of literature about ADHD in adults (e.g., see Barkley, Murphy, & Fischer, 2008; Goldstein & Ellison, 2002; Surman, 2013; Weiss, Hechtman, & Weiss, 1999).

HISTORICAL PERSPECTIVE

ADHD has a long and somewhat controversial history (historical landmarks are summarized in Rapid Reference 1.1; for detailed accounts, see Antshel & Barkley, 2011; Taylor, 2011). Early clinical descriptions of the disorder, dating back over 200 years, came from physicians on the basis of children seen in their practices. These took numerous forms, ranging from book chapters (Weikard in 1775; see Barkley & Peters, 2012) and lengthy tomes (Crichton, 1798, 2008), to lectures (Still, 1902) and doggerel poems (Hoffmann's verses, "Fidgety Philip" and "Johnny Head-In-Air"; Hoffmann, 1844; English edition in 1848). Although the inclusion of inattentive, hyperactive, and impulsive symptoms has been relatively constant across clinical and scientific descriptions of the disorder over time, conceptualizations have evolved considerably with respect to presumed defining features, diagnostic labels, etiologic theories, and practice standards for assessment and treatment.

Early descriptions of ADHD often included inattention, but focused on hyperactivity as the core feature of the disorder. However, studies from Virginia Douglas' lab in the late 1960s and 1970s firmly reinstated the importance of deficits in sustained attention and impulse control in descriptions of the syndrome (Douglas, 1972, 1976). Influenced largely by this research, deficits in sustained attention rather than overactivity came to be viewed as central to the disorder by the early 1980s (American Psychiatric Association, 1980). Over recent decades, a neuroscience perspective has been applied to examining



"Let me see if Philip can
Be a little gentleman;
Let me see if he is able
To sit still for once at table":
Thus Papa bade Phil behave;
And Mamma looked very grave.
But fidgety Phil,
He won't sit still;
He wriggles,
And giggles,
And then, I declare,
Swings backwards and forwards,
And tilts up his chair,
Just like any rocking horse—
"Philip! I am getting cross!"

Figure 1.1. Excerpt from "The Story of Fidgety Philip," a cautionary poem about hyperactivity from the 1840s

Source: Hoffmann, 1844.

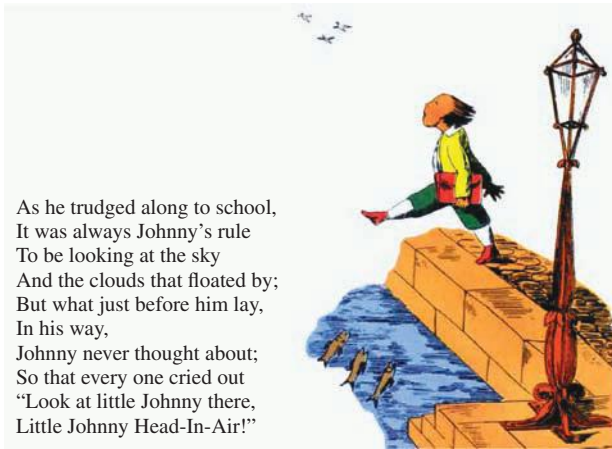


Figure 1.2. Excerpt from “The Story of Johnny Head-in-Air,” an 1840s poem about pervasive inattention

Source: Hoffmann, 1844.

difficulties with motivation, response to reinforcement, inhibition, and executive functions as possible core problems underlying ADHD (Barkley, 1997; Brown, 2013; Castellanos, Sonuga-Barke, Milham, & Tannock, 2006; Nigg, 2013a; Nigg & Casey, 2005; Sagvolden, Aase, Zeiner, & Berger, 1998; Schachar, Tannock, & Logan, 1993).

Similarly, presumptions about the causes of ADHD have changed considerably over time, reflecting both research findings and prevailing scientific paradigms used to explain cognitive and behavioral functioning (Conners & Erhardt, 1998). Early views centering on defective “moral control” and presumed brain damage along with later environmental theories highlighting diet and child-rearing gradually gave way to more biologically based and data-driven explanations. At various times, research investigations have focused on psychophysiology, motivational deficits, neurotransmitter deficiencies, neuropsychological functioning, and genetic factors. More recently, studies employing increasingly rigorous and sophisticated methods (including brain imaging techniques) have elucidated potential structural and functional neurological bases for ADHD and illuminated how genetically based risk might interact with or be triggered by various environmental factors (e.g., pre- or post-natal environmental toxins such as alcohol, nicotine, and pesticides) to culminate in the self-regulation problems characteristic of ADHD (see the section on etiology below).

Rapid Reference 1.1

Historical Landmarks Related to ADHD in Children and Adolescents

- 1775 —Weikard's medical text has a chapter about "Attention Deficit," including his recommendations for treatment.
- 1798 —Crichton writes about disordered attention.
- 1840s—Hoffmann, a German physician, composes moralistic verses for his young son, including characters with features of hyperactivity and inattention.
- 1902 —Still describes patients with features of impulsivity and short attention span as suffering from an "abnormal defect of moral control . . . without general impairment of intellect and without physical disease."
- 1937 —Bradley documents benefits of the stimulant Bensedrine (dextro-amphetamine sulfate) for children with behavior disorders, marking the beginning of pharmacotherapy for this population.
- 1950s—Stimulants begin to be used regularly to treat hyperactivity.
- 1955 —FDA approves methylphenidate (Ritalin) for treatment of hyperactivity.
- 1963 —65—Eisenberg publishes studies documenting benefits of stimulant medication in treating hyperkinesis, in comparison to placebo and traditional psychotherapy.
- 1969 —Conners develops the first structured parent and teacher rating scales to reliably assess ADHD symptoms and treatment response.
- 1970s—Various environmental factors (e.g., food additives, societal tempo, poor parenting) proposed as causes of ADHD; stimulants emerge as treatment of choice for ADHD symptoms; efficacy studies support the use of behavioral treatment, via classroom-based modification and parent training, contributing to the emergence of combined treatments; studies by Douglas contribute to shifting view of attention deficits (rather than hyperactivity) as the defining feature of the disorder.
- 1975 —Public Law 94-142 mandates special education services for children with behavioral (as well as other) disabilities, though exclusion of terms specific to hyperactivity/ADD/ADHD would result in services being denied to many with ADHD.
- 1980s—Broadband and ADD-specific standardized rating scales published; computerized tests of attention developed; non-stimulants investigated for treatment of ADHD.
- 1986 —Seminal longitudinal study by Weiss & Hechtman demonstrates the persistence of inattention and impulsivity past childhood despite declines in hyperactivity, undermining the view that adolescents "outgrow" the disorder.
- 1987 —*Children and Adults with Attention-Deficit/Hyperactivity Disorder* (CHADD) founded; this information, support, and advocacy group would play an important role in psychoeducation and in securing access to special education services for youth with ADHD.

1990 — 1991—Children with ADHD granted eligibility to special education services through the *Other Health Impaired* category of the *Individuals with Disabilities Education Act* (IDEA) and a memorandum from the U.S. Dept. of Education's Office of Special Education.

1990s—Present—Significant research advances pertaining to the neurological basis of ADHD (via brain imaging studies), distinguishing neuropsychological factors with a particular emphasis on executive functions, and genetic contributions to the disorder; theories increasingly focus on behavioral inhibition and executive functioning as putative “core” deficits; increased attention to ADHD in females; the large-scale *Multimodal Treatment of Attention Deficit Hyperactivity Disorder* (MTA) study is conducted; introduction of new stimulant and non-stimulant medications along with marked increases in pharmacologic treatment of ADHD.

Sources: Antshel & Barkley (2011); Barkley (2006).

The labels used to describe the disorder now known as ADHD, both within and outside of official classification systems for mental disorders, have changed frequently over the years. These changes have generally paralleled shifts in prevailing views of defining features and causal factors discussed earlier. Thus, a non-exhaustive list of the terms that have been used to describe this syndrome includes *minimal brain damage (MBD)*, *hyperkinetic impulse disorder*, *hyperactive child syndrome*, *hyperkinetic reaction of childhood*, *minimal brain dysfunction*, *hyperkinesis*, *attention-deficit disorder*, and the current *attention-deficit/hyperactivity disorder* (see Rapid Reference 1.2). Efforts to more accurately and precisely label and diagnose this disorder have been accompanied by examinations of the most meaningful ways to subtype ADHD, particularly with respect to whether certain subtypes are not only durable over time but associated with clinically meaningful differences with respect to factors such as the nature of core and associated symptoms, causality, comorbidities, course, response to treatment, and outcomes. The most notable basis for such subtyping has involved whether inattentive features, hyperactive/impulsive features, or both are salient in the presentation of the disorder (a subtyping scheme that has appeared, disappeared, and reappeared over various editions of the DSM classification system). However, children with ADHD have also been meaningfully subtyped on the basis of the presence or absence of comorbid aggression, learning disorders, and anxious or depressive features (Barkley, 2006).

Among the most significant turn of events in the history of ADHD has been a shift in our understanding of the persistence and seriousness of the disorder. Spurred by results of numerous longitudinal studies (see, for example, Klein

≡≡≡ *Rapid Reference 1.2*

Changing Labels

- 1950s—*Minimal brain damage*—presumed neurological damage.
- 1957 —*Hyperkinetic impulse disorder*—attributed high activity levels to central nervous system deficit leading to cortical overstimulation.
- 1960s—*Hyperactive child syndrome*—focused on high activity level as the defining feature; symptoms described as remitting in adolescence.
Hyperkinetic reaction of childhood (DSM-II)—initial inclusion of the disorder in DSM comprised a single-sentence description that noted hyperactivity, distractibility, and short attention span along with the assertion that features typically decline by adolescence.
Minimal brain dysfunction—symptoms accounted for by high and poorly regulated levels of activation, deficits related to the experience of pleasure and pain, and extroversion.
- 1980 —*Attention-deficit disorder (with or without hyperactivity)* (DSM-III)—reconceptualized ADHD with a focus on inattention as the defining feature; separate symptoms lists provided for inattention, hyperactivity, and impulsivity; subtypes, numerical cutoff scores, and guidelines for age of onset and duration of symptoms first introduced; ADD-Residual Type (ADD-RT) introduced for persistence of some symptoms after remission of hyperactivity.
- 1987 —present—*Attention-deficit/hyperactivity disorder* (ADHD).
- 1987 —DSM-III-R dropped subtypes (but added *undifferentiated ADD*, which resembles the current inattentive presentation); empirical basis as field trial results contributed to criteria; single-symptom list and cutoff score; added verbal manifestations of hyperactivity, introduced need to establish symptoms as developmentally inappropriate; grouped ADHD with ODD and CD in a disruptive behavior disorders category.
- 1994 —DSM-IV reintroduced subtypes, including *predominantly inattentive type*, *predominantly hyperactive-impulsive type*, and *combined type*; criteria become increasingly empirically based; separate symptom lists and cutoff scores for *inattention* and *hyperactivity-impulsivity* factors; used *ADHD not otherwise specified* to capture atypical presentations.
- 2013 —DSM-5 downgraded subtypes to “presentations,” including *predominantly inattentive presentation*, *predominantly hyperactive/impulsive presentation*, and *combined presentation*; ADHD included among *Neurodevelopmental Disorders* but no longer grouped with ODD and CD; age of onset raised from 7 to 12 years.

Sources: Antshel & Barkley (2011); Barkley (2006); Taylor (2011).

et al., 2012; Weiss & Hechtman, 1986, 1993a), the prevailing view of ADHD has evolved from a largely benign disorder that children generally outgrow by adolescence to a typically chronic and impairing condition. This recognition, along with greater clarity with respect to how the presentation of ADHD changes

over the life span, has led to increased efforts to refine and optimize our assessment and treatment practices.

Medication therapies have long been the most common treatment for ADHD and remain so today. The use of stimulant medications with behaviorally disordered youth (and, in fact, the origins of child psychopharmacology more generally) can be traced back more than 75 years, when the physician Charles Bradley reported that Bensedrine resulted in notable behavioral and academic improvements in a hospitalized group of such children (Bradley, 1937). Stimulant medications became routinely prescribed for ADHD in the 1950s, following additional reports noting positive effects of amphetamine and methylphenidate on children with what was then called minimal brain dysfunction or hyperactive child syndrome (Wolraich, 2011). The U.S. Food and Drug Administration (FDA) approved methylphenidate (Ritalin) for use in children with hyperactivity in 1955 (U.S. Food and Drug Administration, 2013). Research conducted by Leon Eisenberg and Keith Conners (Eisenberg et al., 1963) ushered in era of increased methodological rigor in pediatric studies documenting the benefits of stimulant medication. The results of numerous additional random controlled trials over subsequent years (Swanson, McBurnett, Wigal, & Pfiffner, 1993) led to the gradual emergence of stimulant medications as the treatment of choice for ADHD. Recent decades have witnessed the introduction of a host of new pharmacologic agents for ADHD (e.g., atomoxetine), novel ways to deliver and sustain their effects over longer periods of time (e.g., micro-beads, dermal patches, osmotic pumps), and rather dramatic increases in their prescription rates, their use across the age span (including preschoolers), and, consequently, ongoing controversy regarding their use (Greenhill, Halperin, & Abikoff, 1999; Greenhill et al., 2002; Greenhill et al., 2006; Kaplan, 2011; Mayes, Bagwell, & Erkulwater, 2009; Solanto, Arnsten, & Castellanos, 2001; Swanson & Volkow, 2009; Zuvekas, 2012).

Alongside the voluminous literature on stimulant medications, a significant evidence base has accrued over the past 40 years for the efficacy of behavioral-based treatments for ADHD, whether delivered in the context of classroom interventions, parent training, or therapeutic settings like specialized summer camps (Owens, Storer, & Girio-Herrera, 2011). Many other forms of treatment have been tried for ADHD through the years. With respect to improving primary symptoms of the disorder, some are ineffective (e.g., play therapy), some may help only a small portion of sufferers (e.g., special diets), and others have some evidence but have yet to accrue the type of strong, consistent research support needed to establish them as “proven” treatments (e.g., neurofeedback, computer-based cognitive training) (Hurt, Lofthouse, & Arnold, 2011; Lofthouse, McBurnett, Arnold, & Hurt, 2011; Melby-Lervag & Hulme, 2013).

Numerous studies have examined treatments that combine medication and behavioral interventions, leading to the general conclusion that while stimulants are the single most effective and possibly sufficient treatment for reducing core ADHD symptoms, combined treatments are most likely to normalize problem behavior and appear to be superior with respect to improving comorbid symptoms, building skills (academic, social, parenting), and reducing key life impairments (Conners et al., 2001; MTA Cooperative Group, 1999; Swanson et al., 2001). What has been elusive over many decades of intervention research has been the identification of treatments or treatment combinations yielding benefits that generalize across situations and time once acute treatment is discontinued or that fundamentally alter the core deficits of ADHD.

ADHD assessment practices have evolved considerably from an early reliance on clinical impressions (e.g., “I know it when I see it”), to the introduction of structured behavior rating scales by Keith Conners in the late 1960s (Conners, 1969), to the development of a host of scales, interviews, and objective tests designed to assist in the detection of the disorder (Pelham, Fabiano, & Massetti, 2005; Smith, Barkley, & Shapiro, 2007). This progression has led us to the current standard of care: A careful integration of interview, rating scale, testing, and observational data drawn from multiple sources and informants in order to identify ADHD and distinguish it from typical development and from other conditions that might produce similar symptoms (American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues, 2007a). The *hows* and *whys* of such assessment practices for ADHD will be the focus of subsequent chapters.

OVERARCHING PRINCIPLES

There are two central principles to remember when thinking about ADHD: *dimensionality* and *variability*. Although the practical realities of clinical diagnosis and the very nature of classification systems like the DSM lure us into thinking of ADHD (and other behavioral disorders) categorically (“either she *has* ADHD or she doesn’t”), the reality is that ADHD (like many other mental health disorders) is best thought of dimensionally (Frick & Nigg, 2012; Lahey & Willcutt, 2002; Marcus & Barry, 2011) (see Chapter 3 for further discussion of this distinction). That is, the features of ADHD exist on a continuum along which every person can be placed, just like height, weight, or IQ. To illustrate this essential truth, consider how much typically developing children differ with respect to their ability to regulate their activity levels, sustain attention, and restrain their impulses. At each age, there is an average level of these abilities with a considerable range of variation

around that average. Younger children generally have a lower average and a broader range. In fact, the reality is that short attention spans, high activity levels, and impulsivity are a normal part of childhood for many youngsters. When diagnosing ADHD, we are identifying children who fall at the extreme end of the continuum, whose deficits lead to impairment. The challenge is that there is no magic dividing line on the continuum to separate “typical” from “ADHD.” This lack of a natural boundary for the diagnosis of ADHD is why it is so important to be certain that symptoms are (1) excessive for a child’s age and gender and (2) associated with significant impairment (important themes that will be emphasized throughout this book).

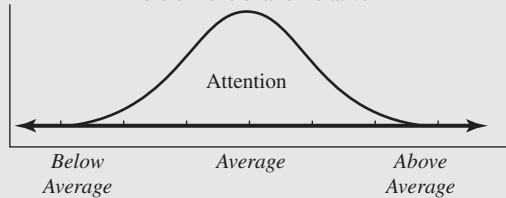
DON'T FORGET

Although diagnostic criteria are presented in a categorical format, ADHD is a dimensional disorder. In other words, rather than being an *absolute* “yes” or “no,” assessing each symptom is a *relative* decision of “how much compared to peers.”

Not truly categorical or absolute



More dimensional or relative



In addition to dimensionality, variability is a hallmark feature of ADHD. The varied set of behavioral and cognitive problems involved in ADHD means that there is no single, unified presentation that fits all children who receive the diagnosis. Some children with ADHD exhibit lots of problems related to inattention but not many hyperactive or impulsive behaviors.¹ Others

¹ To further complicate matters, some contend that this group includes many children that may have a distinct attention disorder from that seen in ADHD. Referred to as *sluggish cognitive tempo* (SCT), the condition is marked by a “spacey” or “daydreamy” and lethargic presentation and is distinguishable from ADHD with respect to associated problems, executive functioning deficits, comorbidity patterns, and treatment response (Barkley, 2013; McBurnett, Piffner, & Frick, 2001). Although SCT was proposed for consideration (Hartman, Willcutt, Rhee, & Pennington, 2004), it is not included in the DSM-5 either as a presentation of ADHD or as a separate disorder.

(particularly among younger age groups) (Lahey, 1993; Willcutt, 2012) present with the opposite pattern. Most children diagnosed with ADHD have difficulties in both categories, even though one category may be dominant. The severity of symptoms and the nature and degree of associated impairment also vary across cases, adding further to the heterogeneity among youngsters with this disorder. Moreover, inattention, hyperactivity, and impulsivity are multifaceted constructs that can manifest in a wide variety of forms. Clearly, to say “not all children with ADHD look the same” is a gross understatement.

The variability seen in ADHD occurs not only *across* children with ADHD, but also *within* a given child (Castellanos et al., 2005). Symptoms of ADHD typically fluctuate across time, persons, tasks, situations, and settings (see Barkley, 2006, for a detailed discussion of the impact of these factors). It is this inconsistency from hour-to-hour, day-to-day, and task-to-task that often leads others to view those with ADHD as simply being “lazy” or as not trying hard enough. However, rather than suggesting the absence of disorder, such inconsistency is highly characteristic of ADHD. Indeed, some consider variability in performance across time and contexts to be the essence of ADHD (Brown, 2013). Although children with the disorder tend to stand out from their peers in most settings, the visibility and impact of symptoms can ebb and flow considerably depending upon the context and, in particular, the degree to which it requires sustained effort and focus, restraint, and self-control. Thus, free-play and other low-demand settings often reduce the expression of ADHD symptoms, as do novel, stimulating, and engaging tasks that provide clear and frequent feedback (whether reinforcing or corrective) closely tied to the child’s performance. Video games are often cited as an example of an activity that elicits improved attention, though children with ADHD have been found to still be more restless and inattentive than their peers while playing such games and to perform less well on them (Tannock, 1997). In contrast, symptoms of ADHD are often very evident in highly familiar settings with low levels of individualized attention and feedback, as well as when tasks are of little interest but high demand (e.g., requiring planning, organization, focus, sustained effort). For example, a student who seems engaged during sports practice with a very involved coach may look inattentive during independent schoolwork and homework.

The variability associated with ADHD is further justification for seeking information about the child’s functioning across multiple settings and tasks, with input from more than one observer. In addition to establishing pervasiveness and persistence of symptoms, multiple sources of input help determine if an example of good attention is an exception or the rule for a child. As explored in later chapters, it is important not to rule out ADHD on the basis of the child

performing adequately (or even well) in some settings or not displaying characteristic symptoms consistently across every context.

DON'T FORGET

Two Key Concepts for ADHD

1. The features of ADHD are dimensional (not categorical); they vary along a continuum in the general population.
2. Symptoms of ADHD have a variable presentation (across those with the diagnosis and within an individual). ADHD can look very different across children with the disorder. Inconsistency in symptom expression and in performance within an individual is a hallmark feature of ADHD.

CORE FEATURES

Clinical descriptions of ADHD have been remarkably stable for more than a century, including developmentally aberrant and impairing levels of inattention, impulsivity, and hyperactivity that emerge in childhood and persist over time and across situations. Each of these three core features is described briefly here, with greater detail about related diagnostic criteria provided in Chapter 2.

Although hyperactivity and impulsivity are discussed separately in what follows, it is important to note that it is difficult to separate these two constructs. In fact, there is wide consensus based on considerable research evidence that ADHD (at least among children and adolescents) is best defined in terms of two (rather than three) symptom domains: (1) *inattention* and (2) *hyperactivity/impulsivity* (accordingly, this is how ADHD is defined in the current edition of the DSM; American Psychiatric Association, 2013; see Chapter 2). The bases for this relate not only to the high correlation between hyperactive and impulsive features of the disorder (i.e., children who have symptoms of one tend to also display the other) and the replication of this same two-factor structure across ethnic and cultural groups (Bird, 2002; Reid, Casat, Norton, Anastopoulos, & Temple, 2001; Toplak et al., 2012), but also to the fact that the inattentive and hyperactive/impulsive dimensions differentially predict the types of impairments

DON'T FORGET

Although the name has changed, the core features of ADHD have remained constant for over 100 years: inattention, hyperactivity, and impulsivity.

children experience, their comorbid conditions, and neuropsychological findings. For example, children with inattentive features are more likely to have academic problems (including learning disorders), internalizing symptoms, and neuropsychological weaknesses related to working memory, processing speed, and

DON'T FORGET

Clinical experience, research data, and diagnostic guidelines support two categories of ADHD symptoms: *inattentive* and *hyperactive/impulsive*. These two categories help predict associated problems and what interventions a child may need.

response variability, whereas those with hyperactive/impulsive symptoms are more likely to show oppositional/disruptive behavior, conduct problems, aggression, peer rejection, and accidental injury (American Psychiatric Association, 2013; Barkley, 2006; Tannock & Brown, 2009; Willcutt & Bidwell, 2011; Willcutt et al., 2012).

Inattention

Attention is a multifaceted construct (Stauss, Thompson, Adams, Redline, & Burant, 2000). It includes components such as arousal and alertness, selective or focused attention and distractibility (the ability to attend to particular stimuli while ignoring competing, irrelevant stimuli), attention span (the amount of information that one can attend to at one time), and sustained attention or vigilance (the persistence of focus over time), among others. Of these components, children with ADHD appear to have the greatest difficulty with sustained attention (Douglas, 1983; Newcorn et al., 2001; Swaab-Barneveld et al., 2000). As a consequence, they often struggle to maintain their concentration and effort and to persist with tasks, particularly those they experience as boring, tedious, or repetitious. They are also more distractible than other children. Not only are they more likely than peers to respond to irrelevant events around them, but they also take longer to get back on-track (if they do at all). This distractibility can be compounded by a tendency to become bored quickly and to actively seek opportunities to escape the current task. People with ADHD, in general, are highly drawn to activities that seem more appealing than what they are engaged in at the moment.

Impulsivity

Another core feature of ADHD is difficulty with impulse control (Gordon, 1979; Newcorn et al., 2001; Nigg, 2001; Scheres et al., 2004). More so than inattention,

poor inhibition of impulsive responding has been found to distinguish those with ADHD both from typically developing children and from children with other disorders (Barkley, 1997; Nigg, 2001). This poor inhibition impacts behavior, speech, and cognition. People with ADHD may appear to act upon whatever comes to mind without prior consideration for the likely consequences for themselves or others. This may be reflected in their taking shortcuts in their work (often leading to mistakes), things they want from others (without permission), and unnecessary risks (often on a whim or in response to a dare). The propensity to take chances where others would think twice is particularly troubling, as it increases risk for a variety of serious consequences, ranging from accidental injuries to car accidents (see discussion in “Course and Outcome,” section). Children with ADHD often begin tasks before instructions have been completed and without proper consideration of what is required (with predictable consequences for their performance).

Poor inhibition makes waiting highly aversive for many people with ADHD (Solanto et al., 2001). A youngster with ADHD might have difficulty waiting for her turn in a game or conversation, for others to finish what they are saying, when lining up for lunch or recess, or for a meal, class, or religious service to end. Delaying gratification is also a challenge. When given the choice, youth with ADHD tend to opt for a smaller but immediately available reward (whether it be a toy, snack, or money) rather than waiting for a larger payoff (Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001; Rapport, Tucker, DuPaul, Merlo, & Stoner, 1986; see Willcutt & Bidwell, 2011, for a summary of these “delay aversion” studies).

Verbal impulsivity in ADHD may include blurting out answers prematurely, interrupting others’ conversations, and voicing things best left unsaid. These behaviors often lead to hurt feelings, anger, and the perception that the person with ADHD is rude and insensitive (which in turn exacerbates social problems often associated with the disorder). Some of the attention problems described earlier can also be related to inhibitory deficits, in that individuals with ADHD may struggle to stay on task due to difficulties inhibiting unrelated thoughts (Shaw & Giambra, 1993).

Hyperactivity

Hyperactivity is the third core feature of ADHD. Like other symptoms of the disorder, it tends to vary depending upon setting and prevailing demands (e.g., worsening in less stimulating environments). Many (though not all) children with ADHD exhibit excessive motor movement. Studies using

objective measures of activity level show them to be, on average, significantly more active than their peers, including during sleep (Porrino et al., 1983; Teicher, Ito, Glod, & Barber, 1996). In addition to higher levels of activity, many children with ADHD have difficulty adjusting their activity level to meet the demands of the setting they are in (e.g., a school assembly) or the tasks before them (e.g., walking in an orderly line while transitioning between classrooms).

Like inattention and impulsivity, hyperactivity can take many forms, ranging from the restless child who taps his fingers and feet, fidgets, and plays with objects while remaining seated to the whirling dervish who blazes chaotically through space with a driven, accelerated quality. Hyperactivity can also be expressed vocally, via excessive talking (often saying too much, too quickly, and too loudly), humming, singing, or making other sounds in situations that call for quiet. A quality shared by many hyperactive symptoms is that they lack direction or purpose and are extraneous to the task at hand.

ASSOCIATED FEATURES AND COMORBIDITY

In addition to the core features of the disorder, children with ADHD experience a range of additional problems to a greater degree than typically developing peers. These associated features, reviewed below, span cognitive academic, behavioral, emotional, social, developmental, and medical issues. Although neither always present nor part of the diagnosis, these features add to the heterogeneity of ADHD and often reflect or contribute to the impairments associated with the disorder.

Problems associated with ADHD can also be reflected in comorbid diagnoses. Children with ADHD are highly likely to present with one or more additional mental health disorders (for a review, see Brown, 2008; Rosen, Froehlich, Langberg, & Epstein, 2011; Taurines, Schmitt, Renner, Conner, Warnke, & Romanos, 2010). Some studies estimate that 80% or more of children with ADHD have one or more coexisting disorders (Kadesjo & Gillberg, 2001; Pfiffner et al., 1999; Wilens et al., 2002; Willcutt & Bidwell, 2011). Although figures vary across studies, comorbidity is the rule rather than the exception among children with ADHD who seek clinical services. These high comorbidity rates make it crucial that any evaluation of ADHD include assessment for possible comorbid conditions (American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues, 2007b; American Academy of Pediatrics, 2011). Common comorbidities are described in the following sections, and summarized in Rapid Reference 1.3.

DON'T FORGET

Comorbidity refers to the co-occurrence of two or more different disorders. The high comorbidity rates for children with ADHD and the potential for other disorders to “mimic” the symptoms of ADHD mean that ADHD evaluations must include assessment for other possible conditions.

Cognitive and Academic

Children with ADHD fall along the range of intellectual ability, from gifted to typical to intellectually impaired. Core difficulties related to attention and inhibition are intertwined with the neurocognitive processes subsumed under the umbrella term *executive functions*. (For a review of the literature on executive functions and deficits, see Hunter & Sparrow, 2012.) Although no consensus exists as to the definition of executive functions, they are generally thought to include such processes as working memory (keeping information in mind until it is needed or consolidates), planning, response suppression, mental flexibility, set shifting, and the monitoring of one’s actions and performance over time, among others. In addition to their deficits in the core symptom domains of vigilance and response inhibition (factors that some include among the executive functions), children with ADHD have been found to have particular difficulties related to working memory and somewhat smaller weaknesses in other executive functions, such as set shifting and some measures of planning (Martinussen, Hayden, Hog-Johnson, & Tannock, 2005; Nigg, 2013a; Willcutt & Bidwell, 2011; Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005).² They have also been found to be impaired relative to peers in their abilities to estimate, track, and manage time (Barkley, 2006). These executive functioning impairments may contribute to the modest but significant decrements (averaging 9 points) children

² Because executive functions are thought to underlie many of the abilities that enable self-regulation (e.g., planning how we approach tasks as well as for the future, maintaining focus and organization over time, suppressing responses that impede goals or task completion, monitoring our performance, shifting approaches when needed), some contend that they represent the foundation of ADHD (Barkley, 2012; Brown, 2013). Failing to support this view, however, is the fact that substantial numbers of individuals with ADHD do not demonstrate executive functioning deficits, as measured by objective tests. It is also worth noting that current tests of executive functioning are neither sensitive nor specific enough to use as diagnostic indicators of ADHD (Smith, Barkley, & Shapiro, 2007; Willcutt & Bidwell, 2011).

with ADHD demonstrate on standardized intelligence tests (Frazier, Demaree, & Youngstrom, 2004).

Academic underachievement is typical for children with ADHD. Nearly all underperform relative to their ability levels and many (particularly among those who are referred for services) are doing poorly in school. Students with ADHD tend to be both less productive and less accurate in their schoolwork than other children (Pffiffer & Barkley, 1990) and, on average, they score lower on standardized academic achievement tests than their classmates (Brock & Knapp, 1996; Casey, Rourke, & Del Dotto, 1996; Fischer, Barkley, Fletcher, & Smallish, 1990; Frazier, Youngstrom, Glutting, & Watkins, 2007; Semrud-Clikeman et al., 1992). Children with ADHD receive special education and related services, repeat grades, and drop out of school at much higher rates than youth without the disorder, and fewer go on to post-secondary education (Barkley, DuPaul, & McMurray, 1990; Barkley, Fischer, Edelbrock, & Smallish, 1990; Hinshaw, 1992; Klein & Mannuzza, 1991).

The research literature consistently indicates high rates of comorbidity between ADHD and specific learning disorders. A careful literature review found that children with ADHD are three to four times more likely to have a learning disorder than their peers in the general population (DuPaul & Stoner, 2003). An estimated 12–60% of students with ADHD are likely to have a math disorder, 8–40% a reading disorder, up to 60% a disorder of written expression, and 12–27% a spelling disorder (see reviews in Barkley, 2006, and Tannock & Brown, 2009). More globally, recent estimates suggest that 25% or more of children with ADHD have a comorbid learning disorder (Tannock & Brown, 2009; Willcutt et al., 2012). This common comorbidity highlights the importance of considering cognitive testing when assessing students for ADHD (see Chapter 4 for discussion).

Externalizing/Behavioral

Externalizing behavior problems associated with ADHD involve a host of oppositional behaviors including willful noncompliance or defiance in response to adult directives or rules, disruption of ongoing activities, argumentativeness, stubbornness, temper outbursts, verbal hostility, and physical aggression (Connor, Steeber, & McBurnett, 2010; Loney & Milich, 1982). A minority of children with ADHD develop more serious conduct problems such as lying, stealing, fighting, truancy, and vandalism (Pffiffer et al., 1999). Disruptive behavior disorders are the most common coexisting conditions among children with ADHD; about 50% of children with ADHD have oppositional defiant disorder (ODD) and over 20% have conduct disorder (CD) (Nigg, 2013b). Even in the

absence of volitional oppositionality, problems with attention and impulsivity can result in poor compliance with rules and instructions at home, school, and in recreational settings (Barkley, 2013).

Internalizing/Emotional

Children with ADHD frequently struggle with emotional regulation. They are often described as “wearing their emotions on their sleeves,” and as being prone to more intense and labile displays of emotions than children without the disorder (Skirrow, McLoughlin, Kuntsi, & Asherson, 2009). Their difficulties regulating emotions are often particularly salient with regard to managing frustration or disappointment. They have also been found to display higher levels of anger and more symptoms of anxiety and depression than other children (Barkley, 2006; Carlson & Meyer, 2009; Tannock, 2009).

Approximately 25–35% of children with ADHD are estimated to have an anxiety disorder, with high rates of generalized anxiety disorder, separation anxiety disorder, and social phobia (Langberg, Froehlich, Loren, Martin, & Epstein, 2008; Tannock, 2009). Estimates of the risk for depressive disorders among youth with ADHD vary widely but often average around 25–30% (Barkley, 2006), with the vast majority of these cases involving major depressive disorder rather than dysthymic disorder (Wilens et al., 2002). The relationship between ADHD and bipolar disorder in children is controversial, in part due to unresolved questions related to the nature of bipolarity in children, the symptom overlap between the two disorders, and the dramatic increases in the number of children being diagnosed with bipolar disorder over recent decades (see Carlson & Meyer, 2009, for a discussion). The new diagnosis of disruptive mood dysregulation disorder (American Psychiatric Association, 2013) was introduced in part as a response to the apparent overdiagnosis of bipolar disorder among youth. It appears likely that many who receive this diagnosis will also meet criteria for ADHD, but the prevalence of disruptive mood dysregulation disorder among children with ADHD is currently unknown.

Interpersonal/Social

For children with ADHD, interactions with parents and teachers tend to be marked by elevated rates of negativity, conflict, and stress (DuPaul, McGoey, Eckert, & VanBrakle, 2001; Johnson & Mash, 2001). Problems with peer relations are also common, including difficulties forming and maintaining friendships (see Hoza, 2007; McQuade & Hoza, 2008; Tomb, Linnea, McQuade, & Hoza, 2011, for reviews).

Children with ADHD are poorly accepted or actively rejected by peers at much higher rates than non-disordered children and children with other psychiatric disorders (Asarnow, 1988; Blachman & Hinshaw, 2002; Gaub & Carlson, 1997; Hinshaw & Melnick, 1995; Hoza et al., 2005; Mikami, 2003; Milich & Landau, 1982; Pelham & Bender, 1982). Indeed, 50–80% of children with ADHD appear to be rejected by peers (Hoza, 2007; Hoza et al., 2005; Tomb et al., 2011). Moreover, the peer rejection often experienced by children with ADHD usually emerges after very brief periods of interaction (Erhardt & Hinshaw, 1994; Pelham & Bender, 1982), remains stable over time, and predicts adverse long-term outcomes (e.g., academic failure, school dropout, criminality, or psychopathology) (Bagwell, Schmidt, Newcomb, & Bukowski, 2001; Parker & Asher, 1987). In addition to continuing to experience elevated rates of peer rejection (Bagwell, Molina, Pelham, & Hoza, 2001), adolescents with ADHD have been found to be more likely to bully others and to be bullied than those without the disorder (Unnever & Cornell, 2003).

Substance Use and Abuse

Early childhood behaviors associated with ADHD (e.g., hyperactivity, impulsivity, poor persistence, “novelty seeking”) have been found to predict early onset substance use among teenagers and alcohol dependence in early adulthood (Caspi, Moffitt, Newman, & Silva, 1996; Masse & Tremblay, 1997). Few studies have looked at alcohol use among adolescents with ADHD and their results have been inconsistent. However, those using developmentally sensitive measures tend to suggest more frequent and heavy drinking compared to peers without ADHD by the late teenage years (see Molina, 2011, for a summary). Adolescents (as well as young adults) with ADHD are roughly twice as likely to smoke cigarettes than their peers without the disorder (Molina, 2011) and also appear to be more likely to abuse drugs or alcohol (see, for example, Katusic et al., 2005). Furthermore, longitudinal studies following children with ADHD into adulthood show ADHD to be associated with an earlier onset and overall higher risk for substance use disorders (Hechtman & Weiss, 1986; Mannuzza, Klein, Bessler, Malloy, & LaPadula, 1993; Mannuzza, Klein, Bessler, Malloy, & LaPadula, 1998; Molina & Pelham, 2003; Molina et al., 2007; Wilens et al., 2011). Although coexisting conditions such as conduct disorder and bipolar disorder increase this risk substantially, ADHD represents an independent risk factor for substance use disorders in the absence of these comorbidities (Kollins, 2008; Wilens, 2009; Wilens et al., 2011).

Considerable controversy has surrounded the issue of whether the treatment of ADHD with stimulant medications increases the risk for future substance abuse. Interestingly, the available data suggest not only that stimulant therapy does not

increase the risk of substance use disorders, but that it may protect against them, particularly among adolescents (Katusic et al., 2005; Kollins, 2008; Wilens, 2009; Wilens, Faraone, Biederman, & Gunawardene, 2003).

Developmental and Medical

Developmental and health problems occurring at elevated rates among children with ADHD include delays in self-help and other adaptive functioning skills (Stein, Szumowski, Blondis, & Roizen, 1995), poor motor coordination (Barkley et al., 1990; Harvey & Reid, 2003; Kadesjo & Gillberg, 2001), speech and language deficits (Barkley et al., 1990; Tannock & Brown, 2009), sleep difficulties (Miano, 2012; Owens, Brown, & Modestino, 2009), obesity (Panzer, 2006), and various forms of accidental injury (Barkley, 2001). Children with ADHD have been found to utilize medical services in general and emergency room services in particular at higher rates than youth without the disorder (Leibson, Katusic, Barbaresi, Ransom, & O'Brien, 2001).

With respect to comorbidities, developmental coordination disorder (Kadesjo & Gillberg, 2001) and, to a lesser extent, tic disorders (Peterson, Pine, Cohen, & Brooks, 2001; Spencer et al., 1999) appear to occur at higher rates among children with ADHD than those without the disorder. Information on the prevalence of autism spectrum disorder among children with ADHD is lacking, in part because the presence of a pervasive developmental disorder (PDD) generally precluded the DSM diagnosis of ADHD until the recently released DSM-5 (American Psychiatric Association, 2013).

Rapid Reference 1.3

Comorbidity Rates in ADHD

High comorbidity rates are known to be common among children with ADHD. Precise estimates of how frequently specific disorders accompany ADHD are elusive because results vary considerably across studies (likely reflecting differences in their samples and diagnostic methods). Nonetheless, the following ranges of estimates (from Willcutt & Bidwell, 2011) provide a sense of the relative frequency of comorbid disorders within the ADHD population:

- ODD: 30–60%
- CD: 20–50%

(continued)

(Continued)

- Learning disorders: 20–40%
- Anxiety disorders: 15–30%
- Depression: 15–30%

As you might imagine, comorbidity rates for some disorders vary by ADHD presentation. The following table presents estimated frequencies of comorbid disorders by DSM-IV-TR subtypes, based on a large meta-analysis of studies (Willcutt et al., 2012). Estimated frequencies of these disorders in children without ADHD are also provided for comparison purposes.

	Estimated Percentage of ADHD Cases with the Comorbid Disorder			Estimated Percentage of Non-ADHD Cases with the Comorbid Disorder
	Combined	Inattentive	Hyperactive/Impulsive	
ODD	51.8%	4.9%	42.9%	4.6%
CD	21.6%	7.1%	14.9%	1.3%
GAD	11.3%	10.4%	14.6%	2.9%
SAD	13.5%	8.7%	10.6%	2.0%
MDD	9.8%	9.5%	7.6%	1.5%
Bipolar	6.9%	3.2%	6.4%	< 1.0%
LD	24.2%	29.1%	17.9%	8.4%
Speech/language	14.8%	17.8%	13.9%	10.7%
Tic disorder	15.8%	12.1%	22.6%	4.7%

ETIOLOGY

The cause of ADHD has been a matter of considerable speculation, study, and debate since it was first recognized. Although definitive causes have yet to be established, scientific investigation into the etiology of ADHD over recent decades has unearthed considerable (though still indirect) evidence that permits certain conclusions to be drawn while identifying promising paths for future research (for detailed discussions, see Nigg, 2006, 2013b; Thapar, Cooper, Eyre, & Langley, 2013).

ADHD Has Multiple Causes

There is consensus among scientists who study ADHD that the disorder has multiple causes. In this sense, the heterogeneity and complexity that mark the

presentation (or phenomenology) of the disorder apply to its etiology as well. Like many disorders, the causes of ADHD are multifactorial both in the sense that various factors may converge to lead to ADHD in a given child (e.g., genetic vulnerability interacting with prenatal malnutrition and exposure to alcohol) and that different children with ADHD may have developed the disorder via highly distinct pathways (e.g., an extreme temperament vs. early life exposure to environmental pesticides).³

ADHD Is Neurobiological

Scientific studies on etiology converge on the fact that ADHD is a neurobiological disorder. Considerable evidence now points to both structural and functional differences between the brains of those with and without ADHD, particularly involving the prefrontal region and its connections with various neural circuits implicated in self-regulation and executive functioning. With respect to brain structure, overall brain volume and numerous brain regions representing key frontal and subcortical structures have been found to be smaller in individuals with ADHD (e.g., prefrontal cortex, basal ganglia/striatum, cerebellum, caudate nucleus, corpus callosum) (Nakao, Radua, Rubia, & Mataix-Cols, 2011; Nigg, 2013b; Valera, Faraone, Murray, Seidman, 2007; Willcutt et al., 2012). Not only do key brain structures appear to be smaller and to remain so throughout development (Castellanos et al., 2002), but also children with ADHD appear to lag (on the order of 2 to 3 years) behind their age-mates in their brain maturation, particularly with respect to their frontal lobe regions (Shaw et al., 2007).

With regard to neural function, numerous parts of the brain implicated in self-regulation have been demonstrated to be less active in individuals with ADHD. Multiple lines of evidence, including studies of electrical activity (as measured by EEG devices) (Klorman et al., 1988; Loo & Barkley, 2005), blood flow (Lou, Henriksen, & Bruhn, 1984), and neural images (via PET and fMRI scans) (Dickstein, Bannon, Castellanos, & Milham, 2006; Paloyelis, Mehta, Kuntsi, & Asherson, 2007) demonstrate lower activity in the prefrontal area of the brains of people with ADHD as compared to those without the disorder. In fact, these lower activity levels, or brain-activation deficits, have been found in virtually all regions of the prefrontal cortex (as well as other areas of the brain) (Dickstein, Bannon, Castellanos, & Milham, 2006). The pattern of brain-activation deficits revealed to date suggests that ADHD involves aberrant functioning in both

³ The term *equifinality* is sometimes used to capture the idea that there can be multiple pathways to a particular outcome (e.g., ADHD) (Hinshaw, 2013).

fronto-striatal and frontal-parietal neural circuits (Durston, Tottenham, Thomas, Davidson, Eigsti, Yang, Ulug, & Casey, 2003; Nigg, 2013b). Findings from multiple studies using a newer imaging technique (known as *diffusion tensor imaging* or DTI) implicate altered white matter microstructure in ADHD, suggesting that widespread brain processes (such as synaptic signaling and myelin formation) rather than isolated neural circuits might be involved in the disorder (Konrad & Eickhoff, 2010; Nigg, 2013b).

Factors That Change the Brain

What causes these abnormalities in the structure, function, and maturation of prefrontal areas of the brains of persons who develop ADHD? Investigations over recent decades have identified a number of possibilities.

Genes

Genetic factors have emerged as the single largest contributor to ADHD. Family aggregation, twin, and adoption studies have shown ADHD to be a highly heritable condition, with genes accounting for approximately 75% or more of the differences among people with respect to their ADHD symptoms (Faraone et al., 2005; Nikolas & Burt, 2010; Thapar et al., 2013; Willcutt, in press). Moreover, ADHD is polygenetic; many genes contribute to its expression. The search for these genes comprises an active area of research that to date has identified multiple genes associated with ADHD (Gizer, Ficks, & Waldman, 2009). A number of these implicated genes impact pathways related to dopamine (a neurotransmitter believed to be critical to the regulation of attention and impulsivity) (Nigg, 2013b). Other genes of interest for ADHD research are involved in brain growth, neuronal migration, and neuronal connections (Barkley, 2013), including those that impact norepinephrine, serotonin, acetylcholine, GABA, and histamine (Aboitz & Castellanos, 2011), as well as the MAOs and nicotinic receptors (Gizer, Ficks, & Waldman, 2009).

Genes play an important (though by no means the only) role in influencing temperament (Neuhaus & Beauchaine, 2013). A certain percentage of those with ADHD appear to represent individuals at the extreme high end of the temperament continuum with respect to traits such as activity level, impulsivity, and sensation seeking (or, conversely, at the extreme low end with respect to self-regulation) (Marcus & Barry, 2011). Although not inherently pathological, such genetically shaped extreme temperaments become impairing in a broad social context that emphasizes academic and occupational achievement and expects conformity to indoor, sedentary, desk-based work (see Hinshaw &

Scheffler, 2013, for a compelling discussion of how the advent of compulsory education and intensifying performance pressures have spurred dramatic increases in ADHD).

Environmental Insults

Numerous environmental factors spanning pre- and perinatal events, neurotoxic substances, dietary factors, and various forms of psychosocial adversity have been found to be associated with ADHD (see Froehlich et al., 2011, for a review). Although determining causality is difficult, some have been well established as risk factors for ADHD. These include maternal alcohol, tobacco, and substance use during pregnancy, maternal stress during pregnancy, low birth weight and prematurity, exposure to environmental toxins such as pesticides and lead, and severe deprivation with respect to early care giving (other environmental factors, such as malnutrition and family adversity have been found to correlate with ADHD but are not yet considered risk factors for the disorder) (Thapar et al., 2013).

Some ADHD cases might emerge due to brain injuries suffered during early pre- or postnatal development (e.g., from central nervous system infections, pregnancy or birth complications, and head trauma). However, such demonstrable brain damage is thought to account for only a small subset of children with the disorder (Barkley, 2013).

The Interplay of Genes and Experience

In some cases, the influence of multiple genes may be adequate to produce ADHD symptoms of sufficient severity to merit a diagnosis. In other instances, environmental insults to the brain may be sufficient to cause ADHD. However, the causal models that are receiving the most attention (and which may account for the most cases) are those that consider both genetic and biologically compromising environmental factors and, importantly, how they influence one another. Such models invoke the concepts of *gene–environment interaction* (wherein either environmental factors moderate the effects of genes on behavior or genes moderate the effects of environmental factors) and *epigenetics* (wherein environmental and experiential factors alter the ways genes are expressed) (Beauchaine & Gatzke-Kopp, 2013).

Gene–Environment Interactions

There are a number of possible ways in which genetic and environmental factors might interact to produce ADHD. First, genes may convey a risk for ADHD but exposure to certain biological or experiential stressors is necessary to activate that

risk and set the child on a path toward the disorder (Nigg, 2013b). Thus, two children may be born with the same genetic vulnerability to ADHD. One has the misfortune of being exposed prenatally to alcohol, which triggers his vulnerability and sets him on a course toward ADHD. The other, spared of such exposure, develops normally.

Second, genetic and environmental factors may *combine* to elevate one's risk for ADHD. For example, genes associated with ADHD and maternal smoking during pregnancy each independently increase the risk for the disorder. However, the combination of both factors increases the likelihood of ADHD substantially (Neuman et al., 2007).

Third, certain genes (or gene combinations) can render some individuals susceptible to particular neurotoxic factors in the environment (Nigg, Nikolas, & Burt, 2010). This can help to explain why established environmental risk factors do not affect all children.⁴ Take, for example, two children who are born close to commercial farms where pesticides associated with ADHD (organophosphates) are used. One child's genes make her vulnerable to the toxic effects of these chemicals in ways that lead to the development of ADHD symptoms. The other, exposed to the same pesticides but lacking that genetic susceptibility, escapes harm.

Epigenetics

Epigenetic changes represent an aspect of gene–environment interaction that has been the subject of increasing scientific focus. Epigenetics concerns how experiences (e.g., significant stressors, diet, exposure to environmental toxins) can alter the expression of genes, impacting outcome for both the individual and future generations (Nigg, 2012). Timing is a crucial variable in epigenetics, as it seems that periods of rapid development (e.g., gestation) are associated with greater epigenetic vulnerability (Mill & Petronis, 2008). Thus, experiential factors occurring during particular developmental periods may change DNA structure in ways that alter, for better or worse, the expression of genes related to the development of ADHD symptoms. Evidence for epigenetic effects on psychopathology (including ADHD) is only beginning to emerge (with much of it based on animal models) (Kubota, Miyake, & Hirasawa, 2012; Neuhaus & Beauchaine, 2013). However, this line of research holds great promise for deepening our understanding of how environmental and contextual forces may often enable, preclude, and shape the expression of this biologically based disorder.

⁴ This phenomenon illustrates the concept of *multifinality*, wherein a given risk factor may lead to many different outcomes depending on a variety of intervening factors (e.g., developmental level, genetic susceptibilities) (Cicchetti & Rogosch, 1996).

SPECIAL TOPIC: WHAT DOES NOT CAUSE ADHD?

Although the etiology of ADHD is complex and not fully understood, scientific evidence suggests that certain factors do not represent significant causes of the disorder (Barkley, 2013; Thapar et al., 2013). Speculation that hormonal deficiencies, vestibular problems, and yeast sensitivity are causes of ADHD has not been supported by research findings. Beliefs that family environment factors (e.g., poor parenting, negative parent–child interaction patterns, chaotic homes) cause ADHD have likewise not received empirical support (noteworthy, however, is that such factors are among the known causes of ODD and CD). Some have conjectured that high levels of television exposure might cause ADHD. Although ADHD may be associated with watching more TV, such correlation does not prove causation (e.g., it may well be that ADHD is associated with more TV watching since it requires less effort and sustained attention than most alternative activities). In any case, convincing data that TV exposure causes ADHD are currently lacking.

Various dietary factors have been proposed to cause ADHD or influence its symptoms. Although severe malnutrition can adversely affect the developing brain, the effects of less extreme dietary deficiencies are less clear (Sinn, 2008). Deficiencies related to zinc, magnesium, and polyunsaturated fatty acids have all been investigated in relation to ADHD, but there is not sufficient evidence to conclude that they play a causal role (Thapar et al., 2013). Despite popular lore, the evidence does not support sugar as a cause of ADHD. For many years, hypotheses that synthetic food additives might contribute to ADHD were dismissed as lacking scientific credibility. However, respected recent meta-analyses documenting that food coloring can influence ADHD symptoms and that a subset of children with ADHD may respond to dietary interventions are likely to revive interest in this area (Nigg, Lewis, Edinger, & Falk, 2012; Schab & Trinh, 2004).

EPIDEMIOLOGY

Epidemiology concerns the distribution patterns of a disorder or disease in the population and various factors related to those patterns. It is important to understand the patterns of ADHD, including how common it is, how it varies with gender and culture, and its typical course and outcome. Knowing the prevalence rates of ADHD and other disorders helps you consider how likely a diagnosis might be for a given child (see also Chapter 5, “Command of Child Psychopathology”). Understanding differences in how ADHD presents in boys versus girls guides where and how you look for symptoms and impairment. It is also important to be aware of cultural factors impacting ADHD, including geography, social class, and ethnicity, as these dictate certain changes in your assessment, interpretations of results, and communication of findings (see Chapter 3). Finally, knowledge of the typical course for ADHD will help you

recognize when the diagnosis is appropriate; outcome data suggest possible impairments to consider and affect your prognostic statements.

Prevalence

ADHD is a common condition, with a worldwide prevalence in children and adolescents of around 5.3% (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). One U.S. survey reported a 1-year prevalence rate for adolescents of 8.7% (Merikangas et al., 2010), suggesting that in excess of 3 million minors in the United States could have the disorder.

It is important to distinguish between prevalence rates and diagnostic rates. In the United States, the number of children being diagnosed with ADHD has been rising rather dramatically over recent decades (e.g., the percentage of 4- to 7-year-olds who had ever received a diagnosis of ADHD climbed from 7.8% in 2003 to 11% by 2011–2012, which translates to over 6 million youth) (Boyle et al., 2011; Hinshaw & Scheffler, 2013; Schwarz & Cohen, 2013). Combined data from multiple U.S. federal agencies indicates ADHD to be the most common mental health diagnosis received by youth ages 3 through 17 (Perou et al., 2013). Although the trend in diagnosing ADHD has been dramatically upward, it is unclear if this reflects a true rise in prevalence of the disorder.

Gender

ADHD, like nearly all of the neurodevelopmental disorders, is more common in boys than girls. Figures vary but the best estimates suggest that ADHD is diagnosed about three times more often among boys relative to girls during childhood (Hinshaw & Blachman, 2005; Polanczyk & Jensen, 2008). However, for reasons that are unclear, this gender disparity declines over development such that, by adulthood, the rates of ADHD among males and females begin to even out (American Psychiatric Association, 2013; Kessler et al., 2006).

After decades of scientific neglect, studies have begun to examine ADHD as it presents in females (see, for example, Hinshaw et al., 2012). Overall, the expression of ADHD in males and females is quite similar, although girls have been found to have generally lower rates of core symptoms (Gershon, 2002; Newcorn et al., 2001). In comparison to males, females are also more likely to show predominantly inattentive features (American Psychiatric Association, 2013). Although girls certainly display symptoms from the hyperactive-impulsive domain, those features appear somewhat more likely to appear in boys (Hinshaw & Blachman, 2005).

With respect to associated problems, girls exhibit less aggressive behavior (and possibly less substance abuse) than boys but appear to show more internalizing problems, including depression (Hinshaw & Scheffler, 2013). Rates of externalizing disorders (Rucklidge, 2010), specifically disruptive behavior disorders, appear to be lower in girls with ADHD than boys with ADHD, which may lead to lower referral rates for girls than boys (Biederman et al., 2002). Otherwise, girls and boys appear to experience similar levels of serious and persistent academic, behavioral, and social problems (Hinshaw et al., 2012).

Culture

ADHD is universal; it has been found to exist in every country and in every ethnic group studied to date (Bird, 2002; Faraone, Sergeant, Gillberg, & Biederman, 2003; Polanczyk et al., 2007). Moreover, there is no evidence to suggest that ADHD appears to differ in significant biological ways by race or ethnicity (Bussing & Gary, 2011). The cross-cultural validity of ADHD is supported by findings that its prevalence, factor structure, and biological correlates are similar in developed and undeveloped nations (see Rohde et al., 2005, for a review). The previously discussed two-factor (*viz.*, Inattention and Hyperactivity/Impulsivity) structure of ADHD has been found to be similar not only across nations (Toplak et al., 2012) but also across African-American and European-American children in the United States (Reid et al., 1998).

Nonetheless, the rates at which ADHD is diagnosed (and treated), at least in the United States, vary by geography, social class, and ethnicity (Hinshaw & Scheffler, 2013). In contrast to previous trends, (1) children at or near the poverty level are now more likely to receive an ADHD diagnosis than those from higher-income families, (2) African-American children are just as likely as, if not more likely than, Caucasian youth to receive an ADHD diagnosis; and (3) Hispanic youth are still less frequently diagnosed with ADHD than either African-American or Caucasian youngsters, but these differences have begun to decrease (Getahun et al., 2013; Visser, Bitsko, Danielson, & Perou, 2010). Although reduced economic and ethnic disparities in the detection and treatment of ADHD are certainly a welcome development, it will be important to examine whether the quality of evaluations and accuracy of diagnoses are comparable across groups, particularly those who experience systemic (as opposed to within-child) problems that can lead to behaviors that mimic ADHD symptoms.

In general, our understanding of ethnic and other sociocultural influences on the detection and treatment of ADHD symptoms is lacking (Miller, Nigg, &

Miller, 2009). This knowledge gap is particularly problematic as the U.S. population becomes increasingly diverse (Bussing & Gary, 2011). Cultural differences in a variety of factors, including attitudes toward ADHD and help seeking for mental health concerns, access to care, and even the meanings attached to behaviors of potential relevance to ADHD (e.g., calling out vs. remaining quiet in groups) may all impact the degree to which the disorder is accurately detected in diverse populations (see Chapter 3 for further discussion of cultural issues) (Lee & Humphreys, 2011; Nigg, 2013b).

Course and Outcome

The variability that characterizes so many aspects of ADHD also applies to its course and outcome. However, considerable research supports the conclusion that it is typically a chronic disorder associated with elevated risk for impairment across a wide range of functional domains.

Parents are likely to notice symptoms of ADHD by the time their child is 3 or 4 years old, if not earlier. (Some parents recall active, moody, and generally challenging temperaments as early as infancy.) Notably, symptoms of ADHD during the preschool years tend to be highly unstable and do not persist for many 3- and 4-year-olds (Willoughby, 2013). However, those preschoolers who have sufficiently severe symptoms to warrant a diagnosis, whose symptoms persist for at least a year, and whose interactions with parents are characterized by high degrees of negativity are likely to continue to have the disorder into their childhood and adolescent years (Barkley, 2013; Hinshaw & Scheffler, 2013).

ADHD was long regarded as a disorder that was “outgrown” in adolescence. This false conclusion that the disorder was self-remitting was likely due to the fact that its most visible feature, motoric hyperactivity, often declines with age. Nonetheless, problems with inattention, poor impulse control, subjective restlessness, poor planning, disorganization, and overall self-regulation (along with their associated impairments) are very likely to extend through the teen years and into adulthood (American Psychiatric Association, 2013; see Barkley, 2006, for a review).

Indeed, results of a number of prospective longitudinal studies (extending to as long as 33 years) have converged to reveal that despite changing presentations over time, ADHD is usually a chronic disorder (Barkley et al., 1990; Barkley, Fischer, Smallish, & Fletcher, 2002; Barkley, Fischer, Smallish, & Fletcher, 2006; Klein & Mannuzza, 1991; Klein et al., 2012; Weiss & Hechtman, 1993b). ADHD appears to persist into adolescence for up to 80% of youth who were diagnosed in

childhood and into adulthood for 50–65% (figures that increase if one considers ADHD in partial remission) (Barkley, 2013).

A large body of research shows that individuals with ADHD are at elevated risk for serious and wide-ranging impairments (some of which overlap with the associated problems discussed previously) (Barkley, 2006; Hinshaw, 2002; Hinshaw et al., 2012; Klein et al., 2012). Children and adolescents with ADHD have higher-than-average rates of accidental injuries, academic underachievement, school failure (e.g., expulsion, dropout), behavioral disturbance, including noncompliance, defiance, aggression, and serious conduct problems, peer rejection, family disharmony, and substance use. Serious additional risks affecting adolescents include earlier initiation of sexual activity, possibly lower use of birth control, more involvement in teen pregnancies, and higher rates of speeding tickets and auto accidents (Barkley et al., 2006; Thompson, Molina, Pelham, & Gnagy, 2007).

The increased responsibilities and expectations of adulthood appear to only expand the range of impairments experienced by individuals with ADHD. Compared to those without the disorder, adults with ADHD have been found to have lower levels of educational attainment and socioeconomic status, occupational challenges (lower job status, more instability, greater likelihood of being fired), problems managing money, marital and other relationship difficulties, and increased rates of substance use disorders, antisocial personality disorder, suicidal ideation and attempts, incarcerations, and hospitalizations (Barkley et al., 2006; Impey & Heun, 2012; Klein et al., 2012). Females with ADHD have been underrepresented in most of the follow-up studies conducted to date. However, recent longitudinal research with adolescent and young adult females with the disorder suggests rates of academic, social, and peer problems generally comparable to males, accompanied by alarming levels of self-injurious behaviors and suicide attempts (Hinshaw et al., 2012).

Although sobering, it is important to note that these adverse outcomes are not inevitable for those with ADHD. Approximately 10–33% of youth with ADHD show improved functioning by early adulthood, and about 50% of youth are much improved by midlife (some to the point of being symptom-free and indistinguishable from their peers) (Barkley, 2013; Klein et al., 2012; Weiss & Hechtman, 1993b). Clearly, ADHD is not disadvantageous in every setting and some, particularly once freed from the rigid structure of formal schooling, leverage their energy, curiosity, and comfort with risk into significant achievements and success. Identifying the factors that predict such resilience will be an important area for future research, with implications for enhancing both our assessment and treatment practices.

SUMMARY

Before approaching the assessment and diagnosis of ADHD, it is critical to be knowledgeable about the disorder. In addition to the core diagnostic constructs of inattention, impulsivity, and hyperactivity, there are a number of associated features and comorbidities that tend to occur. Your awareness of these common concerns across cognitive/academic, behavioral, emotional, social, developmental, and medical domains will improve your assessment of children for possible ADHD. These associated features can help identify impairment as well as suggest possible competing diagnoses or comorbidities. Your familiarity with current research on the causes of ADHD will enhance your differential diagnosis and improve your communications with others about the disorder (e.g., separating truth from myth). Finally, knowing the epidemiology of ADHD (including prevalence, gender- and culture-related differences, and typical course and outcome) enables you to more accurately diagnose this disorder.



TEST YOURSELF



1. Hyperactivity and inattention are modern problems that emerged only in the past 100 years.

- a. True
- b. False

2. Which of the following statements are true? (Mark all that apply.)

- a. ADHD is characterized by variability, both across children with the disorder and within a given child who has ADHD.
- b. All children with ADHD look the same.
- c. "Sluggish cognitive tempo" is a DSM-5 subtype of ADHD.
- d. The DSM-5 is primarily a categorical approach to ADHD, with some dimensional elements like severity.
- e. The features of ADHD exist on a continuum along which every person can be placed.

3. Hyperactivity and impulsivity (mark all that apply):

- a. Are associated with increased risk of injury
- b. Are highly correlated with each other
- c. Are two different subtypes of DSM-5 ADHD
- d. Can be expressed verbally and motorically
- e. Cluster together in factor analyses

- 4. Sustained attention is a major problem for children with ADHD.**
- True
 - False
- 5. Researchers estimate that 80% or more children with ADHD have at least one comorbid disorder.**
- True
 - False
- 6. Which of the following disorders occur at higher-than-average rates among children with ADHD? (Mark all that apply.)**
- Anxiety disorders
 - Depressive disorders
 - Oppositional defiant disorder
 - Specific learning disorders
 - Tic disorders
- 7. Which of the following statements about the associated features of ADHD are true? (Mark all that apply.)**
- Adaptive functioning can be impaired in children with ADHD.
 - Children with ADHD can show poor compliance with rules, even when they are not trying to be oppositional.
 - Executive dysfunction is an essential feature of ADHD, with good diagnostic sensitivity and specificity.
 - Problems with peer relations indicate that an autism spectrum disorder is more likely than ADHD.
 - When emotional regulation problems are present, you can eliminate ADHD as a diagnostic possibility.
- 8. ADHD has multiple causes. Which of the following have strong scientific data supporting them as likely factors in the etiology of ADHD? (Mark all that apply.)**
- Gene-environment interactions
 - Genes
 - Prenatal exposure to toxins
 - Television exposure
 - Vestibular deficits
- 9. Mark all of the true statements about the epidemiology of ADHD:**
- ADHD is largely a condition of childhood and adolescence, and most people outgrow the disorder by adulthood.
 - ADHD is one of the most common mental health diagnoses in children.
 - Both boys and girls can have ADHD, although boys are more likely to be diagnosed.

- d. Cultural factors can impact accurate detection of ADHD in some populations.
- e. Lifetime symptoms of ADHD are usually episodic rather than chronic.

10. On average, children with ADHD are more likely than the general population to: (mark all that apply)

- a. Attend college or other post-secondary education
- b. Experience peer rejection and be bullied
- c. Have higher rates of speeding tickets and auto accidents
- d. Score lower on standardized academic achievement tests
- e. Utilize emergency room services

Answers: 1. b; 2. a, d, & e; 3. a, b, d, & e; 4. a; 5. a; 6. a, b, c, d, & e; 7. a & b; 8. a, b, & c; 9. b, c, & d; 10. b, c, d, & e

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WHAT THE DSM-5 SAYS ABOUT ADHD

There are multiple sets of criteria for operationalizing ADHD, just as there are multiple reasons a professional must identify the symptoms. Most mental health providers rely on the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*, which is developed by the American Psychiatric Association and is currently in its fifth edition (American Psychiatric Association, 2013). Medical professionals and hospital-based clinicians often use criteria from the World Health Organization's International Classification of Diseases (ICD; now in the tenth edition), which provides codes needed for insurance reimbursement but very little definition of symptoms (World Health Organization, 2004). (Note that the numeric diagnostic codes from the DSM match codes for similar diagnoses from the ICD, even though the diagnostic criteria differ.) Researchers sometimes develop their own criteria (not purely DSM- or ICD-based) to ensure their study participants are similar and results can be compared across studies.

Of these three systems, readers of this book are most likely to use the DSM-5 criteria for ADHD on a regular basis. Clinical psychologists, whether focusing on assessment, treatment, or both, use the DSM to describe a child's presentation, identify specific symptoms for treatment, and communicate with parents, schools, and other professionals. Graduate school training for clinical psychologists includes the DSM system, but may be broad in scope without in-depth attention to ADHD. School psychologists and other professionals in affiliated fields like physical therapy, occupational therapy, and speech-language pathology are in a challenging position; they are expected to evaluate children, determine their needs, and plan interventions, but they may not assign a diagnosis of ADHD in most states. These professionals often have valuable observations to identify ADHD or to inform differential diagnostic decisions, but may lack confidence about the criteria and how to communicate with a child's team about symptoms of ADHD (or how another disorder may be mimicking ADHD).

It is critical for all professionals who work with children to have a sound understanding of DSM-based criteria for ADHD. A quick survey of the DSM text does not provide adequate coverage of these important diagnostic criteria. People who work with children will benefit from this applied discussion of DSM-based diagnoses, including how to recognize when ADHD symptoms may *not* be ADHD. This knowledge will equip professionals to more fully participate in discussions of differential diagnosis and effective interventions.

This chapter begins with an overview of general principles that organize the DSM-5. Specific diagnostic criteria for ADHD will be presented and explained. Diagnoses that tend to co-occur with ADHD (i.e., *comorbid* conditions) will be described. Suggestions for how to differentiate between ADHD and diagnoses with similar symptoms (i.e., *differential diagnosis*) will also be presented. Note that many of the constructs included in DSM-based diagnosis of ADHD were defined and explained in Chapter 1 of this book.

DON'T FORGET

Why Do I Need to Understand DSM-Based Diagnosis of ADHD?

- Diagnostic labels help people access relevant information about the types of issues that may occur with ADHD and which treatments have been effective for youth with ADHD.
- Many mental health professionals rely on DSM-based diagnosis to identify specific patterns of behavior and guide individual treatment recommendations.
- A DSM-based diagnosis can help children, parents, and teachers find appropriate resources in the community, such as treatment providers and support groups. The diagnosis can give them a link to relevant books, articles, and Internet material to learn more about ADHD and how to manage it.
- Although the Individuals with Disabilities Education Improvement Act (IDEIA, 2004) does not require a diagnosis for school-based services, diagnostic information can help prioritize educational needs and suggest appropriate services.

ORGANIZATION OF THE DSM-5

Like past editions of the DSM, the DSM-5 was developed over a multiyear period by committees appointed by the American Psychiatric Association. The project began in 1999 with a planning conference sponsored by the American Psychiatric Association and the National Institute of Mental Health, during which research priorities were established. Work groups were formed for the 13 major areas

represented in the DSM (ADHD was covered by the ADHD and Disruptive Behavior Disorders Work Group). These work groups reviewed available research and published papers describing what additional information was needed. Six study groups were formed to evaluate “universal” issues such as impairment, gender, and culture. In 2007, a task force was formed

that included the 13 work group chairs and 14 other invited representatives with expertise in relevant research and clinical areas. More than 130 work group members and over 400 nonvoting advisors were involved. At various times during the process, input was requested from members of the professional community at large. In addition, the DSM-5 team sought input from the general public (a new feature for DSM development). Field trials were conducted to gather additional data, including whether different clinicians came to the same diagnosis using the proposed criteria. The DSM-5 was released in 2013.

The overarching structure of the DSM-5 has changed from the multiaxial system of diagnosis used in the DSM-IV-TR (American Psychiatric Association, 2000) and other recent versions of the manual. The DSM-IV-TR used Axes I and II to list diagnoses, Axis III to report general medical conditions related to mental health, Axis IV to list relevant psychosocial and environmental problems, and Axis V for ratings of overall functioning (Global Assessment of Functioning, or GAF). The DSM-5 has discontinued the multiaxial system, listing all diagnoses together. Significant psychosocial and contextual issues such as relational problems, abuse/neglect, educational/occupational issues, housing/economic concerns, and legal problems are still listed. Severity is specified for many neurodevelopmental DSM-5 diagnoses. In place of the GAF, several optional rating scales are provided toward the end of the DSM-5 to evaluate severity and impairment, including the WHO Disability Assessment Schedule (WHODAS; World Health Organization, 1988), which was developed for use with adults. Whereas the DSM-IV-TR offered the *Not Otherwise Specified* option to describe atypical or subclinical presentations in most diagnostic categories, the DSM-5 provides two options:

1. *Other specified disorder* = when full criteria are not met but the diagnosis is still appropriate to use, and the specific reasons why (e.g., “other specified ADHD, with insufficient hyperactivity/impulsivity symptoms”)

DON'T FORGET

DSM-5 (not DSM-V)

An Arabic numeral is used for the DSM-5, in contrast to the former convention of Roman numerals (e.g., DSM-IV). This allows for interim updates such as a DSM-5.1 without awkward text labels (such as happened with the DSM-III-R and DSM-IV-TR).

2. *Unspecified disorder* = when the clinician believes this is the most appropriate diagnosis but cannot or chooses not to explain why, or when there is insufficient information to assign a more specific diagnosis (e.g., “unspecified ADHD”)

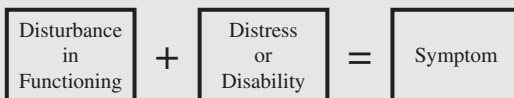
Before turning to DSM-5 criteria for ADHD, let us briefly review the DSM-5 definition of a mental disorder (paraphrased from the DSM-5, p. 20). Key elements include:

- Clinically significant disturbance in cognitive, emotional, or behavioral functioning
- Associated with significant distress or disability in social, occupational, or other important activities
- Exceeds expected response to a stressor or loss
- Does not include political, religious, or sexual conflicts between an individual and society (unless these are secondary to dysfunction)

Note in particular that the disturbance must be clinically significant and associated with distress/disability. The primary elements for defining a mental disorder can be remembered easily as the “three D’s.” The first *D* is *disturbance* in functioning, an interruption in smooth functioning in one or more domains. The second *D* is *disability*, or difficulty in completing a task. The third and sometimes forgotten *D* is *distress*, one way to establish impairment. If a person completes a task, but experiences significant distress in doing so, this is evidence of impairment. These tenets can be difficult to judge and require significant clinical training and experience. This is particularly true for diagnoses like ADHD, with behaviors that overlap the normal range of experience. Most people have times when they are inattentive or restless, or they find it difficult to wait for something. The critical difference is whether these features impair their functioning.

CAUTION

The DSM-5 requires that symptoms must be associated with clinically significant disturbance in functioning *and* significant distress/disability. If these requirements are not met, symptoms should not be counted toward a diagnosis.



DSM-5 CRITERIA FOR ADHD

In the DSM-5, the criteria for ADHD are listed in “Diagnostic Criteria and Codes: Neurodevelopmental Disorders” (pp. 59–66). Like most diagnoses in the DSM, the criteria for ADHD begin with Criterion A, a list of symptoms. Criteria B, C, D, and E outline a set of important rules about frequency of symptoms, persistence of symptoms, age of onset, pervasiveness of symptoms, level of impairment, and exclusions. The criteria are followed by *specifiers*, such as type of presentation, in remission, and severity guidelines. (See Rapid Reference 2.3 for a summary of the DSM-5 criteria for ADHD.)

Additional information about diagnostic features, associated features, prevalence, development/course, risk and prognostic factors, culture-related issues, gender-related issues, functional consequences, differential diagnosis, and comorbidity is provided in the text. (See Rapid Reference 2.4 for a summary of the DSM-5 criteria and how they compare with the DSM-IV-TR criteria.)

Symptoms of DSM-5 ADHD

There are 18 diagnostic symptoms of ADHD, divided into two categories: Inattention and Hyperactivity/Impulsivity. Most symptoms are followed by examples of how each might be observed at different ages. An evaluator is not limited to these examples, and can consider other behaviors as examples of each symptom. All 18 symptoms of ADHD require high frequency (i.e., “often”). The symptoms must be present for more than six months (we return to this point later, in “Persistence”). They must interfere with the child’s functioning or development and must negatively impact activities (see also “Impairment” ahead). The observed behaviors must be inconsistent with the child’s developmental level to be considered symptoms. A certain number of symptoms must be present for a diagnosis of ADHD to be considered. Children and adolescents 16 years and younger must demonstrate at least six symptomatic criteria from a category, whereas people 17 years and older require five or more symptoms. This is a change from the DSM-IV-TR, which applied the same symptom count requirement across all ages.

DON'T FORGET

DSM-5 diagnosis of ADHD is more than a symptom count. Remember all five criteria:

- A. Symptom threshold reached
- B. Age of onset
- C. Pervasiveness
- D. Impairment
- E. Differential diagnosis

In addition, for every ADHD diagnosis you must indicate:

- Presentation type
- Current severity

DON'T FORGET

The DSM-5 has different symptom thresholds for ADHD in children versus adults. Adolescents fall on both sides of the split, as the DSM-5 specifies “17 years and older” as the age range for the lower symptom count requirement.

Up to 16 years old	17 years and older
-----	-----
≥6	≥5
symptoms per category	symptoms per category

The nine symptoms of *inattention* include primary inattention (e.g., attention to details, sustained attention, distraction) as well as secondary inattention, or things that happen as the result of not paying attention. These include listening skills, task completion, organization, sustained mental effort, losing items, and forgetfulness. The nine symptoms of *hyperactivity and impulsivity* are combined into one category, as they have been found to represent a single dimension, can be difficult to distinguish from one another, and typically co-occur. Symptoms include motor presentations (e.g., fidgets/squirms, leaves seat, runs/climbs or subjective feelings of restlessness, often “on-the-go”) as well as verbal presentations (e.g., talks excessively, blurts out answers). Some symptoms can be expressed motorically and verbally, such as “difficulty waiting turn,” “difficulty being quiet,” and “interrupts/intrudes.”

The decision to require fewer symptoms for older adolescents and adults than for children was reached after reviewing studies that found adults with an established history of childhood ADHD often present with fewer symptoms in adulthood although impairment persists (Biederman, Mick, & Faraone, 2000; Biederman, Petty, Evans, Small, & Faraone, 2010; Faraone, Biederman, & Mick, 2006; Tannock, 2013). One might argue that there should be a “sliding scale” for symptom threshold across the agespan, given that attention span and self-control increase over the course of typical development. Past editions of the DSM focused on younger children, which made it difficult to determine whether an older child or adult was exhibiting a symptom (Biederman et al., 2010). The DSM-5 has added examples of how symptoms may present over the life span. These new examples are not intended to change the actual criteria, but to illustrate how they are expressed differently at different ages. (In addition to examples provided in the DSM-5, see Rapid Reference 2.1 for examples of how each symptom might be observed in children of different ages.)

Rapid Reference 2.1

Sample Manifestations of ADHD Symptoms

DSM-5 Symptom (paraphrased)	Examples of How It Might Appear
I a. Attention to details	<ul style="list-style-type: none"> ● Wrong operation in math, particularly on mixed operation worksheets ● Misses key words/phrases, like “not” or “use a #2 pencil” ● Skips items, sections, or pages on work and tests ● Omits a step in longer math processes or science experiments ● Misses key rules for a sport or board game
I b. Sustained attention	<ul style="list-style-type: none"> ● Learns better in short bursts than in a marathon study session ● Struggles to read an entire chapter ● Gets to end of the page and doesn't know what she just read ● Has difficulty staying on task; needs reminders and prompts ● Can look like procrastination (i.e., avoidance of tasks requiring sustained effort) ● Sometimes attention gets stuck; he can have difficulty shifting attention to another task ● Can't stay with games, movies, or TV shows as long as peers ● Takes longer than it should to complete homework, chores, or other effortful tasks
I c. Listening	<ul style="list-style-type: none"> ● Zones out instead of listening ● Responds with “<i>Hunh?</i> What do you want me to do?” ● Needs a physical cue to look when someone is speaking ● Does not respond even when asked a question several times (and really has no clue someone is talking to him)

(continued)

(Continued)

Id. Follow-through

Ie. Organization (tasks, materials, time)

If. Sustained mental effort

- Needs directions repeated because she missed them the first time
- Seems unaware that line is moving, has to be reminded to walk forward
- Can take the form of *hyperfocus* (i.e., over-focused on one thing to the point that she is not aware of other things)
- Jumps from task to task
- Starts more things than can be finished
- Loses interest quickly
- Begins an assignment or chore with enthusiasm but quickly peters out
- Has difficulty completing homework, chores, and other effortful tasks
- Doesn't know where to start a task
- Room, locker, and binders are a mess; needs external structure and guidance to tackle them
- Even after someone helps organize materials, they quickly become jumbled again
- Work has incomplete erasures, words squeezed in at the ends of lines, food stains
- Does not anticipate how long a task will take
- Leaves one place at the time she should be arriving at the next place
- Turns in assignments after they are due
- Misses the point of an assignment (e.g., spends 4/5 of a five-paragraph essay on a single point rather than covering the required three points)
- Has trouble keeping track of materials needed for school and other activities
- Does not consider how best to sequence the steps that comprise a task
- It is like “pulling teeth” to sit down and start on a paper or project (even though she knows the material and is capable of doing it)
- Easily overwhelmed by anything that takes more than a few minutes

I g. Loses necessary items**I h. Distractibility (external sights, sounds, and sensations and/or internal thoughts)****I i. Forgetful**

- Effortful to pool cognitive resources to accomplish a task requiring concentration; exhausted after completion
- Spends significant effort trying to find the easy way out (sometimes to the point that it would have been easier to do the task); frequently seeks shortcuts
- Procrastinates by finding anything else that can be done instead of the dreaded assignment
- Jackets, lunchboxes, gym clothes have been left behind multiple times
- Cannot keep up with mobile phone, wallet, keys
- Spends a lot of time looking for the same things on a regular basis (rather than having a set place where they go every time)
- Develops compulsive routines (frequent checking and rechecking) to avoid losing important materials
- Looks up whenever anyone passes by or moves
- Complains about the clock ticking, teacher rustling papers, pencil scratch noises, people breathing
- Irritated by tags in clothing, does not adjust to the physical sensation
- Daydreams when a tangential or unrelated thought pops up; difficult to make a conscious decision to stay on task
- Essays ramble; may start on topic but then be easily led astray as different ideas pop up
- Becomes side-tracked while speaking, leading to awkward pauses or going off on tangents
- Assignments not turned in, even when complete
- Brings home assignment but not the required textbook (or vice versa)
- Goes to the driveway (as directed) but forgets why she is there

(continued)

(Continued)

2a. Fidget/squirm

- Misses sports practice because forgets to stay at school instead of catching the bus home
- Agrees to meet friends for dinner, but forgets the plan when another opportunity arises
- Needs reminders about daily routines (e.g., where do I put my backpack, do I take my homework folder home, what should I do with this worksheet, I don't have a pencil)
- Jackets, hats, and sweaters left at school, friend's houses, or on the bus
- Relies heavily on smartphone reminders or Post-it notes to compensate for frequent forgetting
- Oversleeps because she forgets to set the alarm
- Drums fingers on table, uses pencils as drumsticks on chairbacks and books
- Rolls pencil back and forth on desk
- Rubs face with fingers, hair, waterbottle, pencil
- Wiggles around, as if needs to use the bathroom
- Frequently shifts in seat, as if cannot get comfortable
- Constantly changing position, sitting in chair backwards and sideways, standing or kneeling at desk or in chair
- Foot or leg in constant motion while sitting
- Cannot sit through a full-length movie or church service
- Eats on the run, grazing rather than sitting down for a meal
- Moving around the room while watching television
- Wanders around classroom
- Makes excuses to frequently leave his seat
- Runs through grocery store aisles
- Climbs bookshelves in library

2b. Stay seated

2c. Run/climb (restless)

2d. Quiet

- Bounds up and down retaining walls and park benches rather than walking along a path
- Seems as if she cannot wait to get out of the situation, antsy
- Can't follow "walk, don't run" rules at school
- Lots of sound effects and comments
- Seeks active tasks rather than "quiet" work
- Responds aloud to television shows and videos rather than watching quietly
- "Self-talk" is aloud rather than internal
- Talks when other students are working quietly
- Hums or sings absentmindedly while doing seatwork, chores, or other tasks

2e. On the go, driven

- Just doesn't stop, seems to have boundless energy
- Can be exhausting to be around
- Frequently walking ahead of and moving faster than others

2f. Talks too much

- Very few breaks on her side of conversation, "hard to get a word in edgewise," "motor-mouth"
- Gives lengthy responses when a single word or phrase would suffice
- Comments and answers are unfocused and can be tangential
- Can involve sharing inappropriate information, "TMI" (too much information)
- Fails to adjust how much and how loudly she speaks based on the situation (e.g., library vs. recess)

2g. Blurts out

- Says the punchline to someone else's joke
- Discloses plot twists in movies before they are revealed
- Shouts out answer in class without raising his hand or waiting to be called upon
- Answers questions before they are completed

(continued)

(Continued)

2h. Waiting turn

2i. Interrupt/intrude

- Shares personal information about others without their permission
- Makes inappropriate comments
- Jumps in line
- Rolls dice before it is his turn in game
- Talks over someone in conversation because cannot wait for her turn to talk
- Grabs two brownies before teacher explains there are enough for each student to have one
- Reaches for testing materials before instructions are completed
- Starts timed tasks before “go” signal is given
- Highly impatient when driving (e.g., switching lanes, waiting at traffic light)
- Misses cues for graceful social entry in conversations and activities, jumps into other people’s conversations
- Interrupts directions with questions, comments, or assumptions
- Grabs toys, art supplies, and work materials without asking first, sometimes taking them from someone’s hand while in use
- “Borrows” things without realizing he should ask permission first
- Hijacks an established activity with new rules, without consideration of others involved
- Appears oblivious to the fact that others were immersed in conversation when she began talking

Presentations of DSM-5 ADHD

For a diagnosis of ADHD to be considered, children 16 years and younger must have at least six symptomatic criteria from a category. If a child “often” has at least six of the inattention symptoms, the *Predominantly Inattentive presentation* (314.00, F90.0) may be considered. Likewise, if he “often” has at least six of the hyperactivity

and impulsivity symptoms, the *Predominantly Hyperactive/Impulsive presentation* (314.01, F90.1) may be appropriate. If he is eligible for both of these categories, the *Combined presentation* (314.01, F90.2) should be considered.

Remember that people 17 years and older only require five symptoms from a category to meet symptomatic criteria for DSM-5 ADHD. It is possible to specify “in partial remission” for a person who met full criteria in the past, no longer exhibits sufficient criteria for diagnosis, but still shows impairment in functioning. The DSM-IV-TR diagnosis of *ADHD Not Otherwise Specified (ADHD NOS)* has been replaced by two new diagnoses: *Other Specified ADHD* (314.01, F90.8) and *Unspecified ADHD* (314.01, F90.9). *Other Specified ADHD* offers evaluators a way to identify ADHD in a person who may not meet full criteria but whose presentation is otherwise consistent with the diagnosis (e.g., “other specified ADHD, with insufficient hyperactive-impulsive symptoms”). The intention of *Unspecified ADHD* was to offer a way for clinicians to indicate their initial impressions when there was inadequate time to complete a full evaluation with differential diagnosis (e.g., in an emergency room); however, it will likely be applied in a number of settings as this stipulation is not specified in the manual. See Rapid Reference 2.2 for a summary of diagnostic codes for ADHD.

Some readers may note that most of the ADHD diagnoses have the associated code 314.01 other than ADHD, Predominantly Inattentive presentation, which is 314.00. These codes were selected to correspond with the current ICD at time of DSM publication, reducing confusion in settings where some providers use the ICD and others use the DSM. At the time the DSM-5 was released, the ICD-9-CM diagnoses were 314.00 *Attention Deficit Without Hyperactivity* and 314.01 *Attention Deficit With Hyperactivity*. Thus, the DSM-5 diagnoses had to be assigned to one of these two codes. Because the ICD-10-CM was planned for

Rapid Reference 2.2

Diagnostic Codes for ADHD (ICD-9-CM code, anticipated ICD-10-CM code)

ADHD, Predominantly Inattentive presentation (314.00, F90.0)

ADHD, Predominantly Hyperactive/Impulsive presentation (314.01, F90.1)

ADHD, Combined presentation (314.01, F90.2)

Other Specified ADHD (314.01, F90.8)

Unspecified ADHD (314.01, F90.9)

implementation in 2014, those codes are also provided in the DSM-5 (in parentheses).

Persistence

The DSM-5 emphasizes that ADHD has a persistent course; it is not a sporadic or episodic condition. Symptoms must persist for at least six months. The text elaborates further that although the presentation may vary over time and symptoms may be less prominent in older adolescents and adults, ADHD typically persists. In most cases, people do not outgrow ADHD (although symptoms may become less evident with age and warrant the specifier “in partial remission”). Varying presentation is nicely illustrated by the symptom examples, such as comments noting that frank hyperactivity may be experienced as “feeling restless” in adolescents and adults. The new age-based difference in number of symptoms required (i.e., ≥ 6 in children, ≥ 5 in people 17 years and older) further emphasizes the changes in presentation that can occur over development.

The trickiest part of this criterion is recognizing that symptom expression can change in response to many factors, including environmental features (see Chapter 3). The DSM-5 says, “Typically, symptoms vary depending on context within a given setting” (American Psychiatric Association, 2013, p. 61). For example, when a child with ADHD is in a highly structured, consistent setting with frequent and immediate reinforcement of what he does well and sensitive correction of what he needs to learn, he may not look like he has the full clinical presentation of ADHD. A common example of an optimized environment is video game play—these games are designed to engage and sustain interest, motivation, and attention through a series of stimulating multisensory events that consistently result in consequences, with immediate, visual, and concrete tracking of progress toward a well-defined goal. A child’s successful functioning in an optimized environment does not rule out ADHD. The impact of the therapeutic environment and supports must be considered—what does he look like when placed in a different setting? These sorts of exceptions where the expression of symptoms is suppressed can be valuable in identifying appropriate interventions and evaluating a child’s potential, but should not preclude a diagnosis of ADHD. The bottom line is that symptoms of ADHD must be evident in multiple contexts, although they may be present to different degrees at different times. As discussed in Chapter 5, there may be discrepancies in how and whether symptoms are expressed in different settings, but a diagnosis of ADHD requires a thread of continuity in the symptoms.

CAUTION

Remember, ADHD is a persistent disorder. The presentation may change over time and across settings, but for the diagnosis to be appropriate there must be evidence of the disorder over at least the course of the past six months. For older adolescents and adults, the specifier “in partial remission” may be considered.

Age of Onset

Diagnosis of ADHD is not complete after identifying and counting symptoms. It is critical to review and apply the other criteria for diagnosis as well. The DSM-5 requires evidence of several ADHD symptoms prior to 12 years of age. This is part of the developmental nature of the diagnosis, in that ADHD does not simply appear in adolescence or adulthood. The DSM-5 states clearly, “ADHD begins in childhood” (American Psychiatric Association, 2013, p. 61). There are certainly instances where a person was not diagnosed before adolescence or adulthood, but there must be evidence of the disorder in childhood.

The current age-of-onset requirement (before 12 years old) is new; the DSM-IV-TR required evidence of impairment related to symptoms of ADHD prior to 7 years of age. There are several reasons for this change. Retrospective accounts of age of onset tend to report a later age than current observation (Barkley & Biederman, 1997; Todd, Huang, & Henderson, 2008). Requiring onset before 7 years old may have prevented some people with ADHD from being diagnosed and receiving appropriate services (Applegate et al., 1997; Kieling et al., 2010). Research has found no clinically significant differences in outcome, treatment response, course, or severity for “early onset” versus “late onset” (i.e., onset in early childhood versus in late childhood; Faraone et al., 2006; Polanczyk et al., 2010).

The DSM-IV-TR specified impairment and age of onset together in the statement that “symptoms that caused impairment were present before age 7 years” (American Psychiatric Association, 2000, p. 92). The DSM-5 does not explicitly state this requirement but the concept remains. In the DSM-5, impairment is required for a behavior to be considered a symptom. As such, the symptoms used to establish age of onset must by

DON'T FORGET

Age of onset for ADHD in the DSM-5 is now prior to 12 years old (as opposed to 7 years old in the DSM-IV).

Evidence
of symptoms
before
12 years
old

definition be impairing. Thus, although the DSM-5 separates age of onset and impairment, evidence of impairment in childhood is still required.

Pervasiveness

The DSM-5 requires that the symptoms are pervasive and that several symptoms are evident in at least two settings. Examples of settings include school, work, and home; the DSM-5 expands on the DSM-IV-TR examples by adding the social setting (i.e., with friends or relatives). Other activities in which symptoms might be observed include sports, religious gatherings, clubs, and other community organizations.

DON'T FORGET

Consider the impact of environment on symptom presentation. An optimizing environment may reduce evidence of symptoms, but does not mean that the child has no symptoms. Likewise, an exacerbating environment may result in a child seeming to have ADHD, but this may represent an environmental problem rather than a disability within the child. By considering functioning across multiple settings you will gain a more accurate picture of presentation, both persistence and pervasiveness.

Impairment

The DSM-5 criteria for ADHD mention impairment in several places. Criterion A begins with a statement that the symptoms must interfere with functioning or development. Each category (i.e., inattentive, hyperactive/impulsive) requires that the symptoms must “negatively impact directly on social and academic/occupational activities” (American Psychiatric Association, 2013, pp. 59–60). Criterion D states, “There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning” (p. 60). In other words,

if a symptom negatively impacts or limits a person’s activities, there is impairment. If a symptom negatively impacts development, there is also impairment.

As discussed in Chapter 5, it is tempting to focus on concrete measures of impairment such as academic grades.

CAUTION

Impairment is a necessary part of ADHD diagnosis. Impairment may be observed in academic, occupational, interpersonal, and intrapersonal functioning.

It is critical to remember that impairment can be observed in other ways. For example, symptoms of ADHD often impair social interactions and relationships. Intrapersonal impairment can also occur, as people with ADHD may internalize negative attributions that impact their sense of worth and self-esteem. (See Chapter 3 for discussion of the complications when there is impairment relative to a person's potential, but not impairment relative to the general population.)

Exclusions

If the symptoms of ADHD only occur during the course of schizophrenia or another psychotic disorder, then ADHD is not diagnosed. Similarly, if the symptoms are better accounted for by another mental disorder such as mood disorder, anxiety disorder, dissociative disorder, personality disorder, or substance intoxication/withdrawal, ADHD

is not diagnosed. Although not explicitly stated in the DSM-5 summary of ADHD criteria, the DSM-5 text is clear that medical, psychosocial, or other environmental conditions can also serve to exclude an ADHD diagnosis (see Chapters 3 and 5).

DON'T FORGET

The DSM-5 requires you to determine what diagnosis best accounts for a child's symptoms. Sometimes this means that ADHD is ruled out in favor of a different diagnosis or explanation.

Severity

A new aspect of the DSM-5 is the requirement to specify current severity. The specifier "Mild" is used when the diagnostic criteria are just barely met and impairment is minor. The specifier "Severe" is used in several cases: More than six symptoms from a category are present (more than five for people 17 years or older), *or* several symptoms are severe, *or* the symptoms are associated with marked impairment. The specifier "Moderate" is used when the number of symptoms or the degree of impairment is between mild and severe.

DON'T FORGET

There are three considerations when determining severity of ADHD with the DSM-5:

1. How many symptoms does the person show?
2. How intense, frequent, or severe are individual symptoms?
3. How much is functioning impaired by the symptoms?

Differential Diagnosis

Like all DSM diagnoses, a diagnosis of ADHD requires the evaluator to consider whether other diagnoses or factors might better account for the symptoms. This process is often called *differential diagnosis* as the evaluator is differentiating among possible explanations. Sometimes it is a matter of ruling out a diagnosis, or deciding that it is not a good fit for the child's presentation. This may mean ruling out ADHD. During the process of differential diagnosis, you may identify possible co-occurring disorders (see the "Comorbidity" section ahead).

Each DSM-5 category of ADHD symptoms (Inattention, Hyperactivity/Impulsivity) reminds the evaluator to consider *why* a symptom is present with the words, "The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions" (American Psychiatric Association, 2013, pp. 59–60). Differential diagnosis is next addressed in Criterion E, the list of exclusionary diagnoses. Clinicians are cautioned to consider whether the symptoms occur only during the course of a psychotic disorder (such as schizophrenia), or whether another diagnosis might better account for the symptoms (particularly mood disorders, anxiety disorders, dissociative disorders, personality disorders, and substance intoxication/withdrawal).

Within the text, the DSM-5 elaborates on common disorders that must be considered during differential diagnosis. In addition to the diagnoses listed earlier, oppositional defiant disorder (ODD), intermittent explosive disorder, stereotypic movement disorder, specific learning disorder, intellectual disability (formerly mental retardation), autism spectrum disorder (including DSM-IV-TR diagnoses of Asperger's disorder and pervasive developmental disorder or PDD), reactive attachment disorder, and neurocognitive disorders (such as dementia) are mentioned.

Reading these alternative explanations for symptoms and list of exclusions is fairly simple; determining when or whether a symptom or presentation reflects ADHD is complex and integrative in nature. Guidelines for differential diagnosis are provided in Chapter 5 of this book.

DON'T FORGET

Differential diagnosis involves several steps:

- Make sure all criteria for ADHD are met.
- Consider whether another diagnosis better accounts for symptoms (exclusions).
- When features of other disorders are present, consider possible comorbidity.

Comorbidity

As mentioned earlier, diagnosis is not always a matter of exclusion; sometimes disorders co-occur. This is particularly true for ADHD, which has high rates of comorbidity. As discussed in Chapter 1, the majority of children with ADHD have at least one other psychiatric diagnosis. The DSM-5 reminds clinicians to consider common comorbidities, including oppositional defiant disorder (ODD), conduct disorder (CD), anxiety disorders, mood disorders, learning disorders, substance use disorders, tic disorders, obsessive-compulsive disorder, and autism spectrum disorder, among others.

The allowance of comorbid autism spectrum disorder with ADHD is a major shift from the DSM-IV-TR. The DSM-IV-TR specified that ADHD should not be diagnosed if the symptoms occur exclusively during the course of a pervasive developmental disorder. This exclusion was

disputed, given that many children in the autism spectrum present with features of ADHD (Mayes, Calhoun, Mayes, & Molitoris, 2012). DSM-5 criteria for autism spectrum disorder now indicate that ADHD may be diagnosed as comorbid when symptoms of inattention or hyperactivity occur in excess of expectations for the child's mental age.

CAUTION

The DSM-5 allows ADHD and autism spectrum disorder to be diagnosed as comorbid conditions. This is a shift from the DSM-IV-TR exclusionary criteria.

Rapid Reference 2.3

Summary of DSM-5 ADHD Diagnosis

- *Symptoms:* There must be a persistent pattern of ADHD symptoms that are inconsistent with developmental level and are impairing:
 - Need at least six of the nine Inattention symptoms for a diagnosis of ADHD Predominantly Inattentive presentation (five of the nine in people 17 and older).
 - Need at least six of the nine Hyperactivity and Impulsivity symptoms for a diagnosis of ADHD Predominantly Hyperactive/Impulsive presentation (five of the nine in people 17 and older).
 - Must meet criteria for both Inattentive and Hyperactive/Impulsive presentations to be diagnosed with ADHD Combined presentation.

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- *Frequent*: Symptoms must occur “often” to be counted.
- *Persistent*: Symptoms persist over time, for at least six months (although presentation may vary by age and setting).
- *Childhood onset*: Evidence of some ADHD symptoms before 12 years old.
- *Pervasive*: Several ADHD symptoms are evident in two or more settings.
- *Impairing*: ADHD symptoms negatively impact functioning or development.
- *Exclusion*: Other explanations for the symptoms must be considered and ruled out.

HOW DO I KNOW IF IT IS DSM-5 ADHD?

Some clinicians may lead you to believe ADHD is a “simple” diagnosis. In our years of research and clinical work, we have encountered numerous instances where ADHD diagnosis is neither easy nor obvious. The DSM-5 criteria provide a solid foundation upon which to build your diagnostic decisions. Clinical training and experience create the context within which you apply these DSM-based rules. The following chapters offer specific guidance for assessment of ADHD, including goals and principles (Chapter 3), assessment components (Chapter 4), and integrating these many facets to determine when a diagnosis of ADHD is appropriate (Chapter 5).

SUMMARY

The DSM-5 provides specific criteria for diagnosis of ADHD, guidelines that most mental health professionals must understand regardless of the setting. The essence of ADHD diagnosis remains the same between the DSM-IV-TR and DSM-5, although there are a few specific changes that are conceptually important. These key changes are summarized in Rapid Reference 2.4. Familiarity with the DSM-5 ADHD criteria is an important aspect of responsible assessment for possible ADHD.

Rapid Reference 2.4

Key Differences Between DSM-5 ADHD and DSM-IV-TR ADHD

- *Diagnostic category*: ADHD is still considered a developmental condition that begins in childhood, but the new section heading is “Neurodevelopmental Disorders.” (DSM-IV-TR ADHD was listed under “Disorders Usually First

Diagnosed in Infancy, Childhood, or Adolescence," with the "Disruptive Behavior Disorders.")

- *Impact on development:* The DSM-5 explicitly states that a behavior must interfere with functioning *or development* to be considered a symptom. This was implied but not explicitly stated in the DSM-IV-TR.
- *Age-based differences in symptom count required for diagnosis:* Symptom count in the DSM-IV-TR did not vary with age. The DSM-5 has different symptom counts for children under 17 years of age (≥ 6 from a category) and people 17 years old or older (≥ 5 from a category).
- The DSM-5 provides *additional examples* of what symptoms look like, particularly in adolescents and adults.
- *Age of onset:* The DSM-IV-TR required evidence of impairment related to symptoms of ADHD prior to 7 years old, as compared to 12 years old in the DSM-5.
- *Evidence of impairment* is still required for diagnosis, although the wording of this impairment criterion changed somewhat. The DSM-IV-TR stated, "There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning." The DSM-5 states, "There is clear evidence that the symptoms interfere with, or reduce, the quality of social, academic, or occupational functioning." In other words, "clinically significant impairment" is now defined as interfering with or reducing the quality of performance.
- It is now possible to diagnose *autism spectrum disorder and ADHD* as comorbid conditions (whereas the DSM-IV-TR excluded comorbidity between these diagnoses).
- The DSM-5 specifically includes *substance intoxication or withdrawal* in the differential diagnosis of ADHD.
- There are still three identified variants of ADHD. However, they are now called *presentations* rather than *subtypes* to emphasize that presentation may change over time and that presenting with predominant symptoms of one category does not exclude the presence of symptoms from the other category.
- Addition of a new *severity specifier* (mild, moderate, severe) in the DSM-5.



TEST YOURSELF



I. Which of the following include valid criteria for diagnosing ADHD? (Mark all that apply.)

- a. DSM-5
- b. ICD-10
- c. RTI
- d. WHODAS
- e. All of the above

2. **No significant changes related to ADHD occurred in the transition from DSM-IV-TR to DSM-5.**
 - a. True
 - b. False
3. **According to the DSM-5, a mental disorder has which of the following characteristics? (Mark all that apply.)**
 - a. At least minor distress
 - b. At least minor disturbance in functioning
 - c. Political, religious, or sexual conflicts with society
 - d. Reaction to a stressor or loss
 - e. None of the above
4. **The “three D’s” of a mental disorder are:**
 - a. Avoiding *discrimination* on the basis of gender, race, or culture
 - b. Clinically significant *distress*
 - c. Clinically significant *disturbance* in functioning
 - d. *Differential diagnosis* between ADHD and other possibilities
 - e. *Disability*, that is, difficulty in completing important activities
5. **DSM-based diagnosis of ADHD is complete once you establish a persistent pattern of inattention and/or hyperactivity that impairs the child’s functioning.**
 - a. True
 - b. False
6. **Which of the following are included in DSM-5 criteria for diagnosing ADHD? (Mark all that apply.)**
 - a. Age of onset
 - b. Differential diagnosis
 - c. Impairment
 - d. Pervasiveness
 - e. Persistent symptoms
7. **Which of the following statements are true? (Mark all that apply.)**
 - a. The DSM-5 has different symptom count requirements for children (16 years and younger) versus adults (17 years and older).
 - b. Young children must have at least 6 of 18 ADHD symptoms to be diagnosed with ADHD, Combined presentation.
 - c. You only need to document one symptom of ADHD, as long as you have more than six examples occurring in multiple settings.
 - d. When a child has three symptoms of inattention and three symptoms of hyperactivity/impulsivity, you should consider the Combined presentation.
 - e. Hyperactivity/impulsivity can present with motor or verbal symptoms.

8. Which one word best completes this sentence: ADHD is characterized by a(n) _____ pattern of inattention and/or hyperactivity/impulsivity that interferes with functioning or development.

- a. Consistent
- b. Episodic
- c. Late-onset
- d. Persistent
- e. Reactive

9. Mark all the true statements below:

- a. DSM-5 diagnosis of ADHD requires evidence of some symptoms before 12 years of age.
- b. A child must show evidence of ADHD symptoms in all settings to receive the diagnosis.
- c. If a child has an autism spectrum disorder, she cannot also have ADHD.
- d. Severity can be specified based on a child's symptom count, severity of symptoms, and/or degree of impairment.
- e. ADHD usually occurs in isolation; it is rare for other disorders to co-occur.

10. Which of the following ways does the DSM-5 mention impairment? (Mark all that apply.)

- a. Symptoms cause low scores on cognitive testing.
- b. Symptoms interfere with development.
- c. Symptoms interfere with functioning.
- d. Symptoms negatively impact the child's activities.
- e. Symptoms reduce the quality of functioning.

Answers: 1. a & b; 2. b; 3. e; 4. b, c, & e; 5. b; 6. a, b, c, d, & e; 7. a & e; 8. d; 9. a & d; 10. b, c, d, & e

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Three

ASSESSING ADHD: GOALS AND GUIDING PRINCIPLES

As noted in our introduction, a gap exists between what are considered state-of-the-art assessments for ADHD as specified by professional organizations and expert sources (Subcommittee on Attention-Deficit/Hyperactivity Disorder, Steering Committee on Quality Improvement and Management, 2011) and what commonly transpires in real-world clinical practice. Among the many factors contributing to this gap may be incomplete awareness of both the basic goals of ADHD assessments and some core principles that underlie sound assessment practices more generally. Therefore, the first part of this chapter addresses common goals that apply whenever an individual is being evaluated for ADHD.¹ The remainder of the chapter discusses a number of broader assessment principles and how they can (and *should*) be applied to the evaluation of ADHD. We think of these goals and principles as providing a framework or template for sound ADHD evaluations (the details of which are addressed elsewhere in this book). Our hope is that an appreciation of these goals and principles will help to clarify the task at hand and guide clinicians with respect to how they think about, structure, and conduct ADHD evaluations, resulting in higher-quality assessments for this disorder. (See Rapid Reference 3.1.)

¹ As is the case for all evaluations, it is also critical that practitioners identify at the outset the broader goals that pertain to the particular child being assessed. These case-specific goals (or referral questions) will guide the assessment process with respect to what behaviors, persons, and settings are evaluated (the *targets* of the assessment), what assessment methods are used, and what “frame” will be applied to the interpretation of the findings.

Rapid Reference 3.1

Practice Guidelines

Several professional groups have developed clinical practice guidelines for assessment of ADHD, including those by North American groups listed here. (See Seixas, Weiss, & Müller, 2012, for a review of selected practice guidelines for ADHD from across the globe.) Reviewing these guidelines, many of which are available online, will familiarize you with the recommendations for your field as well as for professionals in related fields. Expect updated versions as professional groups consider the impact of DSM-5.

American Academy of Child and Adolescent Psychiatry (AACAP; American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues, 2007).

American Academy of Pediatrics (AAP; Wolraich et al., Subcommittee on Attention-Deficit/Hyperactivity Disorder, & Steering Committee on Quality Improvement and Management, 2011).

American Medical Association (AMA; Goldman, Genel, Bezman, & Slanetz, 1998).

Canadian ADHD Resource Alliance (Canadian Attention Deficit Hyperactivity Disorder Resource Alliance [CADDRA], 2013).

GOALS

The diagnosis of ADHD has two main goals: inclusion and exclusion. Inclusion pertains to determining whether the child meets DSM-5 criteria for ADHD. Exclusion involves ruling out other explanations that might better account for his ADHD-like symptoms. Conceptually, the process of inclusion precedes exclusion. In practice, however, addressing these goals does not necessarily proceed in a stepwise fashion. Data pertaining to ruling in ADHD and ruling out alternative explanations are often collected simultaneously. Nonetheless, for the purposes of this chapter, we will examine these two aspects of ADHD diagnosis separately. Both are framed as questions in order to facilitate their recall and to parallel the clinician's guiding mindset when conducting ADHD evaluations.

Inclusion: Does the Child Meet Criteria for ADHD as Specified in DSM-5?

Although the DSM as a classification system has been the subject of criticism (Frances, 2013; Insel, 2013), the DSM criteria have been and will likely remain the standard of care for clinicians with respect to diagnosing ADHD. Thus, as

Rapid Reference 3.2

Guiding Questions for Applying DSM-5 ADHD Criteria

1. Does the child demonstrate persistent, developmentally inappropriate, and impairing symptoms of inattention and/or hyperactivity/impulsivity in sufficient numbers to exceed the diagnostic thresholds?
2. Were several of these symptoms present prior to age 12?
3. Are several of these symptoms present in at least two settings (i.e., pervasiveness)?
4. Is there clear evidence that these symptoms interfere with social, academic, or occupational functioning or that they reduce the quality of functioning in those domains (i.e., impairment)?
5. Are the symptoms better accounted for by another disorder?

noted in Chapter 2, it is imperative that those involved in ADHD evaluations are highly familiar with the conventions for using the DSM in general as well as the specific criteria for ADHD.

The DSM-5 criteria for ADHD (see Chapter 2) can be reframed as five questions that the clinician must answer in order to rule in or rule out the diagnosis (see Rapid Reference 3.2). Questions 1 through 4 relate to ruling in ADHD (i.e., inclusion questions) and must be answered “Yes” to support its diagnosis. Question 5 pertains to ruling out alternative explanations for symptoms and must be answered “No” to support a diagnosis of ADHD (see “Exclusion” section below). All of the constructs included in these five questions are essential elements of an ADHD evaluation, and should be considered in addition to the general guiding principles described later in this chapter. Three specific issues related to the inclusion questions are highlighted below: *verification of symptoms*, *pervasiveness*, and *impairment*.

Symptoms

Of course, the need to establish the presence of symptoms characteristic of a disorder lies at the heart of clinical diagnosis. Unfortunately, some clinicians rely on “clinical intuition” or an *impression matching* approach wherein they base a diagnosis on the fact that the child’s presentation generally fits the picture of a particular disorder, without explicitly and carefully surveying all of the DSM symptoms. For example, if initial parental and/or teacher reports suggest the presence of restless and distractible symptoms accompanied by poor compliance and task completion, the youngster is presumed to have ADHD. This approach may be time efficient but it results in diagnosing lots of children with ADHD who do not actually have the disorder (aka

CAUTION

Compare assessment data against the DSM-5 criteria each time you evaluate a child for ADHD. Do *not* rely on clinical intuition or general impressions to assign a diagnosis.

“false positives”). An accurate diagnosis requires a thorough review of all 18 ADHD symptoms (ideally through information provided by multiple informants via interviews and rating scales; see “Guiding Principles” section for further discussion).

Pervasiveness

Aspects of the pervasiveness criterion can be confusing to clinicians. Remember, the DSM-5 requires that several symptoms must be present in two or more settings. Some mistakenly believe this means parents and teachers must observe the *same* symptoms at home *and* school. Such agreement is rarely the case (see “Obtain Data from Multiple Informants, Settings, and Methods” in this chapter) and requiring it would belie the variability in symptom expression that is characteristic of ADHD. Clinicians should seek to establish that symptoms are or were at some time present in multiple settings (typically home and school), whether reported by one or multiple informants. On a related point, some clinicians assume that each parent and teacher must independently report sufficient symptoms to reach the symptom count threshold before assigning a diagnosis. This overly restrictive interpretation of the pervasiveness criteria will lead many children with the disorder to go undiagnosed (aka “false negatives”).

In our clinical work, we expect some overlap in symptoms reported by different informants who interact with the child in different settings. We do not rigidly require a given feature of ADHD to be present in every setting in order to count it as a symptom, although we do look for evidence that the general category of symptom (i.e., inattention, hyperactivity/impulsivity) is present in multiple settings. Likewise, we do not require the full symptom threshold to be reached in every setting, although we would be hesitant to diagnose ADHD if a child showed very few symptoms in most settings. For example, if a child only showed three symptoms of inattention at school and three different inattention symptoms at home, we would likely not consider this adequate for the full symptom count of six symptoms. We recommend that clinicians adopt a *blending* approach wherein they combine credible symptoms reported by parents or teachers (or other reliable informants) in order to determine that the required symptom count threshold is met while also establishing that several of the reported symptoms are present in more than one setting (Barkley, 2006; Gadow et al., 2004).

DON'T FORGET

It is not necessary to have complete agreement from all informants and settings about which symptoms of ADHD are present in a child. Different symptoms observed by different people and in different settings may still provide support for a diagnosis of ADHD.

Impairment

The importance of establishing impairment associated with ADHD symptoms cannot be overstated. The DSM itself underscores this point, as references to impairment are woven throughout the diagnostic criteria for ADHD (as discussed in Chapter 2). Indeed, for a behavior to be regarded as a symptom of the disorder it has to negatively impact one or more of the child's daily activities. Additionally, the syndrome as a whole must impede functioning in one or more significant life domains or be associated with distress. In other words, without evidence of impairment, there can be no diagnosis.

As discussed in Chapter 1, the impairments associated with childhood ADHD cut a wide swath and include some notable health/medical risks, but most commonly involve problems in academic, social, and family functioning. It is also noteworthy that (1) impairment in core aspects of daily life (as opposed to symptoms of inattention, overactivity, and impulsivity) is what leads children with ADHD to be referred for evaluation and that (2) changes in these impaired areas of functioning constitute the primary foci or targets of treatment efforts (Fabiano, 2011; Pelham, Fabiano, & Massetti, 2005).

Remember that impairment can be demonstrated in many ways beyond academic grades and test scores. For example, a high school student might struggle in a basic-level course due to symptoms of ADHD despite being intelligent enough to be enrolled in an Honors or Advanced Placement course. Social impairment can occur when children are rejected, ignored, or bullied due to their symptoms. Disciplinary problems (e.g., detention, school suspension) can indicate impairment. Impairment can also be seen when a child is excluded from sports teams due to ADHD-related behavior or poor grades. The construct

CAUTION

Evidence of impairment is necessary for diagnosis of ADHD. If ADHD symptoms do not negatively impact activities, impede functioning, or cause distress, there is no impairment and therefore no diagnosis.

DON'T FORGET

Evidence of impairment can be found in many places, including academic, social, behavioral, and emotional domains.

known as *quality of life* is related to impairment, as it is difficult to have good quality of life when your functioning in one or more important life domains is impeded.²

Given that it constitutes such an important aspect of ADHD (and one that mediates long-term outcomes (see, for example, Molina et al., 2012), every assessment for the disorder must confirm the presence of impairment and examine the nature and extent of life interference caused by whatever symptoms exist. Establishing that the features of ADHD are present in greater frequency or severity than is typical for a child of a given age is a necessary but insufficient basis for assigning a diagnosis. The competent clinician must go further to demonstrate that those very symptoms are disrupting the child's functioning in one or more important areas of her life. Indeed, given that a wide range of ADHD-like features are commonplace among youth, neglecting to adequately assess impairment is a surefire way to over-diagnose ADHD.

Establishing impairment in ADHD can be quite clear-cut when the child is clearly functioning (in school, with peers, or in other life domains) below expectations for age (compared to classmates or the general population). More controversial is whether impairment applies when a child is doing as well as (or even better than) peers but below what she is deemed capable of based on her presumed or measured abilities. This is seen frequently with intellectually bright children whose academic performance, while falling in the average range or higher, appears to be below their potential due to problems created by poor attention, disorganization, impulsive responding, and other ADHD-like features. Can a child's functioning be considered impaired if it is not deficient relative to her classmates? Should a "deficiency" that exists only in comparison to a child's presumed potential or to her own demonstrated performance in other areas even be considered a deficit? It is important to be cautious about labeling the types of naturally occurring variations among an individual's abilities and performance as evidence of deficits or impairments. For example, consider a child with exceptional verbal reasoning and language abilities who displays average motor skills. Would we say he has a motor skills "deficit" or "impaired" motor functioning? Of course

² Although quality of life is increasingly being assessed in research studies, it remains rarely assessed in clinical practice. See Hakkaart-van Roijen, Zwirs, Bouwmans, Tan, Schulpen, Vlasveld, & Buitelaar (2007) for additional information.

not. On the other hand, do ADHD symptoms often appear to interfere with the academic performance of students who are nonetheless managing to achieve at average levels? Absolutely.

These are thorny and unresolved issues that cut to the heart of how we define terms like *disorder* and *disability*. No absolute standard exists for determining a child's level of functioning (e.g., compared to same-age peers, or students in the same grade, or children of comparable intelligence?), and clinicians vary considerably in the thresholds they employ to establish impairment. Pending the development of definitive guidelines regarding these issues, practitioners are advised to consider carefully the criteria or comparisons they are using when establishing impairment, to employ them consistently across cases, and, where indicated, to discuss them explicitly in their written and verbal justifications of their ADHD diagnoses.

Impairment can be assessed through record reviews, interviews, observations, rating scales, and cognitive testing (see Chapter 4). Questions pertaining to impairment should certainly be a part of parent, teacher, and child interviews surveying the symptoms of ADHD. Some comprehensive (or *broadband*) rating scales include items or scales pertaining to impairment. Although the Global Assessment of Functioning (GAF; see DSM-IV-TR) is no longer a formal part of DSM-based diagnoses, some parent- and teacher-completed ratings scales focus specifically on assessing impairment (see Fabiano, 2011; Pelham et al., 2005; Winters, Collett, & Myers, 2005).

Exclusion: If Current ADHD Criteria Are Met, Are There Credible Alternative Explanations for the Symptoms?

Let's say a clinician has established that a child shows early onset, developmentally atypical, persistent, pervasive, and impairing inattentive and hyperactive/impulsive symptoms in numbers that exceed the thresholds specified by the DSM-5 (see questions 1 through 4 in Rapid Reference 3.2). The symptoms by themselves may appear to warrant a diagnosis. This is the point at which some clinicians go awry by jumping to a diagnosis of ADHD without considering the all-important final DSM criterion, best captured by the question, *Are there credible alternative explanations for the symptoms?* Although it may sound counterintuitive, the fact that an individual meets all of the symptomatic criteria for ADHD does not necessarily mean that he has the disorder. Remember, ADHD is not solely a diagnosis of inclusion; it is also a diagnosis of exclusion. Thus, the final step to diagnosing ADHD involves assuring that its symptoms are not caused by factors other than ADHD.

CAUTION

A diagnosis of ADHD requires more than documenting the presence of symptoms, age of onset, pervasiveness, and impairment. You must also rule out other possible explanations for the child's presentation.

The DSM-5 criterion pertaining to differential diagnosis simply specifies that the symptoms of ADHD are not better explained by another psychiatric disorder. In practice, however, the implementation of this criterion implies ruling out a variety of alternative explanations for ADHD-like symptoms, including medical issues, other mental health disorders, and psychosocial factors, as well as developmental and cultural factors (discussed later in this chapter). It is important to remember that the symptoms of ADHD are not specific to ADHD; that is, poorly regulated attention, motor activity, and impulse control can result from a wide range of causes.

Medical issues, such as hearing or vision deficits, certain types of seizures (and/or the medications used to treat them), traumatic brain injuries, and even some sleep disorders can give rise to ADHD-like symptoms. This speaks to the importance of conducting a careful medical history and ensuring that the child has had a recent physical examination to rule out such factors.

Other psychological disorders can also produce symptoms that mimic ADHD. For example, anxious children can be quite restless and often struggle with distractibility and maintaining focus. Depressed youth can be agitated physically, be prone to impulsive irritable outbursts, and frequently experience difficulties concentrating. Adolescents who are actively abusing substances can show impulsive, inattentive, and hyperactive features. Inattention, disorganization, and behavioral problems common among those with ADHD are often displayed by students with learning disorders when engaging academic material in school- and home-settings. Although the nature of bipolar disorder in children is a matter of much debate, there is no doubt that the excessive energy, high activity levels, risky/impulsive behavior, distractibility, and rapid, excessive speech that characterize mania overlap considerably with the symptoms of ADHD. The verbal and behavioral outbursts that comprise the core feature of the newly introduced disruptive mood dysregulation disorder are likely to look quite similar to manifestations of impulsivity among those with ADHD. Of course, many of these disorders can coexist with ADHD (see comorbidity discussion in Chapter 1) but in other instances they can be the cause of apparent ADHD symptoms. The need to ferret out which applies *before* concluding that a child has ADHD highlights the importance of differential diagnosis (addressed in Chapter 5) and the command of child and adolescent psychopathology that it requires.

DON'T FORGET

Psychosocial factors can make a child look like he has ADHD even when he does not. Remember to consider both exogenous (outside the child) and endogenous (inside the child) contributions to his clinical presentation.

In addition to ruling out medical or psychiatric disorders that could account for ADHD-like symptoms, the clinician must also consider possible psychosocial factors. Recall that ADHD is a disorder that reflects a harmful dysfunction *within the child* (Wakefield, 1997), presumably involving the neuro-structures and networks that enable effective self-regulation. This dysfunction may be the product of purely biological factors (e.g., genetics), exogenous environmental factors that adversely impact biology (e.g., prenatal exposure to alcohol, early life exposure to lead, pesticides, or other neurotoxins), or various combinations of the two (see Chapter 1), but the proximal cause of ADHD symptoms is widely regarded to be compromised neurobiology. In contrast, some youth exposed to adverse life circumstances and stressful environments (e.g., intense and protracted family conflict, adversarial divorces, abuse, bullying, discrimination, or other victimization experiences) react in ways that mimic ADHD symptoms. In such cases, the symptoms suggestive of ADHD are likely to remit if the stressors or other adverse life circumstances impacting the child are adequately addressed. Assessing for and ruling out such psychosocial causes of ADHD-like symptoms is a necessary but often neglected component of thorough ADHD evaluations.

Although far from exhaustive, the examples noted previously highlight how likely misdiagnosis of ADHD becomes when clinicians fail to systematically rule out the medical, psychiatric, and psychosocial issues that can produce similar symptoms. Such misdiagnosis has serious real-world implications, including both the implementation of unwarranted treatments (e.g., stimulant medications for a child with an unrecognized learning disorder) and the neglect of needed interventions (e.g., appropriate psychological treatments for a traumatized child).

DON'T FORGET

There are two main goals for ADHD diagnosis:

1. *Inclusion*: Does the child meet criteria for ADHD as specified in DSM-5?
2. *Exclusion*: If current ADHD criteria are met, are there credible alternative explanations for the symptoms?

GUIDING PRINCIPLES

In covering the inclusionary and exclusionary goals for ADHD assessment, we have discussed several important concepts: symptom verification, pervasiveness, impairment, and differential diagnosis. The clinical evaluation of ADHD should be guided not only by these concepts but also by more general child assessment principles. Seven such principles are identified in what follows, each accompanied by comments on their application to the assessment of ADHD.

Be Comprehensive

Although the focus of assessments will inevitably be on the concerns identified in the referral, it is important not to limit your investigation to the presenting problems. In other words, don't assume that an issue is irrelevant just because a parent, child, or teacher hasn't raised it. Thus, one aspect of being comprehensive is ensuring that you *cover a broad range of possible symptoms, problems, and disorders* (at a minimum, through screening questions if not more formal measures). As noted earlier, diagnosing ADHD involves not only establishing that the characteristic symptoms of the disorder are present but also determining that factors other than ADHD do not provide better explanations for those symptoms. Accomplishing this requires assessing for and ruling out the types of medical conditions, mental health disorders, and environmental circumstances that can produce symptoms that mimic ADHD (see previous "Exclusion" section). Additionally, in cases where a diagnosis of ADHD is clearly warranted, assessing for other disorders and problems is necessary for determining possible comorbidity and for planning appropriate treatment. Like most childhood problems, ADHD commonly co-occurs with other mental health conditions (see Chapter 1), which underscores the importance of assessing for multiple disorders whenever evaluating a youngster for ADHD (Kazdin, 2005). As noted in Chapter 4, general clinical interviews and broadband rating scales are useful ways to screen for a wide range of conditions and symptoms (e.g., depression, anxiety, substance abuse, trauma-exposure, aggression) that might account for or accompany ADHD symptoms (Pelham, Fabiano, & Massetti, 2005).

A second aspect of being comprehensive involves assessing the child's *functioning across multiple domains*. Regardless of the presenting concerns (which might, for example, be limited to the school setting), clinicians should strive to obtain a picture of the child's functioning in the following areas: (1) Mood/Affect; (2) Behavior; (3) Family Relations; (4) Academic Performance; (5) Peer Relationships; and (6) Recreational/Leisure Time Activities. When evaluating a child for

ADHD, such information will be useful in assessing for the presence of symptoms in multiple settings as well as in determining the range and severity of impairments related to ADHD symptoms. In addition to helping to evaluate these diagnostic criteria for ADHD, this broader picture of the child's functioning will inform treatment planning. For example, the presence or absence of significant problems with peers can determine whether "friendship" or social skill training interventions might be among the treatment recommendations emerging from the assessment.

A third way in which assessments should be comprehensive relates to the need to *be sensitive to contextual factors* (including the client's cultural background). This important topic is addressed separately later in this chapter.

DON'T FORGET

Being comprehensive refers to several aspects of an ADHD evaluation:

- Screen for a broad range of possible problems/disorders.
- Assess multiple domains of functioning.
- Consider culture and other contextual factors.

Obtain Data from Multiple Informants, Settings, and Methods

Expert guidelines and recommendations regarding the assessment of ADHD are consistent in asserting that information needs to be gathered from multiple sources and settings, using a variety of methods (American Academy of Pediatrics, 2011; DuPaul & Kern, 2011; Smith et al., 2007).

Multiple Informants and Settings

Those evaluating ADHD must obtain data from key figures in the child's environment who are well familiar with his functioning. These informants will typically comprise parents, teachers, and the child but may also include others, such as siblings, extended family members, pediatricians, clinicians, coaches, and guidance counselors. Although a child's peers can provide valuable information, confidentiality issues typically preclude them as informants in clinical practice. Given that it is obviously easier and more time efficient to gather assessment data from a single source judged to know the child best, why is it so important for clinicians to gather information from multiple informants?

First, any single source may be subject to *bias*, compromising the accuracy of the information he or she provides. For example, children tend to underreport their problems and impairments, particularly with respect to externalizing behavior (Fischer, Barkley, Fletcher, & Smallish, 1993; Hoza, Pelham, Dobbs,

Owens, & Pillow, 2002). Indeed, very few youth would be assigned a label of ADHD if diagnoses were based solely on children's self-report. Although mothers are generally assumed to know the child best, relying only on maternal report has been shown to lead to both under-identification (Maniadaki, Sonuga-Barke, Kakouros, & Karaba, 2007) and over-identification (Gimpel & Kuhn, 2000) of ADHD. Parental reports may be skewed by numerous factors, including the parent's level of stress and frustration with the child, her current mood state, or, in some cases, an agenda to obtain a diagnosis of ADHD in order to secure educational accommodations or other services (Barkley, 2006; Hinshaw & Scheffler, 2013). Similarly, a teacher might be motivated to inflate her report of symptoms in order to obtain assistance managing the child or to minimize problems in order to avoid scrutiny of her classroom.

Second, no single source is *comprehensive*; no one person is privy to all of the information about a child relevant to assigning a diagnosis of ADHD. Different informants vary in the nature and extent of their exposure to a given child, in part due to the different settings in which they interact with her. Moreover, different sources are typically best positioned to provide particular types of information. For example, parents are typically the best sources for information on the child's history whereas teachers are usually better informants with respect to a child's academic (and, in some cases, social) functioning. Teachers' familiarity with children of a given age may make them the best judges as to whether a child's behavior is developmentally deviant. Although parents and teachers typically provide more accurate accounts of a child's disruptive, noncompliant, and other externalizing behaviors, children's self-report may be a better source of information on internalizing problems, such as depression and anxiety (Achenbach, McConaughy, & Howell, 1987; Barkley, 2006; Grills & Ollendick, 2002; Hinshaw, 1994; Hinshaw, Han, Erhardt, & Huber, 1992; Kolko & Kazdin, 1993). Thus, self-report may be the only way to access certain symptoms (e.g., subjective as opposed to overt restlessness in a teenager) or relevant clinical phenomena (e.g., inattention due to anxiety as opposed to ADHD).

Third, obtaining reports from people who see the child in different contexts can assist in establishing *pervasiveness*, that is, the presence of ADHD symptoms in at least two settings as is required for diagnosis. Equally important, the lack of such pervasiveness can be very instructive clinically. For example, if a child's symptoms are limited to a single setting (e.g., home but not school; a single classroom), the clinician needs to consider whether they may be the product of purely environmental factors (e.g., a stressful home environment or chaotic classroom) as opposed to the type of inherent problem within the child that is presumed with a diagnosis of ADHD. Identifying the factors that may be precipitating the

presenting problems in one setting and inhibiting them in another can be critical to both case conceptualization and treatment planning.

In short, gathering information from multiple sources about multiple settings will facilitate forming a more complete and accurate picture of the child's functioning. As discussed in the following chapter, these multiple informant reports are typically obtained via interviews and rating scales that often provide parallel versions for teachers, parents, and, in some cases, children as well.

SPECIAL TOPIC: DISCREPANT REPORTS

An important issue for clinicians to be aware of when gathering information from multiple sources is that these informants frequently provide discrepant information regarding the child. For instance, a child's report that he has plenty of friends and no problems at school might differ significantly from parent and teacher accounts of poor social and academic functioning. A teacher may paint the picture of a "terror" in the classroom whereas the child's mother describes few behavioral problems at home. A mother's complaint of frequent disobedience may contrast with the father's description of adequate compliance. The difficulties a homeroom teacher reports with remaining seated and paying attention may be largely absent from the descriptions provided by the child's English teacher. Indeed, numerous studies have documented typically low agreement across reports on a given child from parents and teachers (Achenbach et al., 1987; Grills & Ollendick, 2002; Kooij, Boonstra, Swinkels, & Bekker, 2008; Pelham et al., 2005; Vaughn, Riccio, Hynd, & Hall, 1997; Wolraich et al., 2004), with agreement between mothers and fathers being slightly higher but still generally low (Barkley, 2006). Furthermore, parent and teacher reports rarely agree with self-report information provided by the child (Hudziak, Achenbach, Althoff, & Pine, 2007; Verhulst & van der Ende, 1992).

Beyond expecting frequent disagreement across sources, how should clinicians try to resolve such discrepancies when confronted with them? The specific reasons for these inconsistencies will vary across cases but certain possibilities should be considered. First, whether conscious or not, might some informants be biased such that the information they provide should be regarded as less credible? For instance, a child's report of plentiful friendships might be seen as an effort to save face and assigned less weight amid parent and teacher descriptions of significant problems making and keeping friends. Second, might the worldviews, attitudes, frames of reference, and/or tolerance levels of different informants lead them to perceive and describe the same behavior differently? Thus, the same level of disruption and aggressiveness regarded as problematic by a primary caretaking mother may be perceived as reflecting "typical boy behavior" by a less involved father. Finally, the very real possibility that discrepant reports reflect genuine differences in the child's behavior across settings and persons must be considered. A child might truly be more compliant with Dad than Mom or more inattentive when sitting in the classroom than when engaged in self-directed activities at home.

(continued)

(Continued)

Remember, situational variability is a hallmark of ADHD and different environments frequently result in markedly different levels of symptom expression. In such cases, discrepant data should not lead the clinician to view one or more informants as invalid but rather to view the inconsistency as reflecting important clinical information related to the factors impacting the child's functioning in different contexts (e.g., type of demands being made, degree of stimulation, timing and nature of behavioral consequences, quality of relationships with relevant adults). Clinical judgment based on the full range of assessment data collected and on the knowledge that accrues about sources over the course of an evaluation may help to identify which of the previously mentioned possibilities explains disagreements across sources. However, clinicians should also be willing to clarify the bases for these discrepancies by further questioning sources regarding areas of disagreement and seeking to better understand the worldviews and mindsets of those providing information (Swanson, Wigal, & Lakes, 2009). (See Chapter 5 for additional suggestions about how to handle discrepant data.)

Multiple Methods

In addition to being multi-informant and multisetting, ADHD evaluations should also be multimodal, in the sense of employing a variety of assessment procedures and methods (as discussed in the next chapter, these typically include interviews, questionnaires, rating scales, review of records, observations, and cognitive testing). The reasons for using multiple methods generally parallel those discussed previously for relying on multiple informants. No given assessment method is perfectly reliable or valid and different methods yield different types of information. Thus, interviews might provide the best means of thoroughly evaluating the diagnostic criteria for ADHD and other disorders. The use of well-normed rating scales may be better for establishing deviance than a parent, teacher, or child interview. Observation of how a mother and child interact may yield information about parenting style and the quality of their attachment that might be difficult to obtain through other methods. School visits can elucidate factors impacting the child's functioning (e.g., overcrowding; poor classroom management) that otherwise might have gone undetected. Cognitive and academic testing are excellent for identifying a child's level of intellectual and academic functioning but are not as well suited to assessing ADHD symptoms. As noted earlier for informants, the use of multiple methods is likely to yield a more accurate and comprehensive picture of the child than would emerge from *single-method* assessments.

A final point regarding the need to rely on multiple informants and methods when assessing for ADHD pertains to a critical theme highlighted throughout this book: There is no single gold standard for diagnosing ADHD; no test or method can, by itself, conclusively diagnosis the disorder. Although the use of imaging

techniques has been invaluable in research on ADHD, the use of brain scans to diagnose ADHD remains a distant possibility rather than a current reality (Hinshaw & Scheffler, 2013). Unlike an X-ray to diagnose a broken bone or a biopsy to detect cancer, there is simply no objective test for ADHD (or, for that matter, for any form of psychopathology). This means that diagnosing ADHD, rather than being a matter of certainty, is a judgment call. Because any particular informant or assessment method is inherently limited and imperfect, the more data sources we bring to bear on these clinical judgments and the greater the corroboration among these sources, the more confident we can be in determining that a given youngster does or does not have ADHD.

DON'T FORGET

Gather multiple sources of data—from multiple informants, about multiple settings, and using multiple methods. This approach is likely to produce the most accurate diagnoses and the best treatment recommendations.

Integrate Categorical and Dimensional Approaches

There are two broad approaches to describing emotional and behavioral problems: categorical and dimensional (see “Overarching Principles” in Chapter 1; see also Mash & Hunsley, 2007). In the *categorical* approach, the problems that individuals experience are organized into diagnostic categories or disorders. People are assigned to a particular category (i.e., diagnosed with a disorder) on the basis of whether they meet specified criteria. Categorical approaches entail an *either-or* proposition: Either a person has a disorder (belongs in a category) or he does not. This approach is associated with the medical model and exemplified by the DSM classification system (where diagnostic categories were historically “rationally derived,” meaning they were identified largely on the basis of consensus expert opinions). When using a structured or semi-structured interview to determine what diagnoses are likely to apply to a child, one is using a categorical measure.

DON'T FORGET

Categorical approaches involve making absolute, yes/no decisions. Dimensional approaches reflect relative decisions; where a person falls along a continuum.

By their very nature, categorical approaches tend to suggest that individuals diagnosed with a disorder are qualitatively different from those without the diagnosis. They also tend to imply a certain degree of “sameness” (or homogeneity) among people assigned to a given category. Both of these propositions are

problematic. First, the differences between those with and without the disorder are usually more quantitative (a matter of degree) than qualitative (an essential difference or difference in kind). Youngsters who fall just short of meeting the diagnostic criteria for ADHD do not differ in fundamental ways from those who barely surpass diagnostic thresholds; they merely exhibit fewer features of ADHD. Second, there is tremendous variability (or heterogeneity) among youth who happen to receive the same diagnosis. Children who share the ADHD label differ from one another in many respects, including the type and severity of symptoms, associated features, comorbidities, and impairments. Additionally, the dichotomous nature of categorical diagnoses and the fixed criteria sets generally used to define them make them poorly suited to accommodate how the expression of a disorder is affected by development and gender (Hudziak et al., 2007). Thus, categorical approaches fail to adequately account for the ways in which ADHD symptoms change over time or how the base-rates of these symptoms in the general population differ by age group and gender.³

The *dimensional* approach addresses these shortcomings of categorical approaches. From this perspective, problems are described as lying along a relative continuum (ranging from low to high) rather than in terms of absolute categories. Implicit in the dimensional approach is the idea that it is challenging to draw lines between normality and pathology and that any distinct threshold between the two will inevitably be somewhat arbitrary. The clinical measures that best represent this approach are rating scales.

Rather than focusing on clinically derived categories of disorder, the dimensional approach assumes that there are a number of continuous traits or dimensions of behavior (e.g., anxious/depressed, attention problems, hyperactivity/impulsivity, aggressive behaviors, rule-breaking behaviors, social problems, somatic problems) (Achenbach & Rescorla, 2001). These dimensions (or factors) are typically derived not through the opinions of experts or clinical consensus, but rather empirically through the use of multivariate statistical methods that reveal what behaviors and symptoms tend to covary or cluster together (Mash & Hunsley, 2007). All children are assumed to possess the behaviors that comprise these dimensions to varying degrees. Thus, when evaluating a child from a dimensional rather than a categorical perspective, one is asking not whether she

³ As noted in Chapter 2, the DSM-5 makes a modest accommodation to age-related changes by lowering the diagnostic threshold for those over 17 years of age but fails to accommodate gender differences (as the same symptom threshold applies to both boys and girls).

belongs in a particular category but rather where she falls along a continuum.⁴ Thus, in contrast to categorical measures, dimensional measures assume that the important differences between children are quantitative (a matter of degree) rather than qualitative. Consequently, dimensional measures produce scores reflecting the degree to which a given child shows particular types of problems. Because they measure quantitative differences, dimensional measures lend themselves to data collection involving large groups of children who differ in a variety of ways (e.g., age, gender, ethnicity, geography). These normative data enable dimensional measures to encompass how ADHD differs across age and gender in ways that a categorical framework cannot. Moreover, because dimensional measures can yield a profile of the degree to which a child manifests features of a wide range of problems, they shed light on severity and provide a broader, richer picture of the child than do categorical measures.

For many years, there have been calls to incorporate a more dimensional approach into the DSM classification system. In fact, during the development of the DSM-5, many advocated for the incorporation of a dimensional approach (Hudziak et al., 2007; Regier, 2007; Swanson et al., 2009) with some contending that dimensional scales should accompany each categorical diagnosis (Kraemer, 2007). This suggestion is particularly relevant for ADHD, in that dimensional measures appear to better reflect the true nature of a disorder defined by features that naturally vary along a range in the population. The developers of the DSM-5 relied on well-established dimensions of psychopathology (viz., internalizing and externalizing) to reorganize how disorders are grouped within the manual (American Psychiatric Association, 2013). They also incorporated a simple dimensional component to the diagnosis of ADHD through the addition of a severity specifier (see Chapter 2).

Thus, it is important that practitioners assessing for ADHD supplement the categorical DSM approach with a dimensional approach. This can be accomplished by using standardized, well-normed behavior rating scales (discussed in Chapter 4). Ideally, the use of both categorical and dimensional approaches will complement one another. The information provided by dimensional rating scales can help the clinician screen for a wide variety of potential problems and can inform categorical diagnostic decisions. For example, although interview data may suggest that a child meets symptomatic criteria for ADHD,

⁴ In practice, one typically evaluates where a child falls along multiple continuums, including those that correspond to areas of clinical interest (e.g., ADHD) and those that describe her functioning more broadly (e.g., internalizing features, externalizing features, somatic symptoms, academic functioning).

dimensional rating scale results might indicate that those symptoms are not sufficiently deviant from age- and gender-based expectations to merit a diagnosis. Indeed, there are research findings to suggest that the sensitivity (i.e., detecting true cases) and specificity (i.e., detecting non-cases) of categorical diagnoses of ADHD are improved when dimensional measures are included as part of the assessment process (Swanson et al., 2009). Many professionals routinely incorporate dimensional measures into their ADHD evaluations and value the additional information they provide. The point here is simply to emphasize that the use of such measures is so much a part of recognized standards of practice for diagnosing ADHD (American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues, 2007) that no assessment for the disorder should be without them.

Currently, there is a strong rationale for those evaluating ADHD to employ both categorical and dimensional approaches. A categorical approach is necessitated not only by tradition but also by practical realities (e.g., insurance reimbursement, charting requirements, communication with colleagues, treatment planning) that require clinicians to make dichotomous yes-or-no decisions regarding diagnosis and treatment. Additionally, much of our scientific knowledge regarding childhood psychopathology is tied to DSM categories,⁵ meaning that their ongoing use is necessary to avail ourselves of that evidence base in order to inform a variety of clinical decisions (e.g., diagnosis, prognostic judgments, treatment planning). As noted earlier, the addition of dimensional measures to ADHD assessments improves the quality of categorical diagnoses and also provides more complete information on the child (with respect to the severity of symptoms, determinations of deviance, a profile of the patterning of symptoms across a range of dimensions) that can inform case conceptualization and treatment planning. Furthermore, quantitative measures such as rating scales are far more conducive to monitoring the effects of treatment (e.g., *Did treatment improve this child's academic and social functioning? To what degree, if any, did it reduce the inattentive, hyperactive/impulsive, rule-breaking, and aggressive symptoms that were present at the time of the initial evaluation?*) than are categorical diagnoses (e.g., *Does this child continue to meet criteria for a diagnosis of ADHD?*).

⁵ These close ties between DSM categories and our scientific database may be loosening in the future. The National Institute of Mental Health (NIMH) has announced plans to gradually shift funding toward newly developed Research Domain Criteria (RDoC) rather than DSM categories (Winerman, 2013).

Be Sensitive to Developmental Factors

The fact that children and adolescents are subject to rapid and often uneven developmental change is a key factor differentiating the assessment of youth from adults. A number of developmental considerations are relevant to the assessment of ADHD. Fairly straightforward is the fact that proper diagnosis of the disorder requires that the assessment include a careful developmental history. In addition to capturing a detailed “snapshot” of the child at present, assessments for ADHD also need to formulate a long-range picture of her functioning over time. Whether conducted via interview or questionnaire (see Chapter 4), a developmental history is necessary to establish the age of onset and course of the disorder. If, for example, this history revealed that the symptoms of ADHD did not emerge until age 14, had persisted for only three months, or were episodic in nature (emerging, perhaps, in the wake of stressful life events but abating when acute stressors resolved), then a diagnosis of ADHD would not be warranted. Developmental histories are also useful for identifying risk and protective factors along with areas of strength (all of which are relevant to treatment planning).

DON'T FORGET

A careful developmental history is an essential part of ADHD assessment. Your knowledge of child development sheds light on the onset, persistence, and course of symptoms.

The fact that many typically developing, non-disordered children exhibit features of ADHD to some degree means that determinations of deviance are essential to the diagnosis. Thus, the issue is not solely whether a child is active, impulsive, and inattentive (as many children will fit this description) but whether he or she displays these behaviors to a degree that is substantially deviant from what is typical for that child's age and gender. This is reflected in the DSM-5 requirement that ADHD symptoms are present “to a degree that is inconsistent with developmental level” (American Psychiatric Association, 2013, p. 59). Such judgments regarding deviance are complicated by the fact that the behaviors that comprise ADHD vary widely among children in the general population. This variability can make it difficult to discern whether ADHD-like behaviors reflect a disorder or simply the extreme end of the range of normal behavior (DuPaul & Kern, 2011). One reason why it is often advisable to defer diagnosing ADHD in children under 4 years old is the difficulty distinguishing true ADHD symptoms from typical behaviors among children in that age group.

How should clinicians assessing for ADHD make these judgments regarding deviance? Certainly an understanding of normal development is necessary to

inform decisions as to what is deviant. Additionally, when interviewing parents, teachers, and youngsters themselves, it is important not only to inquire about the common manifestations of inattentive and hyperactive/impulsive features but also to include developmental comparisons by asking the informant's opinion as to whether such features are present to a degree greater than what is typical for boys or girls of the same age. (Remember, however, to apply clinical judgment to your interpretation of the informant's opinion, as some laypeople have a limited or skewed awareness of what is "typical.") Finally, because they allow the results for any given child to be readily compared to what is typical for peers of the same age and gender, well-normed rating scales represent the most effective available tool for establishing that behaviors are present to a deviant degree (see Chapter 4 for a more detailed discussion).

Assessments for ADHD must also take into account the fact that behaviors related to attentional capacities, motor control, and self-regulation naturally change over time, both in typically developing youth and in those with ADHD. For example, the preschool population tends to display higher base-rates and a wider range of ADHD-like features than older children (complicating judgments regarding deviance). Furthermore, these behaviors (even at high levels) are often transient among preschoolers, improving naturally via the passage of time (Campbell, 1990; Palfrey, Levine, Walker, & Sullivan, 1985). Thus, there are children who display sufficiently severe and persistent (at least six months) symptoms of ADHD to meet DSM criteria for ADHD at 3 years old, but whose symptoms naturally improve to normative levels by age 5. Given that the emergence and remission of these "symptoms" appears to be a product of normal developmental factors, most would agree that the diagnosis of ADHD would be misapplied in such cases. Here is a fine example of how clinical judgment needs to be exercised in the application of DSM criteria. Despite meeting full diagnostic criteria, it might be prudent to label a preschooler as being "at risk for ADHD" (rather than immediately identifying him as having the disorder) and recommend that he be followed closely to determine if the symptoms persist and continue to interfere with important life activities (DuPaul & Kern, 2011). If impairing symptoms are found to continue at a severe level for a year or more, past the point where they might be attributable to a developmental transition (e.g., beginning preschool), adjusting to a life event (e.g., parental separation), or normal developmental variation, then formal diagnosis would likely be warranted as this persistence typically signifies a more durable course (Barkley, 2013; Hinshaw & Scheffler, 2013).

Even among children who clearly have ADHD, the expression of the disorder and its associated impairments change over time (see Chapter 1). Although

hyperactive/impulsive symptoms tend to appear first developmentally with inattentive features following within a few years (Hart, Lahey, Loeber, Applegate, & Frick, 1995), overt hyperactivity (e.g., leaving one's seat inappropriately) and behavioral impulsivity (e.g., grabbing materials from a peer) tend to decrease significantly from early childhood through the teenage years, with inattention declining only minimally with age (Willcutt, 2012). Although the current DSM-5 (American Psychiatric Association, 2013) is more sensitive to these developmental changes than its predecessors (including a lower symptom threshold beginning at age 17 and examples of how symptoms may manifest in adolescents), its overall description of ADHD remains slanted toward the expression of ADHD among school-aged children. Thus, clinicians evaluating adolescents for ADHD may need to go beyond the DSM-5 exemplars of core features in order to judge whether reported difficulties reflect fundamental problems with inattention and self-regulation such that they should be counted as symptoms.

Developmental factors impact not only the expression of ADHD symptoms but also the impairments they can produce. Thus, where professionals look for impairments should be guided in part by consideration of how developmental demands placed on youth change over time and how such demands are likely to intersect with the features of ADHD. For example, whereas academic difficulties may not be relevant for very young children with the disorder (given the typically low demands placed upon them in preschool settings), they often become more apparent after entry into elementary school, due to the increased demands to sit still, listen, attend, follow rules, and inhibit impulsive behavior. The transitions to middle and high school often intensify academic impairments (or reveal them in students who until then have been able to successfully compensate for their symptoms) as students must cope with increased demands to work independently, attend for longer periods of time, organize their academic materials, change classes, and coordinate short- and long-term homework assignments. The range of ADHD-related impairments expands in adolescents to include driving (speeding tickets, accidents), gambling, sexual behavior (unprotected sex, sexually transmitted diseases, unwanted pregnancies), and identity (poor self-confidence, low expectations for success) (Barkley, 2013).

Finally, clinicians must ensure that the procedures and measures they use are appropriate for the child's age and

DON'T FORGET

The expression of ADHD symptoms and associated impairments often changes as children grow older. When evaluating older children and adolescents, consider the essence of each DSM-5 symptom and cast a wider net in seeking evidence for both symptoms and impairments.

developmental level. Developmental factors can impact the informants relied upon. For example, to what extent should children be expected to be reliable and accurate reporters of their own behavior and internal states? Limitations related to receptive and expressive language and cognitive abilities (including self-awareness) may render some self-reports of children below the ages of 9–12 to be unreliable (Barkley, 2006). Indeed, some research findings and expert opinions call into question whether children’s self-report of ADHD symptoms adds any incremental validity to the diagnosis of the disorder, though their self-reports may have greater value with respect to assessing other problems, such as anxiety and depression (Pelham et al., 2005; Smith et al., 2007). With respect to teacher reports, it makes good sense to obtain information from the primary teacher (whether through interview, rating scales, or both) for a child in elementary school. The situation becomes more complicated in middle and high school, however, as the child is likely to have multiple teachers who know her to different degrees and in different contexts. Although expedience might suggest choosing a single teacher presumed to know the student best, collecting data from multiple teachers will likely enhance the quality of your assessment.

Of course, it is incumbent upon the professional to ensure that any interviews, rating scales, and tests administered to a client were designed for use with youngsters of his age. Reference to manuals and normative data should be useful in this regard. Those evaluating for ADHD also need to adjust the language they use and their testing procedures to the child’s developmental level. For example, a younger child may require longer or more frequent breaks during testing, or testing might be completed over several visits rather than in a long, single session that overwhelms the child’s capacities and compromises the validity of the data collected (McKinney & Morse, 2012).

CAUTION

Use assessment techniques and tools that are developmentally appropriate.

Consider Culture and Other Contextual Factors

Our traditional approaches to assessment are very much oriented around evaluating the individual child (e.g., symptoms, history, neuropsychological status, academic performance). However, part of adhering to the guideline of being comprehensive in our evaluations is extending beyond this individual focus to also assess the contextual factors that have such an enormous impact on children (Mash & Dozois, 2003). Simply put, it is not possible to fully understand a child without understanding the broader contexts in which she functions. These include the

family, school, peer, community, and cultural contexts that are reciprocally interacting with the developing child and continually impacting her functioning (Cicchetti & Cohen, 2006). Of course, each of these broad contexts can comprise multiple relevant subcontexts (e.g., different classrooms) and a host of variables that merit attention. For example, factors within the family system relevant to child evaluations include the overall emotional climate in the home, the quality of relationships among members (marital/couple, parent–child, siblings), parenting practices, psychiatric problems affecting caregivers, parental stress, and the level of connection to or isolation from social and community supports. Interviews, observations, and specialized rating scales are all useful for gathering this type of systemic information (see McLeod, Jensen-Doss, & Ollendick, 2013, for a more detailed discussion of systemic assessment of children).

CAUTION

You cannot accurately diagnose a child without considering the possible contributions of contextual factors.

In terms of diagnosing ADHD, assessing such contexts is relevant to evaluating impairment and pervasiveness. It is also critical to the goal of excluding alternative explanations for ADHD symptoms, since contextual factors can sometimes produce inattentive, highly active, and/or impulsive behaviors in children who do not have ADHD (DuPaul & Kern, 2011). For example, your assessment of a child's home and school contexts may reveal both settings to be fairly chaotic with respect to lack of clear expectations for the child's behavior, the absence of effective child management strategies, and abundant models of dysregulated behavior. It may very well be these environmental variables rather than ADHD that are eliciting poorly controlled, inattentive, distractible, overactive, and disruptive behaviors. In such cases, a narrow focus on "symptoms" in the individual child can lead to a misdiagnosis of ADHD and a misguided course of treatment rather systemic interventions to assist parents and teachers in making helpful changes to the home and school environments. Similarly, stressful or even traumatic life events (e.g., change in residence, death of a significant other, maltreatment, ongoing exposure to parental conflict) can lead to temporary or sustained problems with behavior control, concentration, poor task completion, and other features that mimic ADHD. Once again, failure to properly consider such contextual factors can result in both children being mislabeled with ADHD and interventions that fail to address the actual causes of the child's behavioral difficulties.

In addition to evaluating contextual factors as possible alternative explanations for ADHD symptoms, their role in moderating the expression of ADHD must also be considered. For example, the demands placed on a child (*Do they call for*

self-regulation?), the nature of tasks (*Are they boring?*), and the contingencies in effect (*Are the consequences for performance clear, motivating, timely, and consistently applied?*) can all impact the expression of ADHD symptoms. Assessing such variables not only will provide the professional with a richer understanding of the child's disorder but will help to inform treatment planning (e.g., determining that behavioral parent training and classroom management interventions are likely to reduce the expression and impact of ADHD symptoms). Additionally, consideration of contextual factors is likely to enhance clinical judgments regarding prognosis and which interventions are indicated. For example, identifying that a preadolescent is immersed in environments populated by antisocial peers may raise concerns about his risk for conduct disorder and substance abuse, spurring

intensified efforts to promote contact with more appropriately behaving age-mates. Gathering information about the child's school and community may also unearth resources (e.g., schoolwide positive-behavior support programs, wraparound programs, specialized schools or summer camps for children with ADHD) that prove to be invaluable.

DON'T FORGET

Contextual factors can make a child look like he has ADHD even when he does not. Contextual factors can also impact the expression of ADHD symptoms. It is essential to consider context when you evaluate a child.

Culture is among the most important contextual factors to consider when assessing youth for ADHD. ADHD is not a culturally bound construct in that it exists and appears to be fundamentally similar across countries and ethnic groups (Willcutt et al., 2012); however, ethnocultural factors are nonetheless important to its development, detection, and treatment. Ethnic and economic disparities exist with respect to who seeks an evaluation, who has access to services, and, in all likelihood, the quality of the services received (Agency for Healthcare Quality and Research, 2011; Berger-Jenkins, McKay, Newcorn, Bannon, & Laraque, 2012; Bussing, Faye, Mills, & Garvan, 2007; Hervey-Jumper, Douyon, Falcone, & Franco, 2008). Youngsters from certain ethnocultural groups may be at increased risk for some etiologic risk factors for ADHD (e.g., low birth weight, lead exposure) (Miller, Nigg, & Miller, 2009; Reid, 1995). They may also be more likely to experience environmental circumstances that can exacerbate symptoms of ADHD or lead to behaviors that mimic ADHD, making efforts to rule out alternative explanations for such symptoms more challenging (Hervey-Jumper et al., 2008). Indeed, the accurate detection of ADHD has been found to differ among ethnic groups (Zwirs, Burger, Buitelaar, & Schulpen, 2006).

The growing cultural diversity among North American youth (Bussing & Gary, 2012) will continue to be reflected among those who present for ADHD

evaluations. Thus, the increasingly recognized need for culturally sensitive and competent assessment practices (Achenbach & Rescorla, 2006; Geisinger & McCormick, 2012; Mash & Hunsley, 2007) is as important to the proper diagnosis of ADHD as to any childhood disorder. Failure to engage in such practices can result in over- or under-diagnosis of ADHD (Reid, 1995).

Professionals assessing for ADHD need to recognize that cultural factors (e.g., values, beliefs, practices) can directly affect behavior (Mash & Dozois, 2003). If behaviors that can be suggestive of ADHD (e.g., interrupting, calling out in groups, moving physically close to others) are actually products of culturally influenced socialization practices rather than an inherent self-regulatory deficit, then they should not be counted as ADHD symptoms. It is equally important for examiners to appreciate that the perceptions we are accessing with many of our assessment methods (e.g., interviews, rating scales) are affected by cultural factors. Culturally based beliefs and values will influence an informant's perception of what is normal or expected, deviant or pathological, desirable and important; it will alter the meanings attached to behaviors and the degree to which they are tolerated (Arcia & Fernández, 2003; Miller et al., 2009; Reid, 1995). Thus, parents, teachers, and clinicians from different cultures may view, describe, evaluate, and rate the same behavior quite differently (Miller et al., 2009; Reid, Casat, Norton, Anastopoulos, & Temple, 2001). For example, a teacher from an eastern culture that places great importance on self-control and compliance might be highly sensitized to instances of impulsive, disobedient behavior and therefore rate them more highly than her counterparts from western cultures. A parent raising his child in a dangerous neighborhood, where the need to defend oneself is viewed as paramount, may describe aggression as less problematic than would parents from a safer community. Additionally, the ethnic or cultural background of the youngster being evaluated may bias the reports of others regarding his behavior (Lee & Humphreys, 2011). Thus, reports and ratings of ADHD symptoms will often be influenced by the cultural background of both the informant and the child being evaluated (American Psychiatric Association, 2013).

What are some of the ways that professionals evaluating youth for ADHD can incorporate more culturally sensitive practices into their assessments? Adequate coverage of such practices is beyond the scope of this book, although a few critical points pertaining to culturally sensitive assessment are highlighted below. A number of recent, detailed discussions of this topic are available (see Christensen, Emde, & Fleming, 2004; Geisinger & McCormick, 2012; Groth-Marnat, 2009; Ortiz, 2008; Ortiz, Flanagan, & Dynda, 2008; Reynolds & Suzuki, 2012; Rhodes, Ochoa, & Ortiz, 2005).

An initial consideration when working with children and families from a different ethnocultural background is that the importance of rapport building is magnified (Hervey-Jumper et al., 2008). Endeavor to create an environment where parents and children feel at ease, free to seek or provide clarification without fear of judgment, and comfortable providing unvarnished responses to interview questions and scale items. Asking diplomatic but direct questions at the outset of the evaluation regarding beliefs about mental health problems in general, ADHD in particular, and the decision to pursue services may help you to identify and appropriately respond to misunderstandings (e.g., excessive sugar intake causes ADHD; brain scans can diagnose ADHD) and potential barriers to obtaining information needed for a proper assessment (e.g., sense of shame associated with seeking psychological services).

It is also critical to consider and attend to potential language barriers. The ethics code governing the practice of psychology prescribes that assessment methods are appropriate to the language competence and preference of the individual being evaluated (American Psychological Association, 2010). This means that examiners must first determine the language competencies and preferences among any intended informants. Ideally, interviews, questionnaires, tests, and scales are provided in the respondent's native or preferred language through translated versions or bilingual assessors (Reid, 1995). When such resources are not available, qualified interpreters may be necessary. Professionals also need to be sensitive to the fact that the meaning ascribed by a respondent to interview questions and rating scale items may differ from what was intended. For instance, the term *fidgets* (whether translated or presented in English to a non-native English speaker) may have a different connotation for a Latina respondent than the impatient, restless movement typically conveyed by its use (Reid, 1995). Examiners need to sensitively inquire about a respondent's understanding of key terms so as to ensure a close match between the intended and ascribed meanings.

Measures that are specifically developed and well-validated for use with particular cultural groups may one day be widely available (Lee & Humphreys, 2011). For example, some preliminary support has been found for a culturally specific measure for African-American children (Bidaut-Russell, Valla, Thomas, Begeron, & Lawson, 1998). However, more such measures need to be developed and evaluated for their reliability and validity before they become viable options for clinical practice (Miller et al., 2009). In the meantime, professionals need to consider how best to use existing measures in culturally sensitive ways.

Remember that members of some groups may not be familiar with many conventions typically embedded in our assessment practices. For example, certain groups (e.g., unacculturated immigrant families) may be unfamiliar with the

Likert-type ratings (e.g., 0 = “Not true at all” through 3 = “Very much true”) commonly employed in scales and some interviews. Therefore, extra efforts might be needed to orient informants as to how to use the relevant response options.

As referenced earlier, normative comparisons are essential in determining whether ADHD symptoms are present to an atypical degree. When evaluating members of minority groups, it is important to consider the child’s ethnocultural background. When features of ADHD are endorsed, ask whether the behaviors are greater than expected not only for that child’s age and gender but also for his ethnocultural group. Only behaviors that appear to be deviant relative to all of these factors should be regarded as symptoms for the purpose of diagnosis (Barkley, 2006).

Age- and gender-based normative comparisons are provided for many of the rating scales and psychological tests commonly used in ADHD assessments (see Chapter 4). It is currently unclear whether it might be best for such measures to have culturally specific norms and to specify unique clinical thresholds (*cut-points*) for children of different ethnic or cultural backgrounds; thus, these represent important areas for future study (Miller et al., 2009; Nigg, 2013). However, it is clear that valid comparisons require that the standardization groups used to develop norms should include individuals of similar ethnocultural background to the child being evaluated (Achenbach & Rescorla, 2001; Reid, 1995). In other words, if a measure was developed with data from a group of white, middle-class children born in the United States, it may not be valid or reliable for use with youngsters from other demographic groups. The application of norms based only on majority-group members (typically Caucasian children in the United States) may result in the over- or under-identification of minority-group children.

Thus, it is important for those conducting ADHD assessments to evaluate the measures they are considering using with respect to their cross-cultural applicability. This evaluation should address whether the measure has adequate (1) norms and (2) psychometric properties (reliability, validity) with respect to members of the ethnic and cultural groups to be assessed (Achenbach, 1991; American Psychological Association, 2010; Reid, 1995). Consulting respected reviews of psychological measures (e.g., Spies, Carlson, & Geisinger, 2010) as well as the user and technical manuals that accompany tests and scales can be helpful. Although the representation of culturally diverse groups in the normative samples for various measures and the evaluation of psychometrics specific to those groups have been improving over recent decades, the cultural appropriateness of measures relevant to the assessment of ADHD continues to vary widely. When measures are found

to be lacking in this regard and no better alternatives exist, their results should be interpreted with greater-than-usual caution and statements noting their limitations should accompany their use (American Psychological Association, 2010). Additionally, such circumstances might lead examiners to rely more heavily on other sources of data or to seek out a greater degree of corroboration across sources of data in order to support diagnostic or other clinical conclusions.

DON'T FORGET

Culture impacts the development, diagnosis, and treatment of ADHD. Culture can affect a child's behavior as well as an informant's beliefs, values, and perceptions. Be aware of possible language barriers and differences in terms/idioms. Consider whether your measures are appropriate for use given a child's ethnocultural background. Use culturally sensitive and competent assessment practices to avoid misdiagnosis.

Identify Strengths, Assets, and Competencies

Just as our assessment practices tend to focus disproportionately on the individual rather than on the contexts that may influence him, they also tend to be biased toward signs of pathology and impairment rather than strengths and assets. This is understandable, in that children are generally referred because they are struggling. Nonetheless, a thorough cataloging or diagnosis of a child's problems will fall well short of illuminating all that is important to understanding her and addressing her difficulties.

When evaluating a child for ADHD (or any disorder), be sure to assess and report on strengths, assets, and competencies in the child and his environment (e.g., family, school, community). Observations and some rating scales may be useful in this regard. Parent, teacher, and child interviews should also include specific questions about strengths. Although far from an exhaustive list, such strengths and assets may relate to intellectual and academic skills (e.g., high IQ, strong reading abilities, good communication skills), temperamental variables (e.g., positive affectivity, likeability, easygoing nature), advanced skills in specific areas (e.g., athletic, musical, computing), psychological factors (e.g., self-efficacy beliefs, coping skills), peer relations (e.g., durable close friendships), parenting variables (e.g., competent, warm, nurturing, authoritative), the family system (e.g., warm emotional climate, secure attachments to caregivers, healthy marital/couple relationship), social supports (e.g., a close network of neighbors and

extended family members), and the school environment (e.g., high-quality instruction, small class size, strong support services).

Consideration of strengths, assets, and competencies is crucial to making judgments regarding prognosis. Whether presenting problems are likely to improve, remain the same, worsen, or evolve into (or be accompanied by) other problems, is determined in part by a complex interplay of risk and protective factors (Hinshaw, 2013). Many of the strengths noted earlier can represent protective factors that contribute to resilience by mitigating the impact of certain risks (Masten, Burt, & Coatsworth, 2006). For instance, high IQ may protect children from some of the adverse effects of socioeconomic adversity (Compas & Andreotti, 2013). The expression of a child's preexisting (biological) risk for a trait can be moderated by his assets. For example, a predisposition toward aggression is less likely to be expressed in the context of a loving home, safe neighborhood, and well-functioning school than in an environment marked by coercive family interactions, peeling paint, access to weapons, and exposure to family and community violence.

Identifying assets and strengths is also important to treatment planning. No one advances very far in life focusing exclusively on his weaknesses. Rather, assets in the individual child and/or his environment need to be harnessed as part of efforts to reduce the level and impact of symptoms and to promote healthy adjustment. Such efforts can be as varied as providing opportunities for a child with ADHD to nurture her musical talent or drawing upon the willingness of a gifted teacher to be a source of tangible (e.g., organization) and emotional support throughout the school day.

DON'T FORGET

Conduct a well-rounded ADHD assessment. Consider strengths, assets, and competencies of the child and her environment (rather than focusing solely on deficits).

Adopt a Hypothesis-Testing Approach

The final guideline to be considered here relates to our mindsets when conducting assessments. Assessment requires that we process information coming from different sources over time in order to inform clinical decisions (e.g., regarding diagnosis, conceptualization, prognosis, treatment) (Carter, Marakovitz, & Sparrow, 2006). As such, it is subject to a variety of biases in how we process the information gathered (Abramson, 1988). Notable among these is the tendency to form diagnostic impressions early in the process and to then fall prey to a

confirmatory bias wherein we actively look for and prioritize information that confirms those impressions while neglecting or discounting data that might contradict them. For example, many of us may first think of a child as being likely to have ADHD as early as an intake phone call, when difficulties with concentration, restlessness, poor task completion, and underachievement are reported. Although natural, this process can set in motion a flawed evaluation process that largely predetermines the outcome of a diagnosis of ADHD (a phenomenon that the late psychiatrist and ADHD expert Dennis Cantwell referred to as “premature hardening of the categories”).

As clinicians, we need to avoid this trap of forming diagnostic impressions prematurely and then selectively looking for information that supports them while failing to consider or actively pursue alternative explanations for the presenting

CAUTION

Be conscious of your own biases, particularly when approaching diagnosis. Test your diagnostic hypotheses rather than relying upon your initial impressions. Avoid “premature hardening of the categories.”

difficulties. This is particularly important for a disorder like ADHD because it is relatively common (and thus comes to mind readily) and the features comprising it can relate to other disorders or emerge from a variety of psychosocial circumstances that need to be actively ruled out.

Being aware of this confirmatory bias in the evaluation of ADHD is an important first step in counteracting it. Also useful is to adopt the mindset that assessment involves an ongoing, flexible process of hypothesis testing (Mash & Hunsley, 2007). Label any impression regarding diagnoses, contributing factors, and possible outcomes as a hypothesis (e.g., “ADHD appears to be the most likely possibility based on the information gathered thus far”) and then actively generate alternative hypotheses that need to be explored (e.g., “Her frequent dysphoria and irritability suggest that a mood disorder might either account for symptoms that resemble ADHD or be present as a comorbid condition”). Consider what additional questions and measures are indicated to rule in and rule out the various hypotheses generated. As more information is gathered, consider which of the hypotheses is best supported by a preponderance of the data or whether additional hypotheses are warranted. By adopting this hypothesis-testing approach and deferring clinical conclusions until all of the relevant assessment information has been obtained and considered, the risk of mislabeling a child with ADHD, of failing to identify other relevant conditions, and of recommending misguided interventions are all substantially reduced.

SUMMARY

ADHD is a diagnosis of inclusion *and* exclusion. It is not sufficient to review the DSM criteria to *rule in* ADHD; you must also *rule out* other possibilities that could account for the child's presentation. Considerations for exclusion are other DSM diagnoses, medical issues, psychosocial variables, developmental concerns, and cultural factors.

A number of guiding principles for child assessment bear review:

- *Be comprehensive*; look beyond the “calling card” for referral and ask about other possible concerns, assessing a broad range of possibilities.
- Gather information from *multiple informants* about *multiple settings* using *multiple assessment modalities*. This approach minimizes errors related to bias, increases the comprehensiveness of your evaluation, and helps establish pervasiveness of symptoms and impairment.
- Approach ADHD with a blend of *categorical and dimensional* approaches. The DSM-5 is largely categorical in nature. Rating scales are a good way to incorporate relevant dimensional data, such as a child's functioning relative to age- and gender-based expectations. Combining these approaches will strengthen your assessment.
- Consider *developmental factors*. These help you identify age of onset, course, and deviance from expectations. A child's developmental level impacts how you proceed with evaluation and can suggest possible areas of impairment.
- Assess the presence and impact of *culture and other contextual factors*. The effects of such factors can mimic ADHD and can impact how ADHD symptoms are expressed. Establish that a child's presentation represents “a disorder within the child” rather than a reaction to her environment.
- Determine the child's *strengths, assets, and competencies*. These will help guide your prognostic judgments and treatment planning. Recognition of these positive features can also improve rapport with and compliance from the child and her parents.
- Be scientific; use a *hypothesis-testing* approach. Keep an open mind and do not draw conclusions before you gather adequate data. Beware of clinical and personal biases. Seek support for the presence of ADHD as well as actively challenging yourself with questions that might lead you to reject an ADHD diagnosis.

These goals and guiding principles clarify the “spirit of the law” underlying the DSM-5 criteria for ADHD diagnosis. In the next chapter we turn to a review of assessment modalities used to evaluate ADHD.

**TEST YOURSELF**

- 1. ADHD is a diagnosis of inclusion and exclusion.**
 - a. True
 - b. False
- 2. The DSM-5 criteria are necessary for early career psychologists and clinicians who do not see many children with ADHD. Experienced professionals who evaluate ADHD on a regular basis can diagnose ADHD shortly after meeting the child and need not rely on the DSM-5 criteria.**
 - a. True
 - b. False
- 3. Which of the following statements are true about diagnosing ADHD? (Mark all that apply.)**
 - a. One source of information is sufficient as long as he or she knows the child very well.
 - b. Every informant must endorse at least six symptoms of ADHD before you can consider a diagnosis.
 - c. If each of five informants describes two symptoms of ADHD, then you have reached the symptom threshold requirement.
 - d. As long as you prove behaviors are frequent, persistent, pervasive, and inconsistent with developmental level, they count as symptoms.
 - e. The impairment criterion can only be established through poor academic grades and/or test scores.
- 4. Which of the following are valid examples of impairment? (Mark all that apply.)**
 - a. A bright student (IQ > 130) is earning D's and F's on her report card.
 - b. A child is rejected, ignored, or bullied by classmates.
 - c. A child is repeatedly sent to the principal's office.
 - d. A high-schooler is kicked off the football team for consistent issues with forgetting his helmet and arriving late for practice.
 - e. A student earns A's and B's by working with tutors four days a week, spending every night on homework, and studying every weekend (to the exclusion of extracurricular and social activities).
- 5. Which of the following need to be considered as possible exclusions before diagnosing ADHD? (Mark all that apply.)**
 - a. Psychosocial factors (e.g., adverse life circumstances)
 - b. Developmental delays
 - c. Medical issues
 - d. Other psychiatric disorders

6. When you receive discrepant reports about a child, you should (mark all that apply):

- a. Clarify the discrepancies by talking with the informants.
- b. Conclude that the child has ADHD, since variability is a hallmark of the disorder.
- c. Consider possible explanations for differences in the reports.
- d. Determine which source is the least biased and discard the other data.
- e. Remember that it is common to see discrepancies among parent, teacher, and self-report data.

7. Collecting rating scales from multiple people about multiple settings satisfies the requirement to conduct a comprehensive evaluation.

- a. True
- b. False

8. Which of the following statements are true? (Mark all that apply.)

- a. A developmental history is necessary in an ADHD assessment.
- b. It is appropriate to use a one-size-fits-all model for ADHD; the child's age should not matter.
- c. Once you establish that symptoms were present before age 12, you do not need further information about the child's development.
- d. Preschool-aged children with short attention spans and high activity levels should be diagnosed with ADHD quickly so treatment can begin before they enter elementary school.
- e. Symptoms of hyperactivity and impulsivity generally increase as children grow older.

9. Mark all of the following statements that are true:

- a. Because ADHD occurs in all ethnic groups, the principles of culturally sensitive and competent practice do not apply.
- b. Contextual factors like strained family dynamics, inconsistent parenting practices, and social isolation can exacerbate symptoms of ADHD.
- c. Contextual factors like strained family dynamics, inconsistent parenting practices, and social isolation can produce behaviors that mimic ADHD.
- d. Culturally based beliefs and values can impact a child's behaviors and parent/teacher reports.
- e. When you evaluate contextual factors, you should identify possible assets as well as possible risks.

10. It is important to evaluate a child's strengths, assets, and competencies in addition to her areas of deficit.

- a. True
- b. False

11. It is acceptable for an ADHD evaluation to be oriented around confirming your initial impressions, so long as you have some experience with the disorder.

- a. True
- b. False

Answers: 1. a; 2. b; 3. None of the choices is true; 4. a, b, c, d, & e; 5. a, b, c, & d; 6. a, c, & e; 7. b; 8. a; 9. b, c, d, & e; 10. a; 11. b

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Four

COMPONENTS OF ADHD ASSESSMENT

Thus far we have covered important concepts for understanding ADHD, such as features, etiologies, prevalence, course, outcome, and age and gender variations (Chapter 1). We presented and explained criteria from the DSM-5 (Chapter 2). We explored primary goals of ADHD assessment and core principles that should be integrated into every ADHD evaluation (Chapter 3). In this chapter, we present the critical tools used in ADHD assessment and discuss considerations related to their sequencing (see Rapid References 4.1 and 4.2). The remaining two chapters of this book will explain how to put all these pieces together (Chapter 5) and show how they can be presented in clinical reports (Chapter 6).

Specific tests are mentioned as examples of each assessment component, but this chapter does not include an exhaustive review of all available tools. Rather, we have tried to describe pertinent factors to consider when selecting various assessment tools; this gives the reader a greater understanding of the underlying concepts and principles that she can apply when critically considering a new or revised tool. (For discussion of specific tests, please see other volumes in the Wiley Essentials of Psychological Assessment series as well as Barkley, 2006; Fabiano, 2011; Lee & Humphreys, 2011; Pelham, Fabiano, & Massetti, 2005; Spies, Carlson, & Geisinger, 2010.)

As you read this chapter, you will detect a repeated theme: No one tool can definitively diagnose (or rule out) ADHD. When the American Academy of Child and Adolescent Psychiatry established guidelines for the assessment of ADHD, they indicated that at a minimum, interviews and parent and teacher rating scales should be completed, with the addition of cognitive testing to help identify competing or comorbid conditions (Pliszka & AACAP Work Group on Quality Issues, 2007). Each component of ADHD assessment makes a unique contribution to the entire diagnostic picture; no component should be used in isolation. All results require interpretation

CAUTION

A diagnosis of ADHD cannot be based on results from a single test or informant. It is critical to obtain multiple types of information from multiple sources about multiple settings. Remember to include the three “multis” in every evaluation:

- Multi-modality (a.k.a., multi-method)
- Multi-reporter
- Multi-setting

by a qualified clinician before they are applied to clinical diagnosis or treatment of a person.

Our position, both clinically and academically, is that the two most critical components of an ADHD evaluation are developmental history and current presentation. These are both required for a solid diagnosis of ADHD. The tools described in this chapter are ways of obtaining this information, and include record review, interview, clinical observation,

and well-normed rating scales. Scores on tests do not define ADHD, but results from cognitive testing can inform differential diagnosis and guide effective treatment.

Rapid Reference 4.1

Considerations in Planning an ADHD Evaluation

- *Broad to narrow:* It is helpful to survey a broad range of topics first, and then use that information to select which areas require further investigation. This can guide sequencing of major evaluation components as well as sequencing within each component.
- *Availability and schedule:* Teachers cannot complete rating scales that ask about the past month or past six months if the student has only been present for a week. They cannot rate a student's current behavior during school breaks. Likewise, parents may be challenged if asked to rate behavior during a period that includes vacations, as behavior is often different when school is out of session. Sometimes evaluation participants are not available (e.g., college student who lives out of town, parent who works out-of-state). Records may not be immediately available for review.
- *Comfort level and rapport:* Some children enter the room ready for anything. Others may require a bit of time in the room with the examiner before being ready for test administration. Some anxious children prefer to get started with testing as quickly as possible so as to reduce their anticipatory anxiety. Some clinicians interview adolescents before parents, as a means of conveying that the teenager's input is valued and important, as well as communicating an open mind (rather than a hidden agenda enacted on behalf of a parent).
- *Knowledge of child:* Make contact with people who know the child you are evaluating. This may expand your scope beyond parents and teachers. For example, in some families a nanny or grandparent has primary childcare responsibilities and would be a good source for information about symptoms and

impairment in everyday life (a better source than a biological parent in some cases). An after-school program counselor may be aware of symptoms that are not evident in other settings.

- *Time and cost:* Although this chapter describes components of an ideal ADHD evaluation, practical considerations like time and cost may limit what can be done. When you are not able to use all the tools described here, be certain that you obtain information about the main components of an ADHD evaluation: developmental history and current presentation (including impairment). Sending some materials (like questionnaires) in advance allows parents and teachers to provide thoughtful information without paying for your time while they respond, thus reducing professional time and cost.
- *Fatigue:* Be realistic about the child's energy level. Even though a full evaluation might be completed in one day, the validity of some results may be questionable if the child is overly fatigued. Also consider your energy levels, as you will make better observations when you are fresh.
- *Efficiency:* Some evaluation components may be combined to increase efficiency. For example, many observations can be made during cognitive testing, interviews, and informal interactions between parents and children. The timing of components may also be dictated by efficiency, such as asking parents to complete rating scales while they are both in the office rather than mailing them on a separate date. The sequence of evaluation components can increase efficiency; for example, obtaining background questionnaires and rating scales first can help determine how your time is spent during the interview. Information obtained from questionnaires, rating scales, and interviews may help determine whether and what cognitive testing is indicated.
- *Compliance and validity:* Although it may seem like a good idea to send rating scales home with an adolescent (or parent), in many cases it may be a better idea to have her complete the scales in your office. This significantly increases the chances the scales will be completed and returned. It also gives you control over how questions about the scale are answered, reducing the chances that someone will misdirect her on how to answer an item. This also reduces the likelihood that the rating scales will be completed in a haphazard fashion (e.g., while watching television or talking on the phone).

SEQUENCE OF EVALUATION COMPONENTS

There is no best sequence for conducting an ADHD evaluation. Many skilled clinicians approach this task differently, and some vary the approach based on a number of factors (see Rapid Reference 4.2). School-based practitioners have different logistics than private practice or hospital-based providers. These logistics impact the ease of school-based observations, parent or teacher conferences, and obtaining parent or teacher ratings of behavior. Because individual situations may dictate the sequence of events, we do not specify one gold-standard sequence for ADHD assessment, but provide examples of two possible sequences.

Rapid Reference 4.2

Possible Sequence of Evaluation Components in a Private Practice Setting

1. Gather preliminary demographic and referral information, often by telephone. Determine appropriateness of the referral and provide other resources as relevant. If an assessment is indicated, describe the assessment process and send initial packet:
 - Demographic information form
 - Background questionnaire
 - Release of information forms for teachers and other professionals who are or have been involved
 - Informed consent and HIPAA forms
 - Parent and teacher rating scales, including a comprehensive rating scale as well as one that covers symptoms of ADHD
2. Review available information:
 - Background questionnaire
 - Parent and teacher rating scales
 - Report cards
 - 504 plans and Individualized Education Plans (IEPs)
 - Past evaluation reports
 - Treatment notes
3. Meet with parent(s). Discuss information reviewed thus far and goals of assessment. Ensure that the child has had a recent medical exam. Interview parent(s), possibly using a semi-structured or structured interview.
4. Meet with child, often more than once, to complete:
 - Direct observation
 - Child interview
 - Self-report rating scales
 - Cognitive testing (when indicated)
5. Score and integrate results from the above (see Chapter 5).
6. Meet with parent(s) to provide feedback on results, conclusions, and recommendations. Provide information and additional resources (e.g., about ADHD, IEP process, support groups, treatment providers) as indicated. Depending on the child's age, offer to meet with him for a developmentally appropriate discussion of the evaluation outcome. Communicate with school and other providers as authorized by parent.
7. Provide a written report with background, current presentation, test results, conclusions, and recommendations. *Note:* Some providers prepare the report before the feedback session(s); others defer the report.

Possible Sequence of Evaluation Components in a School Setting

1. Meet with educational team (including parent) to discuss referral issue, review student history, and determine if additional information is needed to determine eligibility. This is a good time to conduct a parent interview. Consider response to intervention (RTI) possibilities. Obtain parent permission to evaluate student if warranted.
2. Observe student in classroom. Completing the observation before student interview and testing reduces chances that the student might recognize the school psychologist and feel self-conscious about being observed.
3. Send rating scales to parents and teachers.
4. Administer cognitive testing and interview student as needed.
5. Share results with other members of the team, including parent(s). Present your data for inclusion in the team document. Integrate your findings with information from other professionals on team. Determine if student is eligible for services, and if so, under which federal guidelines. Work with the team to develop or revise the 504 plan or IEP as appropriate.

RECORD REVIEW

Quite a bit of information about developmental history and current presentation can be gleaned from reviewing a child's records. Is record review sufficient to evaluate the criteria for ADHD? Of course not; information from records can help the clinician form a basis for hypothesis testing and guide time allocation for the remaining components of an assessment. If record review suggests a history of specific difficulties in reading but not in other academic subjects, the clinician knows to allow time in interview to ask about early signs of reading disorder and to reserve testing time for academic achievement and other tests to examine underlying reading processes. When record review indicates features of worrying and fear, the clinician knows he must delve into possible emotional contributions to the presenting complaints, and will likely need additional time to build rapport before testing, explore anxiety during the child interview, and perhaps add an anxiety-specific set of rating scales for parents, teachers, and self-report. Absence of red flags for competing and comorbid diagnoses in the record review does not eliminate the responsibility of differential diagnosis, but suggests the clinician can take more of a survey approach in remaining components.

Record review can help establish context for the current concerns, as well as progression of symptoms. A child's history may contain information that suggests competing or comorbid diagnoses (e.g., if symptoms began after a severe brain

injury but no symptoms were present before the injury). Reviewing a variety of records pertaining to the child can help the clinician consider pervasiveness and persistence of symptoms, as well as degree of impairment.

What Should I Review?

A background questionnaire or information form can be completed prior to the evaluation, allowing the parent to gather information in advance. This form can also include a checklist for additional supporting materials such as report cards, prior evaluations, educational plans, and treatment notes. A background form can cover much of the child's developmental background, saving time in the face-to-face meeting. Note that we typically use a general clinic form for all referral questions rather than an ADHD-specific form (as one never knows whether an ADHD referral will actually be ADHD).

Past report cards are valuable sources of information that are less vulnerable to retrospective bias. Teacher comments and "work habit" markings can provide evidence of ADHD symptoms in childhood, as required by the DSM-5 age-of-onset criterion. Words and phrases often used by teachers of children with hyperactive/impulsive features include: *immature, busy, boundless energy, has difficulty with deskwork, needs to work on waiting his turn (or turn-taking), struggles with controlling himself, all over the place, great ideas but needs to work on the best ways and times to share them, unaware of personal space, distracts classmates, and always messing with stuff on his desk*. Common report card comments for children with inattentive features include: *in her own world, careless, needs to try harder, poor listening skills, irresponsible, needs to be more independent, underachiever, disorganized, can't find anything in his desk/locker/backpack, never has what she is supposed to have for class or homework, does good work when she does it, needs to work on focus, does not follow through, forgetful, and can't remember our daily routine even after six months of school*.

Educational plans, like Section 504 plans and IEPs, describe a student's needs at a particular point in time, as well as her response to various interventions. IEPs usually summarize level of functioning in each domain. When a series of plans is available for review, it is possible to compare progress and plateaus, which can aid differential diagnosis and treatment planning.

Prior evaluations offer objective snapshots of the child's functioning at different ages in addition to test results. Do not ignore results from group testing at the school, such as end-of-grade assessments or testing for inclusion in an academically gifted program. Initial and discharge notes from treatment providers can also offer insight into a child's presentation at different points in time. Look for relevant data in

reports and notes from various professionals, including speech-language pathologists, occupational therapists, and physical therapists, as well as in reports from psychologists and tutors.

When Should I Review Records?

In general, it is advisable to review available information before the first session. This information can be used to build a scaffold upon which additional information can be organized. It can help identify areas to target within subsequent steps. Review of records also provides a context within which the evaluator can interpret symptoms.

DON'T FORGET

Records to Review

- Background form
- Past and current report cards and teacher comments
- 504 plans and IEPs
- Prior evaluation reports
- Treatment notes

INTERVIEW

A good clinical interview is the backbone of any evaluation. It has been described as “a conversation with a purpose” (Bingham & Moore, 1959). Even structured interviews take on a new life in the hands of a skilled clinician, who is aware of every nuance in tone of voice, body shifts, pauses, and word choices. Many interviews cost nothing more than time, can be administered in any setting, and offer a rich source of information that often goes beyond written responses obtained from the same person. The clinical interview also provides a chance to begin building rapport, and even to intervene (e.g., through interview questions and reflections, parents and teachers might view a child’s behavior differently and thus respond differently). Although a face-to-face interview is preferred, a telephone interview can be substituted when necessary.

It is beyond the scope of this book to cover the many facets of diagnostic and clinical interviews. As such, we focus on how to consider ADHD within the context of a good interview. Please see McConaughy (2013) for coverage of general topics related to interviewing.

Within an evaluation for possible ADHD, a good interview can provide information about all the DSM-5 criteria, including presence, frequency, severity, and persistence of symptoms, age of onset, pervasiveness, associated impairment, and evidence of other possible diagnoses (either comorbid or competing). While an interview by itself is not sufficient to assign a diagnosis of ADHD, it is an indispensable component. We cannot imagine diagnosing ADHD without a good interview.

What Should I Cover in My Interviews?

Some clinicians like to begin interviews for an ADHD evaluation by asking about each symptom of ADHD (see Chapters 1 and 2). If you take this approach, this is also a good time to ask about frequency, severity, pervasiveness, and impairment. Instead of asking “Does this happen often?” try to establish markers for how often a behavior is observed. For example, rather than saying “Does he lose things occasionally, sometimes, or often?” you might inquire, “How often does he lose things? Is it every day?” This provides more specific data that you can use to establish frequency from your expert clinical perspective. Establish whether each symptom is constantly present; when it varies, clarify how (e.g., hour by hour, across discrete “episodes”) and probe for possible contributing factors such as time of day, fatigue, hunger, setting, subject matter, type of communication (e.g., demonstration, spoken, written), and demands placed on the child. Although it is easier to establish age of onset with the recent change in diagnostic criteria (viz., prior to age 12), it is still important to ask about evidence of symptoms in early childhood as this helps demonstrate the persistence of symptoms. While discussing a symptom, ask about how it presents in different settings and situations, which can help establish pervasiveness. Determine whether the symptom is simply present or whether it interferes with the child’s functioning or progress. Remember that it is critical to establish impairment, as impairment is key in crossing the threshold into a clinical diagnosis. (Impairment is also a strong predictor of long-term outcome, particularly the degree of psychosocial impairment; Pelham et al., 2005.)

The risk in beginning an interview with specific symptoms of ADHD is that you may miss a broader issue. Many diagnoses present with features of inattention, hyperactivity, and impulsivity. Starting with a narrow focus can result in bypassing alternative explanations for the reported behaviors. It can be helpful to picture a sports tournament bracket as a visual analogy for a good interview. By starting with questions and discussion of broad domains, you can narrow the focus as you eliminate less strong “competitors” from the ongoing interview. This is a more active interview approach, requiring greater thought than simply going down a symptom checklist, but it generally yields more relevant data and thus a more accurate diagnosis and more appropriate recommendations. Broad questions that can guide the opening stages of an interview include, “I’ve read your list of all the things going on with Johnny; can you tell me which one is the biggest problem right now?” Similarly, you might ask, “Would Susan stand out as different from other students if a new teacher entered the classroom? What about on the playground or in the cafeteria?” The question, “Why are you seeking an evaluation

now?” (rather than last month or last year) can reveal areas of impairment as well as meaningful treatment targets.

In addition to asking about features of ADHD, remember to ask about symptoms of possible competing and comorbid diagnoses. This will help with differential diagnosis. Use the interview to clarify or expand upon information obtained from the background form and other record review. Clinical observations during the interview can also be relevant, particularly during the child interview.

Regardless of how you approach an interview, it is important to listen carefully, as new information may be provided that was not mentioned on the background information form. Consider the case of a teenager who said, “The only time I’ve ever talked to the police was after my car crash.” This casual comment when the evaluator was screening for legal involvement led to discovery that the young man had a concussion a few years prior to the evaluation and that his attention and memory problems had begun at that time. This was key information for appropriate diagnosis, as his symptoms were secondary to brain injury rather than due to a developmental condition like ADHD.

In addition to asking about problems, ask about exceptions, or times when the child shows good functioning. This can provide data about persistence of symptoms as well as impact of environmental variables. For example, a child with a receptive language disorder might seem inattentive during lectures, but show good attention during demonstrations and hands-on lab exercises. A child with a math disorder might act out during math class, but sit and listen attentively when the teacher reads a book to the class. Each of these examples illustrates how a child might seem to have symptoms of ADHD in one setting, but the exceptions reveal that modality of instruction and content are key factors and the symptoms are not pervasive. At times, exceptions can suggest good interventions to pursue to lessen the impact of ADHD symptoms. For example, a child might truly have ADHD but show good functioning in a classroom that is very structured and engaging, with hands-on instruction. Exceptions can provide a foothold for a therapist, as they offer examples of the child’s successful functioning that can be used to motivate him to work toward success in other situations. Exceptions can also reflect a willingness to see the child as a whole person rather than as a “problem child.” Interventions are more likely to be successful when parents and teachers believe there is a chance for success. Sometimes parents or teachers express surprise that a child is being evaluated, which suggests that he may not be exhibiting significant symptoms in certain settings. It is possible that the settings where symptoms are absent are optimized for the child, or that the content is not taxing his self-regulation. It may be that a class does not lend itself to teacher

DON'T FORGET

Look for exceptions—times when the child shows good performance. These can be helpful diagnostically in terms of examining persistence of symptoms as well as in identifying environmental factors that impact his behavior. Understanding the setting for such exceptions can help you develop interventions or modifications that will allow the child to show good performance more often. These exceptions also offer a place for parents and teachers to compliment or otherwise reinforce the child.

observations, that the child is rarely home, or that the parent/teacher is not attentive to difficulties.

Talking with parents, teachers, and the child allows the clinician to pursue leads from record review. You can confirm important points, inquire about gaps, and expand on critical areas. When you are engaged in a conversation, you have a better chance of knowing that a question was misunderstood, or of following up on a casual comment that may prove fruitful. Sometimes interviewees will say things that they would

not write, giving you additional information that proves valuable in your case formulation. Examples of information that might be revealed in an interview but not in writing include substance use, suicidal ideation, abuse/neglect, obsessions, compulsions, and unusual thoughts. A good interview expands your knowledge of a child rather than rotely repeating information that can be obtained with a questionnaire or rating scale.

DON'T FORGET

Key Information to Obtain During All Interviews

- Symptoms of ADHD, with specific examples
- Frequency of symptoms
- Persistence of symptoms (though not available from teachers at the beginning of the school year)
- Onset before age 12 (though teachers of adolescents cannot provide)
- Pervasiveness (across content, setting, task type)
- Impairment (social/family relationships, emotional, academic, adaptive functioning)
- Differential diagnosis (alternative explanations and possible comorbidities)
- Strengths and skills

Note that a thorough interview is not short. In our clinical work, we find that careful consideration of ADHD criteria alone can easily take an hour, even in cases that are relatively uncomplicated in terms of history and comorbidity. There are numerous factors that impact the length of an interview beyond depth and breadth of coverage. Features of ADHD in the child and parent may lead to a longer interview, as they may have difficulty organizing thoughts to answer your questions, retrieving examples from memory, and staying on topic. Receptive and expressive language functioning can impact interview length. A child's age and intellectual level are factors as well.

Whom Should I Interview?

A good ADHD evaluation includes information from multiple sources (see Chapter 3). With respect to interviews, consider gathering information from multiple categories of informants as well as multiple people within a given category. For example, rather than interviewing one parent and one teacher, it might be relevant to interview all parental figures and several teachers. It is critical to interview the child, although too often this important source is neglected. Treatment providers

DON'T FORGET

Whom should I interview? What unique information can each source provide in addition to general information about ADHD criteria?

- Child:
 - Subjective experience (e.g., thoughts, emotions, internalizing symptoms, self-perception)
 - Reasons for actions
 - Motivation and investment
- Parent(s) and caregivers:
 - Background information (e.g., child and family history)
 - Demands and expectations at home
 - Sleep and nutrition
- Teacher(s):
 - Comparison to age-matched peers
 - Academic strengths and limitations
 - Attempted school-based interventions and response
- Treatment provider(s):
 - Clinical observations

DON'T FORGET

Remember to have a flexible interpretation of “parent” in the context of your evaluation. Two parents in the same home may have different interactions, observations, and interpretations, all of which will enrich your understanding of the child. In some cases, the primary caregiver is not a biological parent (e.g., stepparent, grandparent, nanny). Some children spend significant time in multiple households, and it is important to obtain data from each. When conducting interviews and distributing rating scales, remember to consider all of these sources of so-called “parent” data.

can also provide rich information about the child. Each person offers unique information to refine the diagnostic process. Core elements of the interview (as described earlier) should be addressed in each interview; you must not assume that you will get the same answer from different people. In addition to these core elements, each type of reporter offers a unique perspective, information that cannot be obtained from other sources. Remember to obtain appropriate forms of permission (*releases*) before contacting anyone other than parents.

When interviewing parents, teachers, the child, and other reporters, keep in mind that we all have personal biases, some of which can distort the accuracy of what is reported. As a clinician, you must weigh possible sources of bias as you consider how to use information (see discussion in Chapter 3). There will be times when a child irritates other people to the point that it is difficult to like him. Sometimes parents and teachers feel frustrated at the lack of progress, resulting in a “negative halo” around the information they provide. Bias can also be evident in a parent’s or teacher’s inability to identify any strengths or positive qualities in the child. When the child has siblings, parents and teachers may compare them rather than reporting independently (e.g., “She’s no trouble at all compared to her brother”). This comparison phenomenon can also happen with classmates. It is important to keep in mind possible distortions or selective recall when asking about an informant’s observations of a child.

Now that we’ve addressed some of the key points regarding what to cover in interviews conducted as part of ADHD assessments, whom to interview, and what unique information each source can provide, we turn to highlighting some considerations to bear in mind when interviewing different types of informants.

Child Interview

In addition to the general interview topics, there are certain types of information that truly require self-report. First, although parents and teachers may see outward signs of emotions and hear what the child says, only the child knows how he is feeling and thinking on the inside. For example, a child might laugh when hearing about a

classmate's suicide attempt. This may look like inappropriate happiness on the outside, but actually represent discomfort and uncertainty on the child's part. While others may make attributions about why the child did or didn't do something, only she knows the reason. For example, a teacher might believe a child turned in a blank test because "he didn't care and is unmotivated" or that he was unprepared and did not know the answers. The child might reveal that he completely missed that the teacher said it was time to start, and suddenly the teacher said, "Time's up!" Second, the child is the only informant in a position to observe the "target" (i.e., himself) in every situation. Finally, the child is the only one who can describe her true level of motivation and investment. Parents and teachers often make assumptions that a child "doesn't care" or "isn't trying." Talking with a child can clarify whether these are truly part of the explanation, and what other factors are involved. Keep in mind that absence of ADHD symptoms and their sequelae in self-report does not necessarily mean the symptoms and sequelae are not present (see discussion of self-report data in the "Rating Scales" section, this chapter).

Parent/Caregiver Interview

When evaluating a child for possible ADHD, it is essential to meet with the caregiver(s). In addition to providing background information about the child's history, the primary caregiver, whether the biological parent, stepparent, grandparent, adoptive parent, foster parent, or nanny, is the primary source of information about the child's functioning in the home and community settings. It is not uncommon for a child to keep it together at school but fall apart at home. This can happen when a child uses all of his available resources to function at school, whether to please the teacher or avoid embarrassment with peers, and has no resources left at the end of a long school day. Conversely, some students struggle at school but show few if any problems in the home setting. Sometimes this represents the level of demands being placed on the child in these different environments. Parents can sometimes cater to a child's strengths (or dodge deficits) by avoiding topics or chores that might trigger an outburst or conflict. These among other factors are reasons why it is so important to understand the family dynamics and stressors as part of an ADHD evaluation.

It can be helpful to compare and contrast the child's behaviors at the end of a long school day with his behaviors on a weekend or school holiday. Fatigue is a major factor in control of ADHD symptoms. Parents also have information about sleep patterns, which can reflect ADHD as well as cause ADHD-like symptoms. (*Note:* In the case of adolescents, parents may not be aware that their teenagers are staying up or waking up at night. Be certain to ask about this in the child interview. If an adolescent is texting or surfing the Internet in the night, try to

establish whether they stay awake to do this, or do this because they cannot sleep; cf. Owens, Maxim, Nobile, McGuinn, & Msall, 2000.) Type and quantity of food can also impact attention, concentration, and behavior, and parents are often the best source of information about nutrition and appetite. Ask parents about the child's level of independence at home, not only with school assignments but also with self-care and household chores. Be aware that sometimes parents intuitively provide a great deal of structure, and sometimes they provide multiple cues, prompts, and reminders. It can be informative to ask how much the child would accomplish if the parent was not at home, or how long the instruction list would need to be for a new babysitter.

It can be helpful to ask parents about their personal experiences in school and other contexts. In the case of biological parents, similar childhood symptoms can suggest possible genetic contributions to the child's current difficulties. For all caregivers, this question can illuminate therapeutic targets. When a parent has a shared frustration in his background, it may make it more difficult to see his child struggling, with feelings of guilt perhaps mixed into the equation. Shared experiences can also make parents more empathic, more aware of their child's needs, and more proactive in seeking help. It is also possible that a parent's childhood experience may be projected onto the child and not be applicable. When meeting with a parent who has no common ground with his or her child's difficulties, it will be particularly important to explain that symptoms of ADHD are not volitional, and that it takes enhanced parenting effort and skills to help the child learn to master these problems.

Teacher Interview

Teachers have a unique perspective to share, as they see a student within the context of same-age peers on a daily basis. In addition to information about general interview topics (discussed earlier), teachers often have very useful observations about a child's social, emotional, and behavioral functioning as well as academic performance. It is helpful to ask about the teacher's observations, and how symptoms of ADHD seem to impact the student's functioning. This can help establish impairment, relative to the child's capacity and relative to age-matched peers. Keep in mind the difference between diagnosis (where impairment may be relative to the individual's abilities but not necessarily relative to the general population) and IDEA-regulated services (where identification in a public school system usually requires that a student is impaired relative to the general population, or students in their grade). Academic impairment may be reflected in grades (individual tasks, group-based projects, cumulative tests), standardized test scores, and level of support required for success.

When a student has multiple teachers, it can be arduous to contact every teacher and you may need to choose just one or two for efficiency's sake. We recommend

prioritizing contact with the teachers who know the child best, who suggested the evaluation, or who noted symptoms on rating scales. It is helpful to ask teachers whether the student is noticeably different from others in the class—if he would stick out to a visitor. This generally reveals more symptoms of hyperactivity and impulsivity than inattention. Teachers are generally aware of motoric symptoms, but may not recognize verbal hyperactivity and impulsivity (see Chapter 2 for examples). Students with predominantly inattentive symptoms are less likely to be disruptive to the class during instruction, although they can require additional management.

Treatment Provider Interview

It can be helpful to talk with any therapists involved in the child's care, whether mental health, physical therapy (PT), occupational therapy (OT), speech-language therapy (SLT), or other discipline. Academic tutors can also share useful observations. These colleagues often have information to inform differential diagnosis, such as a history of past dissociative episodes or traumatic events, significant depressive or anxious features, and the child's sustained attention during therapy sessions.

Because therapists work with children and see them with their parents on an ongoing basis, they may notice factors that are less apparent during a time-limited evaluation. For example, a parent may beg, bargain, and plead to entice the child to enter the treatment room each week, or the child might repeatedly “tear the waiting room apart.” Such information is helpful in establishing pervasiveness of symptoms as well as suggesting treatment targets. Some treatment settings (e.g., tutoring dyads, small reading groups, social skill groups) provide information about social interactions, which can be contrasted against the child's functioning in a one-to-one setting like your evaluation and a large-group setting like the classroom. Treatment settings vary in terms of structure and stimulation, ranging from a quiet, reduced-distraction, private session to a loud, busy, OT gym. Therapists often notice patterns over time, such as whether a child is slow to warm up each time, is constantly watching the clock, or has trouble stopping at the end of a session.

When talking with other professionals, don't be afraid to ask what they mean by a term. Sometimes phrases and labels are used differently in different fields, and it never hurts to make sure you understand. It can help to ask for concrete examples (e.g., “Help me understand what you mean by ‘self-stimulation’ . . . can you describe what he is doing?”). For example, it may be that a student is wiggling a finger in front of his eyes because he is bored, he is fidgeting, or he gets a quick reaction from the therapist, as well as the possibility that it is a behavior consistent with the autism spectrum.

Talking with other providers also opens the door for you to share a different perspective that may help in their work with the child (assuming you have a two-

way release of information to do so). For example, a therapist from any discipline would benefit from learning that a child attends better when visual cues are provided, that he is more productive when given a clear goal and timeline for a session, and that he is more cooperative when given options for which order tasks are done or which way he practices a given skill. The therapist may have specific questions for you about why a child responds a certain way or how to approach a roadblock in treatment. Your collaboration will help the child as well as strengthen your professional network.

Structured and Semi-structured Interviews

There are commercially available interviews, some of which focus on ADHD and some of which include an ADHD module in a broader context. Some interviews are considered *semi-structured*, meaning that they provide a general structure and probes, but require clinical expertise to administer. For example, clinical judgment is required to decide whether an example requires additional explanation or whether it provides adequate evidence of a symptom. This flexibility is useful for seasoned clinicians, but can be difficult for a professional who is less familiar with ADHD or is relatively new in the field. *Structured* interviews tend to have discrete answers that dictate whether additional modules are administered or skipped. As such, they can be administered by paraprofessionals, via computer, or even completed by parents or children, and they are often used in research studies.

We recommend that practitioners use structured or semi-structured interviews routinely in their clinical practice (see also Lahey & Willcutt, 2002). Some structured interviews offer the advantage of parallel parent and child versions. After administering the same formal interview multiple times, you might find that the structure becomes embedded in your brain and you may not need the paper form any longer. Structured interviews ensure thorough coverage of ADHD criteria (including but not limited to symptoms). They offer greater reliability and accuracy than taking the “It looks like ADHD to me” approach. Most structured interviews cover possible comorbid or competing diagnoses as well. Keep in mind that approaching ADHD diagnosis simply from the standpoint of “Does it match the list of ADHD symptoms?” will likely result in over-diagnosis (i.e., high rate of false positives). It is best to think of ADHD as a diagnosis of exclusion; you must eliminate all other possibilities before accepting ADHD as the best explanation for the child’s presentation.

The interviews listed in Rapid Reference 4.3 were developed during previous DSM eras and, at the time this book was written, had not yet been updated to reflect DSM-5 changes. If you choose a formatted interview, continue to consider the cautions and suggestions from this section. Resist the temptation to complete

Rapid Reference 4.3

Published Interviews Covering ADHD in Children and Adolescents

Interview	Time to Administer	Age Range	Coverage	Format
Barkley & Murphy's ADHD Interview	60–120 minutes	"Children and teenagers"	Reason for referral, developmental, medical, social, and educational history, symptoms of ADHD and other common childhood disorders based on DSM-IV criteria.	Semi-structured; paper-pencil
DISC-IV	45–90 minutes	6–17 years (9–17 years for self-report)	Covers symptoms of common childhood disorders based on DSM-IV criteria; has an ADHD module	Structured; paper-pencil or computerized
DICA-IV	5–20 minutes per category	6–17 years (13–17 years for self-report)	Covers early development, high-risk behaviors, and symptoms of DSM-IV disorders; has an ADHD category	Structured; paper-pencil or computerized
Kiddie-SADS or K-SADS	30–90 minutes	6–17 years	Includes many DSM-IV disorders; ADHD is covered in the Behavioral Disorder supplement	Semi-structured; paper-pencil; must be given by clinician

Note: The DSM-5 was released the same year this book was written. Be alert for DSM-5-based revisions of these interviews (Barkley & Murphy, 2006); DISC-IV = NIMH Diagnostic Interview Schedule for Children–IV (Columbia DISC Development Group, 1997); DICA-IV = Diagnostic Interview for Children and Adolescents–IV (Reich, 2000), K-SADS = Schedule for Affective Disorders and Schizophrenia for School-Age Children (Kaufman, Birmaher, Brent, Rao, & Ryan, 1996).

the final summary of a structured interview and presume that you have the answer. Be mindful that results from a structured interview do not determine a diagnosis of ADHD; differential diagnosis is still required.

When Should I Conduct Interviews?

Most evaluations start with an interview of some sort, whether meeting with parent(s) or talking with the referral source. ADHD is generally not an urgent or

emergent issue requiring immediate testing before an interview (such as might be the case with medical issues like intractable seizures). Like record review, a good interview helps establish the framework within which other data can be organized and interpreted.

Most interviews take place in the early stages of an evaluation. Beginning with a parent or child interview can provide additional information to refine your diagnostic hypotheses and guide your choice of assessment tools and observation targets. It also offers a chance to build rapport and discuss the reasons for doing an evaluation, reducing the likelihood that test data will be invalid because the test was administered before a child was relaxed and invested. This is the time to review the evaluation plan and obtain informed consent from parents and assent from children if you have not done so already.

In some cases, the initial child interview may be limited to building rapport, obtaining informed assent, and getting a sense of the child and how he responds to you. Particularly with pre-teens and adolescents, you may benefit from saving some interview topics (e.g., substance use, sexual activity, family conflict) for later in the evaluation when more trust and comfort have been established. When you get the sense that a youth is not fully candid during an initial interview, it is advisable to proceed with other activities until trust and comfort have increased.

As you work with a child, you may notice additional behaviors that you need to investigate further with a follow-up parent or teacher interview to establish if they are pervasive and persistent, or unique to your evaluation. For example, a child who sniffs and clears his throat repeatedly during the evaluation might have seasonal allergies or a cold, or he might have a vocal tic. Asking about these behaviors in the home, school, and other settings can help determine whether they warrant clinical attention.

Saving a teacher or other professional interview until after you have worked with the child allows you to share more information about his strengths and needs, and suggestions for how to most effectively help him. When time and availability permit, it is reasonable to use a hybrid approach, conducting interviews before, during, and after testing.

It is certainly permissible and even recommended to ask questions during the feedback session. As you present results from the evaluation, participants may realize they have additional information that is relevant. For example, when describing symptoms of anxiety observed during testing like perfectionism, frequent questioning, and cuticle-picking, parents may have an *aha!* moment when they realize these same behaviors are present at home, but they did not identify them as symptoms because “that’s just the way Janey is.” Similarly, as you discuss recommendations, you may learn that similar approaches have been tried

and you need to learn more about past efforts so you can refine the recommendation to be more effective. Your integration of material may lead you to identify holes in the big picture, and you may have additional questions for parents, teachers, and the child as you finalize your model.

CLINICAL OBSERVATION

By training, all clinicians are observers. In addition to explicit instruction on *how* to observe, we also have a massive database of *what* to look for when watching other people. At times, parents and teachers are unaware of behaviors or tune them out because they are accustomed to seeing them every day. In fact, sometimes when you ask about a behavior you noticed during testing, you'll receive a confused look with the comment, "Oh, that's just John. He's always that way." As an objective observer, you are more likely to notice behaviors of possible clinical significance. Although your clinical observations are not sufficient for a diagnosis of ADHD, they are an important source of data about how symptoms present.

Technically, record review and interview are methods of obtaining third-party observations about a child through parent, teacher, or another professional's report. Rating scales and questionnaires are additional ways to obtain observations from others. It is important to gather these observation data to learn how others see the child and how she behaves with these parents, teachers, and other providers. None of these data sources, however, can replace your direct clinical observations.

You will always be able to make direct observations during your interview and testing, keeping in mind that clinic-based observations do not always parallel real-life behavior. Depending on your practice parameters, you may also be able to conduct observations in the home or school settings. This can help you establish whether the behavior you observe in the test room is discrepant from other settings. It allows you to consider pervasiveness of symptoms, although your very presence may change the child's behavior. This information can help with differential diagnosis as well as providing very useful insight as to how this child may interact with parents, teachers, and peers. Observation data can help with interpretation of rating scales and other data by providing a clinically informed anchor for the child's behavior in that setting. It can be relevant to comment on your observations of reported symptoms (or lack thereof). It is appropriate to ask a child about symptoms whether you see them or not.

When conducting a school-based observation, be certain the teacher refers to you as a classroom visitor and does not indicate that you are there to watch a student. It may be helpful to comment that you are there to see how the classroom works. This can deflect attention from the students and allow you to blend into

the background. Ideally, a school-based observation will include a variety of settings within the school day, such as deskwork, group work, transitions, cafeteria, and playground. We find that a least an hour is required for a school-based observation. It is advisable to ask the teacher if your observation period covered typical school activities and representative student behaviors. Parent and teacher reports (interviews, rating scales) are valuable substitutes when you are not able to conduct onsite observations.

What Should I Look For?

Clearly, when conducting an ADHD evaluation, it is important to note presence and absence of the 18 DSM-5 symptoms, as well as how they may impair the child's functioning. (See Rapid Reference 2.1 for examples of how these symptoms and associated impairment may present.) Observations during an ADHD evaluation should include all the observation elements from a general evaluation (see Mash & Hunsley, 2007, for a discussion of behavioral observations as a component of child assessments; for ADHD-specific observation tools see also DuPaul & Kern, 2011; Fabiano, 2011; Pelham et al., 2005). Remember: Cast a broad net rather than narrowly limiting your data. Consider all domains of functioning. Furthermore, do not discount your personal reactions to a child. If she creates those emotions in you, it is possible that she creates similar reactions in others.

Be attentive to variation in the child's presentation. Think about content as a possible factor. For example, a child may seem more inattentive during language-based tasks in comparison to visual reasoning tasks; this raises a flag to consider possible language deficits in the differential diagnosis as the inattention does not seem

pervasive. Time of day and fatigue can impact symptoms of ADHD, with greater difficulty in self-regulation as the child grows more fatigued over the course of the day. Greater variability may also be observed when a child is hungry. Current or impending illness impacts children, particularly those with compromised executive functions like in ADHD. As emotional charge increases, cognitive function often decreases. In other words, if a conversation or task becomes stressful for a child, her performance may deteriorate.

DON'T FORGET

Factors to Consider When Behavioral Variability Is Observed

- Task demands
- Fatigue
- Hunger, thirst
- Illness
- Emotion and stress
- Complexity and difficulty

A child's reaction to increased complexity or difficulty is also telling. Some children give up as tasks become more difficult, others become angry and frustrated, and others become more engaged. Your observations about these factors can enrich your understanding of the child, suggest considerations for differential diagnosis, and guide intervention recommendations.

When making observations in an assessment setting, remember that you are observing the child out of context. Behaviors observed in a structured evaluation setting with a new person are often not representative or generalizable. You will likely see different behaviors and interactions than he exhibits in his daily life, particularly during the first session of work. Some people with true ADHD do not show significant features of the disorder during an initial meeting. As mentioned earlier, a child may exert effort to hide symptoms in an effort to impress you or fit in. The novelty of testing can make a child with ADHD more engaged than he would be in routine classwork. The flipside is that the novelty of testing may be stressful for a child with comorbid anxiety. It can be helpful to divide testing into multiple sessions. This allows you to make observations on different days, which increases your chances of making more "ecologically valid" observations (ones that accurately reflect the child's real-world functioning). This also shortens the length of sessions, reducing the impact of fatigue. It is advisable to have one session that is longer, allowing you to observe how the child's performance changes over the course of a day so that you can comment directly on this in your formulation and recommendations; however, do this intentionally and choose testing tools accordingly. (See "Cognitive Testing" later in this chapter for additional suggestions about test selection.)

When ADHD is among the diagnostic considerations, it can be informative to give the child a stack of worksheets (often math calculation) and surreptitiously observe her work habits (preferably through a mirrored window or video monitor). Similar observations can be made during independent tasks like math fluency and continuous performance tasks (CPTs), but are limited as most examiners will prompt children to return to task rather than allowing them to daydream for the entire time allotted.

CAUTION

Behaviors observed in the clinic may not correspond to real-world behaviors demonstrated in the home, school, and community settings. It is human nature to change your behavior when you are being watched. When possible, make observations about the child in her natural environment before she knows you are watching. These are useful to compare and contrast with your clinic-based observations as well as parent and teacher observations (typically obtained through interview and rating scales).

Structured and semi-structured observation systems specific to ADHD are available, but these tend to be used in research more than in clinical settings given time and cost constraints (see Fabiano, 2011; Pelham et al., 2005, for a review of such systems). These typically involve a list of observation targets and a grid to mark the frequency of each behavior over a certain time period. You can create a similar grid for your observations of a child. Rather than attempting to observe frequency of all 18 DSM-5 ADHD symptoms during a structured observation, most clinicians select four or five symptoms or associated features to record. Data obtained from other components of an evaluation, particularly parent- and teacher-report, may suggest salient behaviors to observe (e.g., aggression, being off-task). If a target is broad, it is helpful to have a spot to list specific examples of the target symptom that occurred during the observation.

When Should I Make Observations?

Observation typically occurs informally throughout an evaluation. In addition to observations made during interview and test administration, some evaluators schedule structured observation periods. These can occur in the clinic, home, school, or other community settings. The timing of a structured observation will impact the selection of observation targets. If the observation is conducted too early in the evaluation, you may later discover a behavior for which you wish you had frequency data (e.g., tic example described earlier in this chapter). For this reason, it can help to reserve structured observation periods for later in the evaluation process. The exception to this is school-based observation. If the same person is completing the observation and the testing, the observation should occur first. This offers you more anonymity than if the child is already aware that you are evaluating him. If possible, it is helpful to involve a colleague or well-trained and supervised paraprofessional for observations.

RATING SCALES

As discussed in Chapter 2, DSM-5 guidelines for diagnosing ADHD require identification of symptoms (including their frequency and severity) that are associated with impairment in at least two settings. The symptoms must be maladaptive and inconsistent with developmental level. Rating scales offer an efficient and convenient way to begin collecting these (among other) data. Key professional groups consistently agree that rating scales are an essential component of an ADHD assessment. Results from rating scales are not sufficient for ruling in or ruling out a diagnosis of ADHD, but provide another way to collect data from

multiple people about the child's behavior in multiple settings (thus helping you address two of the three "multi's" mentioned earlier).

At the most basic level, a rating scale is a list of behaviors that are rated for presence or absence. More commonly, each item is rated along a continuum, usually reflecting severity and/or frequency (e.g., "Rate each item on a scale of 0 to 3, where 0 means 'not at all, never,' and 3 means 'very true, always'"). Rating scales can be completed by different raters to describe the individual's functioning in various settings (e.g., home, school/work, community) and multiple domains (e.g., social, academic, occupational). They provide an efficient way to gather and quantify the observations, impressions, and opinions of individuals who know the child well.

Results from rating scales can help identify key issues for investigation and focus the referral questions. They contribute to diagnosis, including differential diagnosis and comorbidity considerations. Rating scales can also help with treatment planning by identifying target behaviors, suggesting their relative priority within the treatment plan, and indicating which settings are impacted by issues (and vice versa). Furthermore, results from rating scales can be used to support diagnostic decisions and treatment recommendations with data, a growing necessity in our world of data-driven decision making. Rating scales are particularly helpful for treatment monitoring, as a way of efficiently gathering data to track changes in target symptoms, assess current level of impairment, and identify emerging issues. In addition, rating scales can be used to select appropriate candidates for research studies and intervention programs.

People who are familiar with the child, such as parents and teachers, are appropriate raters. Remember that a parent rating scale does not have to be completed by the biological parent. For example, if a grandmother, stepparent, or nanny has primary caretaking responsibilities and spends more time with the child than the biological parent, that person would be the logical choice for completing the parent rating scale.

Just as with interviews, the child being assessed can provide information on rating scales that other observers may not know. There is some debate in the field about the reliability and validity of child self-report, including at what age it is appropriate to ask a child to complete a rating scale. Unfortunately, there is little research to guide a recommendation here. Children with ADHD tend to underreport symptoms of ADHD (particularly when DSM-based language is employed), but when they endorse ADHD-related issues, the report generally corresponds with parent report (Wiener et al., 2012). There is evidence that child self-report can reveal information that parents may not provide, particularly related to internalizing disorders (e.g., anxiety, depression; Luby, Belden, Sullivan, & Spitznagel, 2007). When children do endorse ADHD-related behaviors, there is a high degree of test-retest and internal consistency reliability (Smith, Pelham

Jr., Gnagy, Molina, & Evans, 2000) and predictive validity (Bell, Kellison, Garvan, & Bussing, 2010). Standardization data from ADHD-specific self-report rating scales (children ages 8 to 18 years) indicate that summary scores for ADHD content-related scales and DSM-IV symptom scales had good discriminative validity (i.e., accurately predicted whether a child was from the ADHD group or the general population group (Conners, 2008). Ultimately, your use of self-report rating scales with children may be guided by the age range of the scale's normative data and its reading level (see Rapid Reference 4.4).

Remember, in addition to possibly providing diagnostic information, a child's self-report yields insight into her motivations and attributions, which are essential for intervention. Furthermore, parental satisfaction with your services may be

DON'T FORGET

Who Should Complete Rating Scales?

- Parent(s) and caregivers
- Teacher(s)
- Child (if within the appropriate age-range for self-report)

increased when you have direct communication with their child (Bell et al., 2010). Child-provided data should not be the primary source of support for determining a diagnosis of ADHD, but are an important inclusion for differential diagnosis and considering comorbidity (American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues, 2007).

Normative data allow you to describe results from a rating scale relative to the individual's chronological age, which for most people suggests the expected developmental level. (An exception is when a person has multiple disabilities that impact his overall developmental level, such as with intellectual disability.) Thus, rating scales aid DSM-5 diagnosis by gathering data about symptom presence, severity, and frequency in more than one setting, in comparison with developmental level (when normative data are available). As such, rating scales represent our single best means of establishing deviance from the general population, which is critical to appropriate diagnosis of ADHD.

The greatest risk in using rating scales is the temptation to rely on these scores in place of clinical judgment. As discussed in Chapter 3, it is critical to consider multiple types of information obtained from different sources and interpret and integrate these data from an educated, trained perspective when determining a diagnosis. Among many issues, validity of report must be considered. Keep in mind that *factor* or *subscale* labels on a rating scale describe core constructs associated with behaviors that are grouped together; this does not mean that an elevated score necessarily indicates presence of the label in one individual. For

example, if a child obtains a high score on the *OCD Problems* subscale of the CBCL, it does not necessarily mean that she suffers from obsessive compulsive disorder. Remember, a rating scale is not sufficient for diagnosis; it is intended to provide a qualified professional with relevant data to consider when determining a diagnosis, including indications of competing or comorbid diagnoses.

DON'T FORGET

Although rating scales provide quantitative data, they are not objective. Results from rating scales summarize the opinions and impressions of people in the child's life, which are subjective.

How Do I Choose Rating Scales?

Specific referral questions and unique features of a child's presentation can help guide which rating scales are selected, and when in the process they are administered. Rating scales vary on a number of dimensions. Some rating scales are comprehensive or broadband, covering a wide range of domains and concerns. Others are focused, specific to one topic or area of concern. We recommend, at a minimum, administering both a broadband scale to screen for major dimensions of child psychopathology and a narrowband ADHD-specific scale to clarify the nature, frequency, severity, and developmental deviance of ADHD symptoms. In some cases, a broadband scale may also provide detailed information about ADHD (e.g., Conners CBRS; Conners, 2008). The length of rating scales can vary, impacting the time required to complete them. Raters can be asked to describe different time frames (e.g., "in the past month"), which impacts whether the rater has known the child long enough, how long a new treatment must be in place before evaluating it with a rating scale, and how often the scale can be completed in order to track changes over time. Some rating scales have more complex items, requiring a higher reading level (this is a particularly important issue when considering self-report forms for a child in elementary school or a rater with a reading disorder). The types of rater forms available vary, with some scales offering different forms for parents, teachers, and children (see Chapter 3 for discussion of why it is important to collect data from multiple raters). Different formats may also be available, including paper-and-pencil forms as well as online, mobile apps, or other computerized options. Some scales have been carefully translated into other languages, which is helpful when a rater has low English literacy. Scoring options and cost per use are other practical considerations when choosing a rating scale.

Standardization procedures and psychometrics for scales should also guide your choices. Normative data (aka, *norms*) may have been collected in a specific age span

or geographic area, limiting their application to a particular child. Norms are usually divided by age-group, with some scales tracking very specific developmental changes by providing separate norms for each year of age. Some norms are also divided by gender, although this is not always the case. Stronger rating scales tend to have good documentation describing not only how they were developed, but also how they should be administered and scored. The availability of peer-reviewed research regarding the scale can provide additional information about how the scale performs in various clinical groups. Rating scales can differ in their psychometrics, such as reliability and validity (i.e., how consistently and accurately the scale captures the true underlying concept). Some scales are set to cast a broad net but may over-identify possible clinical concerns, while others are prone to under-identification (i.e., sensitivity and specificity). The way items are arranged can impact how raters respond (e.g., when conceptually related items are grouped together they tend to be rated similarly, as opposed to when they are randomly distributed among items describing other types of behavior).

Some rating scales include validity indicators. This type of validity refers to validity of a given informant's *report* (as opposed to validity of the actual rating scale described in the psychometric data). Although these validity indicators were

DON'T FORGET

Factors in Selecting Rating Scales

- Referral questions and specific evaluation targets
- Comprehensive versus focused
- Length of scale
- Time frame being described
- Reading level required
- Rater types (e.g., parent, teacher, self-report)
- Available formats (e.g., paper-pencil, computerized; various languages)
- Scoring options
- Cost per use
- Relevant normative data
- Child's age
- Supporting documentation (manual, peer-reviewed publications)
- Relevant clinical sample(s)
- Adequate psychometric properties (i.e., validity and reliability of the scale)
- Validity indicators for ratings

called things like “lie scales” and “fake bad” scales in the past, these judgmental terms are no longer in vogue. A validity scale can describe biased responses (either positive or negative) or inconsistent response patterns. Sometimes this is due to rater characteristics (e.g., rater who only sees good in others, or who was inconsistent due to inadequate attention); other times validity scales are elevated due to child characteristics (e.g., a child who is truly well-behaved in that setting or who behaves inconsistently from day to day). Current practice is to use caution when a validity indicator is elevated.

There are numerous commercially available rating scales. A sample of commonly used rating scales is provided in Rapid Reference 4.4 to identify some options for use in ADHD evaluations. These were all published prior to the DSM-5, and may undergo revisions or interpretive updates. (See also reviews of rating scales for use in ADHD assessments, such as Collett, Ohan, & Myers, 2003; Sparrow, 2010.)

When Should I Administer Rating Scales?

When rating scales and questionnaires are completed in advance of meeting parents and testing the child, results can help focus and guide interviews and choice of testing instruments. Early administration of rating scales allows you time to score and review them before the evaluation ends; this is important when a response requires further discussion (e.g., endorsement of an item about “hears things that are not there” should be queried to find out if this is an auditory hallucination or a concrete description of internal distractibility). Additional rating scales may be considered when special topics arise during interview or testing that suggest disorder- or topic-specific forms (e.g., a social skills rating scale). A hybrid approach is to give a broadband form at the beginning of an assessment, and give additional disorder- or topic-specific forms as needed later in the assessment. In the case of a reevaluation, it may be helpful to begin by repeating rating scales used previously. This can provide data about interim changes in functioning and suggest possible new targets for the reevaluation.

COGNITIVE TESTING

Administering cognitive measures as part of an ADHD evaluation provides valuable data to the clinician, both in terms of observation and test results, which can be used in differential diagnosis and treatment planning. Results from cognitive assessment may help to rule out ADHD, to rule in or rule out competing diagnoses, and/or to establish the presence of comorbid diagnoses. (See Chapter 5 for examples, including the use of IQ and adaptive functioning results to evaluate

Rapid Reference 4.4

Commonly Used Rating Scales for ADHD Evaluation in Children and Adolescents

Rating Scale	Length	Age Range	Time Frame	Format & Required Reading Level			Breadth	Validity Scales	Mode	Notes
				Parent	Teacher	Self				
ASEBA	10–90 mins 99–112 problem items	1.5–90 years	two months or six months (varies by form)	✓ 5th grade	✓ 5th grade	✓ 5th grade	Broad	n/a	Online, software, or paper-pencil	Randomly sequenced items Spanish and other language options Some scales judged after development to be DSM-IV consistent
BASC-2	10–30 mins 100–176 items	2–21 years (6yo to college for SR)	"in the last several months"	✓ 4th grade	✓ NR	✓ 2nd grade	Broad	F, L, & V	Paper-pencil	Randomly sequenced items Optional Progress Monitor for ADHD and Externalizing Disorders Spanish option for parent and self-report. Not DSM-IV based
Brown ADD Scales for Children	10–20 mins 40–50 items	3–12 years (8–18 for SR)	one week	✓ NR	✓ NR	✓ NR	Focused	n/a	Online, paper-pencil	Items grouped by executive function cluster Limited normative data. Not DSM-IV based

Conners 3	5–25 mins 10–115 items	6–18 years (8–18 for SR)	one month	✓ 4th–5th grade	✓ 4th–5th grade	✓ 3rd grade	Focused	Positive impression, negative impression, inconsistency index	Paper-pencil or online	Randomly sequenced items Different length forms available Spanish and other language options Includes DSM-IV scales
Conners CBRS	10–25 mins 24–204 items	6–18 years (8–18 for SR)	one month	✓ 4th grade	✓ 4th grade	✓ 3rd grade	Broad	Positive impression, negative impression, inconsistency index	Paper-pencil or online	Randomly sequenced items Different length forms available Spanish and other language options Includes DSM-IV scales
Conners EC	5–25 mins 48–190 items	2–6 years	one month	✓ 5th grade	✓ 5th grade	x	Broad	Positive impression, negative impression, inconsistency index	Paper-pencil or online	Randomly sequenced items Different length forms available Spanish and other language options Includes DSM-IV scales
VADPRS, VADTRS	10 mins 43–55 items	6–12 years	varies (not standardized)	✓ 3rd grade	✓ NIR	n/a	Focused	n/a	Paper-pencil	Items grouped by subject No normative data or manual Spanish option Based on DSM-IV

Note: The DSM-5 was released the same year this book was written. Be alert for DSM-5-based revisions or updates of these rating scales. SR = self-report, NIR = not reported, n/a = not available. ASEBA = Achenbach System of Empirically Based Assessment (Achenbach & Rescorla, 2001); BASC-2 = Behavior Assessment System for Children, 2nd edition (Reynolds & Kamphaus, 1992); Brown ADD Scales for Children = Brown Attention-Deficit Disorder Scales for Children and Adolescents (Brown, 2001); Conners 3 = Conners 3rd Edition (Conners, 2008); Conners CBRS = Conners Comprehensive Behavior Rating Scales (Conners, 2008); Conners EC = Conners Early Childhood (Conners, 2008); VADPRS = Vanderbilt ADHD Diagnostic Parent Rating Scales (Wolraich, 2003); VADTRS = Vanderbilt ADHD Diagnostic Teacher Rating Scales (Wolraich, 2003).

SPECIAL TOPIC: ADAPTIVE FUNCTIONING

Adaptive functioning is a term used to describe a person's survival skills in adapting to the world, or "the collection of conceptual, social, and practical skills that have been learned by people in order to function in their everyday lives" (Luckasson et al., 2002, p. 14). Some disciplines use the term "activities of daily living." Adaptive functioning can be divided into 10 domains: communication, community use, functional academics, home/school living, health/safety, leisure, personal hygiene, self-direction, social, and work (Harrison and Oakland, 2003).

Studies have found that people with ADHD tend to have lower levels of adaptive functioning than expected for their age and intellectual abilities (Barkley et al., 2006; Crocker et al., 2009; Roizen et al., 1994; Stein et al., 1995). This seems to be related to low levels of independent task initiation and completion rather than lack of knowledge or skill in most cases. Some experts include assessment of adaptive functioning as among the top targets in ADHD assessments, along with impairment (Pelham et al., 2005). Obtaining parent and teacher report of adaptive functioning can highlight areas in which a child may need more external structure, such as a cue card to allow him to complete a recurring task independently (or at least independently of a nagging adult). Responses to individual items may also reveal areas in which a child has not been given the opportunity to learn a skill, and suggest specific targets for instruction.

In addition to asking about adaptive functioning during the parent interview, it can be helpful to use a standardized rating scale to gather data about a child's level of independence in his everyday life. Several commercially available scales are available in parent and teacher formats, reflecting different aspects of adaptive functioning that can be observed at home or school. Examples include:

- *Adaptive Behavior Assessment System, Second Edition (ABAS-II)* (Harrison & Oakland, 2003): A 15- to 20-minute rating scale with parent and teacher forms (rating people 0–89yo), and self-report forms (for people 16–89yo). Provides information about 10 domains of adaptive functioning, with three summary scores and one General Adaptive Composite score.
- *Vineland Adaptive Behavior Scales, Second Edition (Vineland-II)* (Sparrow, Balla, & Cicchetti, 2005): Includes a 20- to 60-minute rating scale with parent (rating people 0–90yo) and teacher forms (rating students 3–21yo). Also has clinician-administered interview formats (for people 0–90yo). Provides information about four domains (and 11 subdomains) with an Adaptive Behavior Composite score, as well as an optional Maladaptive Behavior Index.

possible intellectual disability, and the use of academic achievement testing to consider possible learning disorders.)

Results from cognitive assessment tools can provide specific details that inform individualized treatment recommendations and IEP goals. Simply identifying that a child has ADHD does not individualize his treatment plan. Data about his cognitive strengths and weaknesses will guide the treatment

team in remediating deficits that might respond to intervention and teaching the child to compensate for deficits that are difficult to change. For example, a child with poor attention and intact visual-spatial skills might benefit from using diagrams, graphic organizers, and charts to learn and study new material, but this same approach would likely overwhelm a child with deficits in attention and visual processing.

Many evaluations include psychoeducational components, such as tests of intellectual ability (aka, *intelligence quotient*, or IQ) and academic achievement. Although some have tried to identify “ADHD profiles” on IQ and achievement tests, and certain patterns of results often occur in conjunction with ADHD, results from cognitive testing cannot be used to diagnose ADHD. These are most useful in establishing a baseline for comparison (e.g., How does a child’s attentional skills compare with measures of his intellectual ability?), for examining differential diagnoses (e.g., possibilities of intellectual disability), and for evaluating possible comorbidities (e.g., comorbid reading disorder).

None of the current professional guidelines include cognitive testing as an absolute necessity for an ADHD evaluation, but most of them mention cognitive testing as helpful (for example, see Fabiano, 2011; Pelham et al., 2005). Cognitive testing does not directly address DSM-5 symptoms of ADHD per se, other than quantifying deficits in attention. Test scores can never be used to definitively rule in or rule out ADHD. However, the process of administering cognitive tests offers an opportunity to gather relevant observation data. Results can inform the differential diagnosis process and guide treatment planning.

What Areas/Skills Should I Test?

In addition to attention (see Special Topic: Attention), there are a number of cognitive domains that should be considered when evaluating a child for possible ADHD. Data from record review, interview, observation, rating scales, and other sources may help you decide whether you need to directly assess a specific domain. A comprehensive review of cognitive domains and how they relate to ADHD is beyond the scope of this book. Following is a brief summary of why each domain may be informative to assess in an ADHD evaluation. Rapid Reference 4.5 offers examples of tests that can be helpful in assessing these domains. See also Special Topic: Continuous Performance Tests.

It is often helpful to complete *IQ testing*, as this provides a general baseline for the child’s expected range of functioning. Administration of a standard IQ test

Rapid Reference 4.5

Cognitive Domains to Consider When Assessing ADHD in Children and Adolescents

Cognitive Domain	Rationale	Examples of Tests
Intellectual Abilities	<ul style="list-style-type: none"> ● Quick way to assess a number of domains ● Provides a general comparison point for expected range of functioning ● Can suggest need to rule out ID 	<ul style="list-style-type: none"> ● WISC-IV-Int ● DAS-II ● KABC-II
Academic Achievement	<ul style="list-style-type: none"> ● Offers benchmark for what a child knows (can compare with actual academic performance at school) ● Can suggest need to rule out LD 	<ul style="list-style-type: none"> ● WIAT-III ● WJ-III/NU-ACH ● KTEA-II
Attention	<ul style="list-style-type: none"> ● Core feature of ADHD ● Quantitative data to describe child's attentional abilities (may not correspond to performance in a classroom or home environment) ● Consider both visual and auditory, as well as brief versus sustained attention 	<ul style="list-style-type: none"> ● Continuous performance tests (CPTs; see "Special Topic: Continuous Performance Tests" in this chapter) ● TEA-Ch Score! ● NEPSY-II Auditory Attention
Executive Functions	<ul style="list-style-type: none"> ● Often impaired with ADHD ● Can explain impairment in context of otherwise intact ability, and justify need for intervention/support 	<ul style="list-style-type: none"> ● D-KEFS ● NEPSY-II Response Set, Inhibition ● Rapid automated naming tests, like on CTOPP ● Fluency tasks, including academic fluency and verbal fluency
Visual Processing	<ul style="list-style-type: none"> ● Processing of complex visual information can be impaired in ADHD ● Can identify specific strength or weakness in visual domain, and guide recommendations for learning 	<ul style="list-style-type: none"> ● VMI + VP ● RCFT Copy ● WISC-IV-Int Block Design
Language	<ul style="list-style-type: none"> ● Retrieval and organization of language can be impaired in ADHD ● Can identify specific strengths or weakness in language, and guide recommendations for learning ● Can suggest need to rule out expressive or receptive language disorder ● Consider spoken, written, and gestural language, including both expressive and receptive 	<ul style="list-style-type: none"> ● NEPSY-II Comprehension of Instructions ● Responses to WISC-IV-Int verbal subtests ● CELF-5

**Memory/
Learning**

- Retrieval and organization of information can be impaired in ADHD
- Consider different modalities and types of information, short-term versus long-term memory, and explicit versus incidental learning
- CMS
- WRAML-2
- WISC-IV-Int Digit Span
- NEPSY-II Sentence Repetition and Narrative Memory
- RCFT with Recognition
- CVLT-C and CVLT-II
- DAS-II Recall of Designs, Recall of Objects, Recall of Sequential Order, Recognition of Pictures

Speed

- Variable rate of work is characteristic of ADHD
- Can help identify when attention fluctuation, impulsivity, or other factors may be involved
- May suggest need for extended time
- Consider speed of information processing versus speed of responding, as well as modality and content
- WISC-IV-Int Coding and Coding Copy, Symbol Search, Cancellation
- Response time on a CPT
- Response time on NEPSY-II Auditory Attention
- Any timed task, including verbal fluency, RAN/RAS, WISC-IV-Int Block Design
- NDRT
- GORT-4

Fine Motor

- Clumsiness and sloppy handwriting are often seen with ADHD
- Can indicate need for certain interventions, including keyboarding, dictation, note-taker, extended time for bathroom breaks (due to difficulty with clothing fasteners)
- NEPSY-II Visuomotor Precision and Imitating Hand Positions
- VMI MC
- Purdue

Note: These are examples of currently published tests that help assess a cognitive domain. This is not an exhaustive list. WISC-IV-Int = Wechsler Intelligence Scale for Children, 4th edition, Integrated (Wechsler, 2004); DAS-II = Differential Ability Scales-Second Edition (Elliott, 2006); KABC-II = Kaufman Assessment Battery for Children, Second Edition (Kaufman & Kaufman, 2004); WIAT-III = Wechsler Individual Achievement Test-Third Edition (Wechsler, 2009); WJ III/NU COG and ACH = Woodcock-Johnson III Normative Update Tests of Cognitive Abilities and Achievement (Woodcock, McGrew, Schrank, & Mather, 2001, 2007); KTEA-II = Kaufman Test of Educational Achievement-Second Edition (Kaufman & Kaufman, 2004); TEA-Ch = The Test of Everyday Attention for Children (Manly, Robertson, Anderson, & Nimmo-Smith, 1998); NEPSY-II (Korkman, Kirk, & Kemp, 2007); D-KEFS = Delis-Kaplan Executive Functioning System (Delis, Kaplan, & Kramer, 2001); CTOPP = Comprehensive Test Of Phonological Processing (Wagner, Torgesen, & Rashotte, 1999); VMI = The Developmental Test Of Visual-Motor Integration (Beery & Buktenica, 1989); VP = VMI Visual Perception subtest; RCFT = Rey Complex Figure Test and Recognition Trial (Meyers & Meyers, 1995); CELF-5 = Clinical Evaluation of Language Fundamentals-Fifth Edition (Semel, Wiig, & Secord, 2013); CMS = Children's Memory Scale (Cohen, 1997); WRAML-2 = Wide Range Assessment of Memory and Learning, Second Edition (Sheslow & Adams, 2003); CVLT-C = California Verbal Learning Test: Children's Version (Delis, Kramer, Kaplan, & Ober, 1994); CVLT-II = California Verbal Learning Test: 2nd edition of Adult version (Delis, Kramer, Kaplan, & Ober, 2000); RAN/RAS = Rapid Automatized Naming and Rapid Alternating Stimulus Tests (Wolf & Denckla, 2005); NDRT = Nelson-Denny Reading Test (Brown, Fishco, & Hanna, 1993); GORT-4 = Gray Oral Reading Test-Fourth Edition (Wiederholt & Bryant, 2001); MC = VMI Motor Coordination subtest; Purdue = Purdue Pegboard Test (Tiffen, 1968).

SPECIAL TOPIC: ATTENTION

Although there is no test that is diagnostic of ADHD, it is clearly relevant to examine deficits in attention when considering a diagnosis of ADHD. Observations (both direct as well as those gathered through rating scale, questionnaire, and interview data) are critical, but what looks like inattention through these methods can be caused by other underlying deficits (e.g., receptive language). Results from standardized tests of attention can clarify when true attentional deficits are contributing to the child's presentation.

At times, a child with ADHD will score in or above the average range on a task designed to measure attention. This does not eliminate ADHD as a possible diagnosis, but establishes the ability to attend in certain conditions. In a standardized assessment setting, these attention-facilitating conditions usually include: one-to-one child:adult ratio, reduced distractions (visual and auditory), immediate repetition of instructions and items as needed, individualized probes for additional information and clarification as needed, frequent breaks, opportunity for quiet during breaks, alternation of task types and modalities, very specific directions, clearly identified goals and outcomes for each item, and the brief nature of most tasks. This is quite different from the typical classroom with a larger student:adult ratio, many environmental sights and sounds, onetime announcement of instructions, minimal or delayed follow-up regarding the student's responses, lengthy work periods with few breaks (and often no "quiet" breaks but rather very noisy breaks like the school cafeteria), long periods of the same type task, a preponderance of spoken instruction with few hands-on tasks, vague directions that assume the child knows what to do, and sustained periods of work (6–7 hours depending on the district). When a child with apparent inattention at home and school shows good attention during evaluation, consider these factors as possible ways to understand and intervene. Good performance during evaluation indicates the ability to attend in optimal conditions, which can inform treatment planning.

Attention can be different when information is presented in isolation versus in context. Although learning is often more meaningful when a fact is connected to previously mastered information (i.e., in context), it can be hard for a child with ADHD to sort out what he needs to learn versus what he already knows. In other words, if it "sounds familiar," he may assume he already knows the information and tune out the new fact. In testing, this can be observed by a child's ability to recognize the most important aspects of a task rather than focusing on less relevant details. For example, a child may talk about how two words are related without ever identifying the core, big-picture concept (e.g., WISC-IV-Int Similarities; Wechsler, 2004). WISC-IV-Int Picture Completion is another example, in that children may struggle to identify the "most important" feature that is missing, naming something that is not part of the pictured range or that is not essential. In a standardized testing environment, the child does not have to choose among multiple speakers or determine which information source is the most relevant (as compared to a classroom in which there may be a teacher in front, students talking behind, a therapist or tutor working with another student to the side, an overhead announcement about early dismissals, and playground and hallway conversations drifting in through open doors and windows).

Working individually with a child, as is the case during an evaluation, offers a better chance than group work to realize when she is not attending, and redirect her, repeat items, request additional information, or offer a break. The contrast in a child's performance during interactive tasks and during independent tasks can be

quite revealing. Most attention tasks are independent by nature, and the length of the attention task may impact the quality of performance. Available attention tasks range from very brief (e.g., WISC-IV-Int Digit Span Forward, a matter of seconds; Wechsler, 2004), to fairly brief (e.g., NEPSY-II Auditory Attention, about 3 minutes; Korkman, Kirk, & Kemp, 2007), to sustained (e.g., most CPTs, generally over 10 minutes). Some tasks mix brief and sustained attention, such as the TEA-Ch Score! subtest (Manly, Robertson, Anderson, & Nimmo-Smith, 1998), which has a series of brief auditory attention items that are presented without interruption, resulting in a lengthier overall task. Some children are able to gather their cognitive resources to attend for short portions of lengthier tasks, but fail to consistently sustain their attention across the entire task. It is important to look at the child's pattern of responding rather than just reviewing the final score (which essentially averages out the good periods with the bad periods). Attentional fatigue can play a significant role in performance. Note that even the "long" attention tasks are less than 30 minutes, not close to the typical instructional period.

Consider both visual and auditory attention in your evaluation. Comparison of attention to different types of information is valuable when making recommendations for supporting a child's attention. Often children with attention deficits show better performance in the static, visual modality as this is less punishing for brief lapses in attention (e.g., task instructions written on the board). In contrast, if a child spaces out during spoken instruction or demonstration, that information cannot be regained and she cannot catch up.

SPECIAL TOPIC: CONTINUOUS PERFORMANCE TESTS

If there is one test that has been most associated with ADHD assessment, it is the *continuous performance test* (CPT). The CPT, sometimes called a *vigilance task*, requires continuous monitoring of certain stimuli for a sustained period of time with action required in response to a subset of those stimuli. As with any cognitive measure, a CPT can be a useful supplement in ADHD evaluations; however, a CPT score does not confirm or reject a diagnosis; history, characteristic clinical features, and impairment are required for a diagnosis of ADHD. CPTs have been well-researched, and there are a few well-standardized versions of these tests with available normative data. In light of the subjective nature of the parent-, teacher-, and child-reports via interviews and rating scales that comprise the core of ADHD assessments, it is notable that CPTs are among the only objective measures for assessing sustained attention and impulsivity. Results from a CPT can help identify the presence and severity of vigilance deficits and tendency toward impulsive responding, although they cannot identify the *source* of these difficulties. Moreover, although some studies show group differences between people with and without ADHD on various CPTs, these group differences do not necessarily dictate that a given individual with ADHD will show the same extremes in performance. In other words, just because the "ADHD group" shows deficits on CPTs does not mean that an individual child will necessarily have deficits, even though she may have ADHD. Qualitative observations during CPTs are also important to consider when interpreting the quantitative results. For example, if a child misses a number of

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targets because she has a sneezing fit, this should be interpreted differently than if she is staring into space. It can be helpful to start your stopwatch at the beginning of a CPT and keep a running log of behaviors.

Administration of a CPT usually provides information about both vigilance/attention and impulse control. Modern CPTs are computerized. Multiple symbols, pictures, or graphics are presented on the computer screen, and the child is told to respond to certain stimuli (*targets*) but not others (*non-targets*). For example, a square and a triangle might flash on the screen, with the instructions to press a button for every square, but avoid pressing the button for the triangle. In this example, the square is the target and the triangle the non-target. Omission errors, or failing to respond to an identified target (e.g., failing to press the button for a square in the example), provide information about attention to a boring task. Changes in rates of omission errors over the length of the CPT provide information about sustained attention. Commission errors, or responses to non-target (e.g., pressing the button for the triangle in the example), are usually interpreted as impulsivity. Some CPTs vary the rate of presentation (i.e., how quickly the targets and non-targets flash on the screen), which can provide information about how well the patient adjusts to variations. CPTs usually assess how quickly a patient responds to each target (i.e., *response time* or *response latency*); a change in response time over the course of the CPT can indicate a change in vigilance levels.

Some CPTs present frequent targets with rare non-targets; in other words, the patient is responding nearly constantly, with rare instances of inhibiting his response. (Following the previous example, there might be 97 squares for every 3 triangles.) This model is particularly good at capturing impulsivity as well as monitoring any drift in sustained attention. Models requiring frequent responses also provide a more accurate measure of reaction time. Other CPTs present rare targets, requiring the patient to monitor the screen with long periods of non-responding. (Continuing the previous example, there might be 97 triangles for every 3 squares.) This model can identify inattention, but is less sensitive to poor inhibition.

Advanced statistics provided in some CPTs allow you to evaluate how variable a child's responses are in comparison to the general population and in comparison to self. Some CPTs present stimuli at a constant rate, usually measured in seconds between stimuli (i.e., *inter-stimulus interval*, or ISI). Some CPTs vary the ISI, which offers a chance to evaluate how a child adjusts to change in presentation rate. For some children, different presentation rates lead to different performance. For example, a child with slow rates of information processing may miss stimuli in a fast ISI but be accurate in a slower ISI. A child with inattention may be accurate in a fast ISI but drift off during a slower ISI. Signal detection statistics offered in some CPTs include *d*-prime (*d'*) and beta (β): *d'* measures detectability or how well a child discriminates between targets and non-targets; β measures response style on a continuum from cautious to risk-taking in terms of a speed/accuracy tradeoff. In addition to general population normative data, some CPTs offer clinical comparisons with an ADHD sample.

There are many variations on the CPT protocol; several commercially available visual CPTs that have been in use clinically for decades are presented in Rapid Reference 4.6. Remember, no CPT should be used in isolation or viewed as diagnostic in nature—as with the rating scales and interviews described earlier, these are tools that can be used as part of a comprehensive evaluation for ADHD. The CPTs are also useful in assessing response to medication and monitoring the effects of different levels of medication to help identify an optimal dosage (Riccio, Waldrop, Reynolds, & Lowe, 2001).

Rapid Reference 4.6

Well-Known Visual Continuous Performance Tests (CPTs)

CPT	Length	Age Range	Stimuli and Presentation	Results	Notes
Conners CPT-II	14 minutes (optional 70 seconds practice)	6–55yo	<ul style="list-style-type: none"> Capital letters flash in center of screen Target = all letters except X Frequent responding 1-, 2-, and 4-second ISI 	<ul style="list-style-type: none"> Accuracy data (omissions and commissions) RT with SE and variability of SE Change in accuracy and RT by block Signal detection statistics (d' and β) 	<ul style="list-style-type: none"> Equipment = computer and keyboard Non-target not affected by dyslexia Test has 6 blocks, two for each ISI (gives information about adjusting to changes) In addition to general population norms, clinical ADHD norms provided for 4–18yo Norms provided by age and gender Kiddie CPT available for 4–5yo Unlimited use software
TOVA 8.0	22 minutes (plus 225 minutes practice)	6–80yo	<ul style="list-style-type: none"> Large colored rectangle with a black square in the top or bottom half Target is presented infrequently for half of the TOVA, presented frequently for the other half Constant 2-second ISI 	<ul style="list-style-type: none"> Accuracy data (omissions and commissions) RT for correct responses and correct responses after a commission error Data reported by quarter, half, and total test Signal detection statistic (d' only) 	<ul style="list-style-type: none"> Equipment = computer and special button Target is not literacy-based, may pose problems for children with spatial deficits ISI is constant, no change statistics Design allows comparison of frequent with infrequent responding demands Can evaluate whether an error results in greater caution on subsequent item Clinical ADHD sample in addition to general population norms Norms provided by age and gender Auditory version available Shorter version available for 4–5yo Pay-per-use fees apply

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Rapid Reference 4.6 (Continued)

CPT	Length	Age Range	Stimuli and Presentation	Results	Notes
GDS	< 9 minutes	6–16yo	<ul style="list-style-type: none"> • Target = "1" followed by "9" in center of screen • Infrequent responding • Constant 1-second ISI 	<ul style="list-style-type: none"> • Accuracy data 	<ul style="list-style-type: none"> • Equipment = special machine • Data from 2000–2006 suggest 1983 normative data still valid • Norms provided by age (not gender) • Distractibility and Delay modules also provided • Auditory module available for 6–12yo • Shorter vigilance task available for 4–5yo • Unlimited use equipment

Note: RT = reaction/response time, SE = standard error, ISI = inter-stimulus interval. Conners CPT-II = Conners' Continuous Performance Test II (CPT II V. 5; Conners, C. K. & MHS Staff, 2000); TOVA = Test of Variables of Attention (Greenberg, Kindschi, DuPuy, & Corman, 1996); GDS = Gordon Diagnostic System (Gordon, McClure, & Aylward, 1996)

battery also provides information about a variety of cognitive domains and the chance to observe the child completing different tasks.

When a child is struggling in school, whether indicated by low grades or the need for additional supports to learn/master material, *academic achievement testing* can be enlightening. Results from individualized academic achievement can be compared with school grades to determine if there is a gap between knowledge and performance, as is often the case with ADHD. It can be helpful to document when a child has grade-appropriate academic knowledge as this focuses intervention efforts on application of skills (rather than skill instruction). If individualized academic achievement testing identifies deficits in certain content areas or skills, further consideration of a possible specific learning disorder is indicated. Some children, particularly older students, may have gaps in their academic skills secondary to ADHD. For example, if a child has difficulty sustaining attention, she will likely struggle to follow instruction regarding geometric proofs or order of operations in algebra (in addition to struggling to attend long enough to complete an item). This can be seen as early as elementary school with skills like long division.

It is informative to assess a child's *executive functions* as part of an ADHD evaluation, particularly in forming a treatment plan. Many people with ADHD show executive dysfunction; however, executive deficits are also present in other diagnoses, including autism spectrum disorders, anxiety, mood disorders, learning disorders, and more. The presence or absence of executive dysfunction does not determine a diagnosis of ADHD, but identifying a child's profile of executive functions can suggest areas in which she will need additional structure and support in order to benefit from other aspects of the treatment plan. DSM-5 criteria for ADHD do not focus on executive functioning as a core deficit, although symptoms include aspects of executive functioning (such as disorganization, sustained effort, and self-regulation; see Chapter 1 for further discussion). Executive deficits can account for impairment in everyday functioning, particularly in bright people with ADHD. Tests of executive functions help document these real deficits and guide parents, teachers, and children as they attempt to intervene and compensate. These test results can be the reason a parent or teacher has the *aha!* moment that a child is not "lazy and unmotivated," but that he has a deficit that requires intervention.

While *visual processing* per se is not generally impaired in people with ADHD, the executive aspects of visual processing are often impacted. That is to say, figuring out how to organize and analyze complex visual information can be overwhelming from a problem-solving perspective. If you are considering the recommendation to provide instruction in the visual modality (which is

sometimes helpful for children with ADHD), it is important to evaluate visual processing first to ascertain that this modality is intact. It is helpful to compare the child's performance on simple visual tasks relative to more complex visual tasks (e.g., Developmental Test of Visual-Motor Integration-Copy condition versus Rey Complex Figure Test-Copy condition; Beery and Buktenica, 1989; Meyers & Meyers, 1995). In some settings, this may be accomplished by collaborating with another evaluator, often an occupational therapist.

Like visual processing, basic *language skills* are typically intact with ADHD, but the executive aspects of language can be problematic. These so-called *higher-order* language skills include organization, retrieval, and formulation, and can often be observed in the child's response to verbal test items. When indicated, specific language testing (often through collaboration with a speech-language pathologist) can reveal deficits that impact a child's functioning. Receptive language deficits in particular can look like inattention in verbally loaded environments like most schools. Just as discussed with academic achievement, children with ADHD often have a deficit in application of their skills. Most people with ADHD have intact ability to interpret communication factors (e.g., facial expression, tone of voice, past history with a person, current context), but they fail to consider, integrate, and apply the multiple aspects of communication when participating in a conversation.

In most cases, what seems like a *memory deficit* in a child with ADHD is actually the downstream result of the attention deficit. In order for information to enter the memory process, the child must pay attention. If she does not attend, her brain cannot encode the information into short-term memory and consolidate it into long-term memory. That being said, the executive aspects of memory and learning such as organization and retrieval are often impacted with ADHD. Open-ended questions that do not provide sufficient structure for the child to determine what information is sought may be met with a blank look or "I don't know" response. Memory tests that offer a gradation of structure can help capture the difference between "didn't learn it" (i.e., no format of cuing or questioning produces the information) and "can't find it in my memory banks" (i.e., certain cues or question types reveal hidden nuggets of knowledge).

Speed, or rate of work, can be affected in ADHD. Remember that speed involves two aspects: speed of information processing (i.e., input) and speed of responding (i.e., output). Some children with ADHD look like they are slow workers; however, this can reflect the sum of time on-task and time off-task. As described in Chapter 1, some children with ADHD are consistently slow and under-engaged, such as described by the descriptive label "sluggish cognitive tempo" (see Chapter 1). At the other end of the spectrum, some children with ADHD race through tasks and finish them very quickly, often at the expense of

accuracy. Many parents and teachers assume this is impulsivity or lack of investment in results, but anecdotal data suggest some children are aware they have a short attention span and strive to complete a task before their attention window closes. Regardless, both extremes of speed can be observed with ADHD, sometimes for the same child. In fact, variability is almost always observed with ADHD.

While *fine-motor skills* are not mentioned anywhere in the DSM-5 criteria for ADHD, fine-motor deficits are often observed in people with ADHD. Common examples include clumsiness and messy handwriting. Like many other facets of performance, children with ADHD are often blamed for their poor handwriting with comments like, “He can write well when he tries.” As is the case for many people with executive deficits, when a skill is isolated or significant cognitive resources are devoted to that skill, performance is good. But this can be at the cost of other simultaneous tasks (such as thinking of the correct answer, the best words to communicate, spelling, and mechanics, among other things).

When Should I Complete Testing?

Unless intellectual abilities have been assessed recently, it is a good idea to begin with an IQ test (or at least an IQ screen). In addition to providing an estimate of overall level of functioning, this offers a sneak peek at a number of different domains. A child’s age, communication skills, and range of functioning can guide your choice of IQ measure, so it is advisable to gather basic information before proceeding with this part of testing. If you have a fixed battery approach, you may proceed with the full battery at any point. When a flexible battery or à-la-carte approach is used, you will need additional information to decide which tests are the most appropriate to administer.

It is advisable to divide the child’s work sessions over several days, as discussed previously in this chapter. When IQ testing is completed during the first session, this gives you a sample of the child’s functioning in a number of areas and a chance to interact with her during demand tasks. This first session may inform your choice of parent, teacher, and self-report rating scales. It may suggest additional questions for interview, or the need for observation in other settings. It can lead to referrals for evaluation by other professionals such as occupational therapists and speech-language pathologists. In some instances, the first test session may suggest the need for you or the child’s parents to consult with a prescribing physician before completing additional testing (whether asking questions about type of medication, dosage amount/schedule, or need for medication). As such, testing can be an iterative process, with pauses between sessions as new information is

gathered. In reality, many settings are not conducive to this iterative process, and often testing must be completed within a few days.

SUMMARY

We believe that a responsible, DSM-based ADHD evaluation requires thorough investigation of the child's history and current presentation, including evidence of impairment in multiple settings. Record review, interview, observation, and rating scales are ways to gather this information. Cognitive evaluation, which may include tests of intellectual ability, academic achievement, executive functioning, attention, and other cognitive domains, can provide useful data for differential diagnosis and treatment planning.

DON'T FORGET

Evaluation components help you gather information about the DSM-5 criteria for ADHD:

- A. *Symptoms that are persistent:* record review, interview, observation, rating scales
- B. *Age of onset:* record review, interview
- C. *Pervasiveness:* record review, interview, rating scales, and sometimes observation
- D. *Impairment:* record review, interview, observation, rating scales
- E. *Differential diagnosis:* record review, interview, observation, rating scales, cognitive testing

Evaluation components also help you consider:

- *Comorbidity:* record review, interview, observation, rating scales, cognitive testing
- *Appropriate treatment recommendations:* record review, interview, observation, rating scales, cognitive testing

DON'T FORGET

The evaluation components described in this chapter are both overlapping and unique. No one component can entirely replace another. These components approach the child through different modalities. They offer ways to obtain data from different observers and about different domains. The child's functioning in different settings can also be evaluated through these components.

With each additional component you include in an evaluation of possible ADHD, your understanding of the child will become more complete and you will be in a better position to make sound diagnostic determinations as well as recommendations to help.

**TEST YOURSELF**

- 1. With rare exceptions, the assessment components described in this chapter should be administered in the same sequence every time.**
 - a. True
 - b. False
- 2. Which *three* things must be included in every ADHD evaluation? (Mark only three.)**
 - a. Equifinality
 - b. Multifinality
 - c. Multi-modality (a.k.a., multi-method)
 - d. Multi-reporter
 - e. Multi-setting
- 3. When a careful record review fails to produce any suggestion of competing or comorbid diagnoses, you no longer need to consider differential diagnosis.**
 - a. True
 - b. False
- 4. Which of the following can a good clinical interview provide? (Mark all that apply.)**
 - a. Current presentation
 - b. Definitive diagnosis
 - c. Developmental history
 - d. Evidence of impairment
 - e. Rapport-building
- 5. A skilled clinician with a solid background in ADHD assessment can complete the initial clinical interview in about 30 minutes.**
 - a. True
 - b. False
- 6. Which of the following statements are *true*? (Mark all that apply.)**
 - a. A child's behavior in the clinic tends to be the same as her behavior at school and home.
 - b. Biological parents are always the best informants for parent rating scales.
 - c. Parents and teachers are the primary source of information about a child's actions, thoughts, and feelings.
 - d. When you conduct a school-based observation, you must introduce yourself to the child and let him know why you are there.
 - e. Your observations of the child during interview, rating scale completion, and testing are valid elements of the evaluation.

- 7. Rating scales are consistently described as an essential element of an ADHD evaluation and as such are the only assessment tool required for diagnosis.**
- True
 - False
- 8. Which two of the following statements are true? (Mark only two options.)**
- Adaptive functioning is often lower than average for children with ADHD.
 - High scores on valid, reliable rating scales can rule in or rule out ADHD.
 - Rating scales provide objective data.
 - Rating scales provide quantitative data.
 - Validity indicators describe the psychometrics of rating scales.
- 9. Continuous performance tests (CPTs) are called the “gold standard” for ADHD assessment and as such are the only assessment tool required for diagnosis.**
- True
 - False
- 10. Choose the two true statements (mark only two options):**
- A child's performance on attention tasks can rule in or rule out a diagnosis of ADHD.
 - Children with ADHD always score in the impaired range on attention tasks.
 - Cognitive testing can help identify considerations for differential diagnosis and comorbid disorders.
 - Cognitive testing is an essential part of every ADHD evaluation.
 - Executive dysfunction is not exclusive to ADHD; it is also seen with other disorders.

Answers: 1. b; 2. c, d, & e; 3. b; 4. a, c, d, & e; 5. b; 6. e; 7. b; 8. a & d; 9. b; 10. c & e

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PUTTING IT ALL TOGETHER

Integrating Findings and Drawing Conclusions

At this point you have applied your knowledge of ADHD, including DSM-5 criteria for diagnosis (American Psychiatric Association, 2013a), to gather comprehensive data about a child using multiple sources of information about multiple settings through multiple modalities of assessment. Now it is time to review, organize, and integrate these data. A summary worksheet is valuable at this stage, grouping data in a way that allows you to look for consistent patterns that reveal the big picture and inconsistencies that must be resolved before reaching conclusions. Guided by the referral question(s) and presenting problems, you must apply your findings—not only toward reaching a diagnostic decision but also toward conceptualizing the case more broadly, and making treatment recommendations. Although the focus of this book is on reaching a diagnosis, keep in mind that your assessment provides valuable data to guide intervention efforts. Remember, appropriate training and clinical judgment are essential throughout this process; no set of written guidelines can be adequately implemented without the necessary background and professional skill set.

This chapter serves as a concise refresher on key concepts discussed previously in this book. This brief review cannot substitute for reading the prior chapters, but should remind you of essential details. In the following sections, we examine helpful considerations as you approach the core question: *Is this ADHD?* We provide some clinical tips for how we think about differential diagnostic decisions and some common diagnostic challenges (including comorbidity). We continue with suggestions for how to address discrepancies that often arise among the data collected in a comprehensive evaluation. This chapter concludes with

recommendations for integrating your results with the referral question(s), applying your findings to treatment planning, and providing feedback.

CLINICAL APPLICATION OF THE DSM-5 CRITERIA FOR ADHD

We outlined the DSM-5 criteria for ADHD in Chapter 2. Chapter 3 expanded on key concepts contained in the DSM-5 criteria. In Chapter 4, we described ways to obtain information about these diagnostic criteria. The goal of this section is to help you integrate the rules, concepts, and data. Chapter 6 offers several case examples to illustrate application of these principles.

As you begin reviewing data from an ADHD assessment, remember that the diagnostic rules go beyond counting symptoms listed in Criterion A. Criteria B through E outline age of onset, pervasiveness, impairment, and exclusions required for a diagnosis of ADHD. Furthermore, if ADHD applies, you must specify the presentation type (i.e., Combined, Predominantly Inattentive, or Predominantly Hyperactive/Impulsive) and severity (i.e., Mild, Moderate, or Severe). When appropriate, you may specify “in partial remission.” The DSM-5 text (and Chapters 1, 2, and 3 of this book) provides further guidance about diagnostic features, associated features, prognosis, development/course, risk and prognostic factors, culture- and gender-related issues, consequences of ADHD, differential diagnosis, and comorbidity. Understanding this information is important, but sometimes it can be challenging to apply it in real-world practice. Over the next few sections, we will offer practical tips for how to use your data to make determinations like when behaviors count as symptoms, whether there is sufficient evidence for onset before 12 years old, if persistence and pervasiveness criteria are met, and whether there is true impairment. (See Rapid Reference 5.1 for a summary of five questions to help you apply the DSM-5 criteria for ADHD.)

DON'T FORGET

The DSM-5 criteria for ADHD go beyond a symptom checklist. Remember to evaluate age of onset, pervasiveness, impairment, and other explanations for the symptoms. Include the presentation type and current severity.

Criterion A—Symptom Count: Are There Sufficient Symptoms for Diagnosis?

The DSM-5 lists 18 symptoms of ADHD, 9 for Inattention and 9 for Hyperactivity/Impulsivity. For a diagnosis, the child must show at least 6 in a category

(5 if she is 17 years or older). In the abstract, it seems simple to review interview, rating scale, and observation data from your evaluation so you can check off relevant symptoms and count them up. In reality, this step requires much greater attention to detail and considerable clinical judgment.

Each DSM symptom of ADHD includes the word *often*. This means that a single example is not sufficient to justify the symptom. For each symptom, review your data to determine if there is a pattern of frequently occurring behaviors consistent with the symptom. There may be different behaviors described by different raters in different settings, but if they all support the symptom, this is adequate. For example, a child may have daily “careless errors” in math calculation at school, consistently overlook key words (like *not* when reading), and miss steps in making recipes at home. Even though different examples are present in each setting, they are all manifestations of the first DSM-5 Inattention symptom (namely, inattention to details/careless mistakes). A more challenging problem is discrepancies, where some raters describe frequent behaviors that fit a symptom description, but others see no evidence. We offer suggestions for how to reconcile such discrepancies later in this chapter.

You must also determine whether the child’s behaviors are *inconsistent with expectations*. The DSM-5 symptom description begins with a reminder that symptoms must be deviant from a child’s developmental level. Your knowledge of typical development is critical here; good normative data are also an asset (see discussion of rating scales ahead). Although not explicitly stated in the criteria for ADHD, the DSM-5 and good clinical practice caution that behaviors should also be deviant from expectations for the child’s gender, setting, and culture as well (see Chapters 1 and 3 in this book). Keep in mind that *often* is not an absolute rule for whether a behavior counts as a symptom; the frequency must exceed expectations for the child’s age, gender, setting, and culture. For example, many preschoolers “often” have difficulty playing quietly, but this is interpreted differently than for high-schoolers with the same difficulty; the context establishes whether *often* is meaningful. Be sure to consider setting when establishing whether a behavior is inconsistent with expectations. The DSM-5 explicitly references situational expectations in several items (e.g., “. . . leaves seat . . . when remaining seated is expected . . .” and “. . . runs about . . . where it is inappropriate . . .”). This reminds us to consider whether the behavior is appropriate or whether it might represent a symptom.

Rating scales with normative data are particularly helpful in examining if behaviors occur more frequently than expected for age (and gender, depending on how normative data are presented). A reasonable rule of thumb is to consider a score 1.5 standard deviations above the mean (e.g., T-score ≥ 65) as cause for

concern. Some clinicians use less strict standards (e.g., 1.0 standard deviation above the mean, or T-score ≥ 60), particularly if they are concerned about missing cases (i.e., they want to reduce false negatives), although this increases the chances of over-identification. Some clinicians, particularly researchers, may use more strict standards, such as 2.0 standard deviations above the mean (i.e., T-score ≥ 70) to reduce false positives (although this risks under-identification). Regardless of what you use as your cut-point, remember that these scores are all relative. For example, the difference between a T-score of 64 and 65 is not clinically meaningful. In the case where a reporter tends to endorse low levels of symptoms with many scores in the 40s, a T-score of 60 indicates cause for concern (in comparison to a T-score of 60 for a rater whose other scores are in the 80s). Use your clinical judgment and interpret these scores within the context of your other data. Keep in mind the caution that age is not a fair representation of developmental level for some children (e.g., intellectual disability). In these cases, rating scales will still provide useful data, even if simply offering a way to gather data about frequency of behaviors.

Remember, a behavior must *negatively impact* the child's activities to count as a symptom. It must *interfere with functioning or development*. Sometimes this is evident, such as when classmates repeatedly complain about a child's rude interruptions and avoid playing with him. Other times it is more challenging to confirm negative impact and interference, such as when a child seems to "get by" but you suspect she is being held back by a behavior that may be a symptom of ADHD. This symptom-level requirement for negative impact and interference is closely tied to the broader topic of impairment (see discussion later in this chapter). Remember at this stage of integrating your data, you are evaluating whether a behavior negatively impacts activities and interferes with functioning or development; this is part of how you establish that the behavior counts as a symptom.

Even at this symptomatic level, the DSM-5 requires you to consider the cause of the behavior. If the behavior occurs primarily due to *limited comprehension*, or due to *oppositional behavior, defiance, or hostility*, it does not count toward an ADHD diagnosis. These causes should lead to consideration of other diagnoses, like language disorder, oppositional defiant disorder, and conduct disorder.

Even after behaviors have met the requirements to be considered *symptoms*, you must establish that the symptoms have been present for *at least six months*. This can be more difficult to determine in young children, particularly those who have not yet begun formal schooling. When a preschooler falls short of this six-month threshold, some clinicians use the label "at risk for ADHD," deferring formal diagnosis until the symptoms have persisted for a year. This reduces the risk of

CAUTION

A behavior is not a symptom of ADHD unless it:

- Occurs “often”
- Is inconsistent with the child’s developmental level
- Negatively impacts his activities and interferes with functioning/development
- Is part of a persistent pattern (at least six months)
- Is not secondary to poor understanding or oppositional/defiant/hostile behavior

pathologizing normal developmental variations or temporary reactions to life events (see Chapter 3). Such practice is consistent with the purpose of the persistence criterion, which is to distinguish ADHD symptoms from transient behaviors that might reflect normal development or reactions to stresses. Finally, keep in mind that you are looking for a *persistent pattern* of behaviors. Thus, if a child shows symptoms sporadically, ADHD is likely not the best diagnosis.

Your data for determining symptom count can be gathered from a

number of sources. Interviews, rating scales, and observations can provide information about current presentation. Rating scale data help establish both frequency of symptoms and deviance from peers. The actual rating of an item (e.g., *never, sometimes, often, always*) suggests frequency from the rater’s perspective, and the norm-based scores describe the frequency of behaviors relative to peers. Record review and interviews can shed light on current symptoms and also give you access to historical data, which is needed to establish a persistent pattern of behaviors. Results from cognitive testing can provide supplemental evidence of a symptom (e.g., impulsive responding on a CPT would correspond with difficulty waiting). Most of these modalities can also provide data about negative impact and interference with development or functioning.

Remember that the symptom count for DSM-5 ADHD is established separately for each category of symptoms. In other words, if you have 3 symptoms from the Inattention category and 3 symptoms from the Hyperactivity/Impulsivity category, this does not equal 6 symptoms for the symptom count. Each category has a separate symptom count threshold (≥ 6 for children 16 years or younger, ≥ 5 for people 17 years or older). You must exceed that threshold for *both* categories to consider the diagnosis of ADHD Combined presentation. In other words, a child who is 16 years or younger must have ≥ 6 Inattention symptoms *and* ≥ 6 Hyperactive/Impulsive symptoms (i.e., a total of ≥ 12 symptoms) for possible diagnosis of ADHD Combined.

It may be helpful to summarize your evidence for each of the 18 DSM-5 symptoms of ADHD, circling those that have strong support, using parentheses for those with borderline support, and crossing out those with inadequate support.

Review this summary. If you exceed the symptom count threshold with the circled items, you can move forward to the next DSM-5 criterion, age of onset. If the number of circled symptoms is not adequate, consider your items with questionable support. Return to your data to decide whether there is sufficient evidence to circle the item. Consider further interviews with the parent, teacher, or child to gather more data as you reach this decision. If you find the child has strong evidence of most symptoms in a category (e.g., 4 of the 9 Inattention symptoms are clearly indicated with borderline evidence for an additional 4 of the Inattention symptoms), you may consider moving forward with a possible ADHD diagnosis that could be coded as “Other Specified ADHD (with borderline inattention symptoms).” If the child has inadequate evidence of symptoms in a category, you are advised to consider explanations for her struggles other than ADHD. Note that the number of symptoms should also be considered when specifying severity for the diagnosis.

Criterion B—Onset: Were Several Symptoms Present Before 12 Years of Age?

After establishing that the child’s behaviors qualify as symptoms of ADHD, and that the symptom count meets or exceeds the diagnostic threshold set by the DSM-5 for his age, the next step is confirming age of onset. Current criteria do not require that all symptoms be present before 12 years old; only that “several” symptoms were present. Remember that in order for a behavior to be considered a symptom, it must negatively impact the child’s activities, so impairment before age 12 is built into the criterion. By definition, if a child younger than 12 years meets symptom count requirements, she also meets the age of onset criterion. Although establishing age of onset can be more difficult with older adolescents given issues with retrospective recall (see Chapter 2), the DSM-5 has made this criterion easier to assess by no longer requiring onset prior to age 7.

We find it clinically relevant to establish approximate age of onset rather than simply verifying onset before 12 years old, as onset prior to school entry may be associated with more severe ADHD and greater risk for cognitive and reading deficits as well as for the future development of certain comorbidities (McGee, Williams, & Feehan, 1992). Examining age of onset can also illuminate possible situational demands that could have overtaxed the child’s capacities, with possible relevance for treatment planning.

Record review is the preferred data source for evaluating age of onset, as it is least subject to retrospective bias. Teacher comments on report cards are particularly helpful for this criterion. Interviews are another way to obtain

information about when symptoms were first noted, although this modality is more vulnerable to distortion. It can help to anchor recall by asking about specific events such as birthday parties, school performances, and teacher conferences.

Criterion C—Pervasiveness: Are Several Symptoms Present in at Least Two Settings?

The next step is confirming that the symptoms of ADHD are pervasive, that they occur in two or more settings. Finding that symptoms are cross-situational helps establish that they are part of a persistent pattern, more likely related to something within the child rather than a reaction to a specific setting. As noted in Chapter 3, it is unlikely that you will find 100% agreement among all of your reporters, settings, and modalities. This DSM-5 criterion does not require absolute agreement. Just as previously discussed for symptom count, symptoms may vary across settings. Remember that variability is a hallmark of ADHD. Some settings may minimize the expression of symptoms while others may exacerbate symptoms.

One physical location may actually provide multiple settings to consider for this criterion. For example, the child's school includes a variety of settings (e.g., multiple classrooms, recess, cafeteria, gym, hallway between classes, sports practice). In addition to the physical settings of home, school, and work, social interactions, family relationships, and leisure activities are examples of settings to assess. Evidence of cross-situational symptoms can be established through most assessment modalities, particularly record review, interview, observation, and rating scales.

In most cases, if symptoms are present to some degree at school, they are also present to a degree at home and in the community. On rare occasions, you may be confronted with a child who has evidence of symptoms only at school but not at home (or vice versa). In such cases, we find it helpful to consider historical data to determine if the child typically struggles in multiple settings (i.e., the "symptom-free" setting is a current exception), or whether the child typically performs well across settings (i.e., the current set of symptoms are atypical for him). Similar concerns from multiple raters within a location (e.g., different teachers) can also provide evidence of pervasiveness. This will help you determine whether multiple settings in one physical location are adequate for meeting this criterion.

Criterion D—Impairment: Do Symptoms Interfere with or Reduce the Quality of Functioning?

After establishing that the child has sufficient symptoms that began before 12 years and that are present in multiple settings, the next step is evaluating

impairment. Remember, you have already considered aspects of impairment with Criterion A, which requires that each symptom negatively impacts the child's activities, as well as that the pattern of inattention and/or hyperactivity/impulsivity interferes with functioning or development. Criterion D in the DSM-5 strongly reiterates the necessity of impairment for diagnosis, requiring *clear evidence* that the symptoms either *interfere with functioning* or *reduce quality of functioning*. This firm reminder about ADHD supplements the broader DSM-5 definition of a mental disorder, which requires disturbance in functioning with accompanying dysfunction and/or distress (the “three D’s” discussed in Chapter 2 of this book). The concept of impairment is integral to the DSM-5 and the process of diagnosis. Impairment is key to differentiating the extreme end of typical functioning from a clinical disorder.

As discussed in Chapters 1 and 3 of this book, ADHD-related impairments include problems in academic, social, and family functioning as well as medical and health-related issues. Quality of life is one way of describing degree of impairment. Evidence of impairment is straightforward when grades are lower than ability-based expectations or when a child has interest in friendships but no friends. Sometimes, particularly when a child has the ability to compensate for symptoms of ADHD, the evidence requires close examination to be detected. Remember that distress as well as dysfunction can substantiate impairment. For example, if a child is making good grades by virtue of working twice as long as classmates and sacrificing leisure and social activities, his good academic functioning is achieved at the cost of reduced functioning in other domains and is likely associated with emotional distress. This would be considered evidence of impairment as required for the DSM-5 Criterion D.

Information about impairment can be obtained from many sources and modalities, including record review, interviews, and observations. Some rating scales include items that help establish impairment (e.g., “Do these problems interfere with her social functioning?”). Cognitive testing can help establish a child's abilities, which can also reveal impairment when compared with the child's everyday functioning.

Keep in mind that determining impairment is relative; you must decide what to use as a comparison group (e.g., children of the same age versus same ability level; see Chapter 3). Include a description of the comparison when you report impairment (e.g., impaired relative to age-based expectations). Always be certain to establish clear evidence of impairment, as this is essential in distinguishing clinical ADHD from normal variations in attention, activity level, and impulse control. Also, impairment is a key way to establish the severity specifier.

Criterion E—Exclusions: Are Symptoms Better Explained by Another Disorder?

This criterion in the DSM-5 reminds us that in order for symptoms to be called “ADHD,” we must establish that they are not better explained by another disorder. In other words, it is not enough to make sure it is ADHD (i.e., inclusion), you must also make sure it is *not* something else (i.e., exclusion). This is part and parcel of differential diagnosis—that is, differentiating between ADHD and everything else that might produce similar symptoms. Unfortunately it is not always a simple “either ADHD or something else” decision; often there are comorbid diagnoses to consider. This can be challenging, but achievable provided one devotes adequate time and attention to the task. We provide some general guidelines as well as disorder-specific suggestions for approaching differential diagnosis and comorbidities later in this chapter.

What needs to be excluded? Remember, a number of psychological, medical, and situational factors can disrupt attention, activity level, and impulse control (see Chapter 3). Criterion E in the DSM-5 specifically references psychotic disorders, mood disorder, anxiety disorder, dissociative disorder, personality disorder, and substance intoxication/withdrawal. A wise clinician recognizes that these are examples of disorders that should be examined, but that the list is not exhaustive. The essence of Criterion E is to remind us that we must exclude alternative explanations for the symptoms before concluding that a child has ADHD. Your record review and interviews will help determine whether an updated physical exam is needed to rule out possible medical explanations for the symptoms. Careful clinical interviews and observations can help identify other factors that should be considered, including mental health and psychosocial issues. Rating scale data can suggest other diagnoses that must be investigated as possibilities. Results from cognitive testing can reveal additional possibilities, particularly when intellectual disability or specific learning disorders are present.

Establishing whether other factors or disorders account for symptoms of ADHD is essential not only for diagnosis, but also for intervention. For example, if a child’s concentration problems and psychomotor agitation are part of a major depressive disorder, she will be poorly served by a treatment plan that assumes these are symptoms of ADHD. Similarly, if a child’s symptoms are secondary to abuse or neglect, a different intervention plan is mandated than if he has ADHD. We will return to these important points in the next section about differential diagnosis.

Rapid Reference 5.1

Key Questions for Application of DSM-5 Criteria for ADHD

- A = Symptom count: Are there sufficient symptoms for diagnosis?
- B = Onset: Were several symptoms present before 12 years of age?
- C = Pervasiveness: Are several symptoms present in at least two settings?
- D = Impairment: Do symptoms interfere with or reduce the quality of functioning?
- E = Exclusions: Are symptoms better explained by another disorder or factor?

DIFFERENTIAL DIAGNOSIS AND COMORBIDITY

As described in Chapter 2, differential diagnosis is the process of choosing which diagnosis best accounts for the child's symptoms. Sometimes this involves mental health diagnoses, sometimes medical or developmental issues. In other instances, the best explanation does not involve a formal diagnosis at all but environmental or situational factors (including psychosocial and cultural issues). Because some children's symptoms are best accounted for by a combination of disorders, differential diagnosis usually includes considering possible comorbidities (i.e., co-occurring disorders). This is particularly true for ADHD, which has high rates of comorbid disorders (see Chapter 1). Although differential diagnosis and comorbidity are different concepts, they are closely intertwined as you will consider both at this stage of integrating your assessment data.

Periodically reviewing the DSM-5 (or, at a minimum, the overview of disorders listed on p. xiii in the DSM-5) can serve as a good reminder of diagnoses that you might not routinely consider, reducing the chances that you will become stuck in a rut and forget about branches of the DSM tree when thinking about differential diagnosis and comorbidity. Many have attempted to develop decision trees and computer algorithms to guide clinicians through the process of differential diagnosis. Some structured interviews are based on such decision matrixes. These efforts provide helpful ways to structure your thinking and organize your data, with the caveat that interpreting the results still requires clinical judgment and experience. In other words, there is no magic formula to know whether a child has ADHD, has ADHD with comorbidities, or does not have ADHD.

You will use information from all aspects of your evaluation as you consider differential diagnosis and comorbidities. This is the reason why you must cast a

broad net rather than fishing only for ADHD during your assessment. We recommend including broadband rating scales for parents, teachers, and children, to help identify other diagnostic categories that may apply. Be sure your interviews include screening questions for a variety of disorders and follow up affirmative responses with more detailed questioning (perhaps guided by the relevant section of a structured diagnostic interview). Testing can help you identify cognitive and academic factors that may be contributing to the child's difficulties. Failure to adequately differentiate between ADHD and alternative explanations for its symptoms is a primary cause of over-identification of ADHD, a serious concern when trying to help others understand the source of a child's struggles and plan interventions. Thus, differential diagnosis and assessing for comorbidities is a critical stage in integrating your assessment data.

The DSM-5 provides brief summaries of key differences between ADHD and a number of disorders with overlapping symptoms. There is also a paragraph about diagnoses that are often comorbid with ADHD. We provided further information about comorbidities in Chapter 1. In the following section, we survey key factors that are useful when discriminating ADHD from other disorders. Following this broad perspective, we offer guidance on differentially diagnosing ADHD from a number of specific disorders and on considering their possible comorbidity with ADHD.

How Do I Discriminate ADHD from Other Disorders?

There are a number of factors that are generally relevant to the differential diagnostic process, regardless of the specific disorders being considered. Although these factors can help guide your review of data obtained, they are intended to augment, and not replace, DSM-5 criteria and guidelines. Consideration of the following variables (summarized in Rapid Reference 5.2) will help with both differential diagnosis and comorbidity decisions.

Command of Child Psychopathology (Including But Not Limited to ADHD)

This may seem self-evident, but it bears repeating. Understanding the meaning and intent of the DSM-5 criteria for ADHD helps you recognize when a behavior is part of an ADHD symptom profile. This also requires understanding other disorders in the DSM-5 so you recognize when the *presence or absence of a behavior* shifts the child's presentation to another diagnostic category. Consider a child with excessive talking. This could be a symptom of ADHD, particularly if it occurs with other hyperactive/impulsive behaviors. When the talking is perseverative, restricted to a particular topic, has accompanying deficits in social communication

and social interaction, and is part of other restricted/repetitive patterns, you should consider possible autism spectrum disorder. If the excessive talking revolves around certain anxiety-provoking topics and occurs with repetitive behaviors or mental acts, it is relevant to investigate possible obsessive-compulsive disorder. In these examples, recognizing the presence or absence of essential features for ADHD, as well as those for other disorders, helps you approach differential diagnosis. Remember, the diagnosis of ADHD requires a persistent pattern of impairing features of inattention and/or hyperactivity/impulsivity.

It is also helpful to look beyond the observed behavior itself and consider the *basis for the behavior* and the circumstances that elicit it. For example, many children present at clinics with features of noncompliance. Oftentimes assumptions are made that the child is unwilling to comply, and he is called “oppositional” (which can be a red herring leading to a misdiagnosis of oppositional defiant disorder). If you determine that the child usually follows directions when she is paying attention and that her noncompliance occurs when she is not attending, this strengthens support for considering this a symptom of ADHD. Likewise, if you observe good compliance when a task is demonstrated and limited compliance when verbal directions are provided, this suggests possible receptive language disorder. Understanding what precipitates the symptom and situations in which the symptom is and is not observed helps you think about which diagnosis is the best match for the symptom. When core features of inattention and limited self-regulation underlie behaviors, ADHD is a likely suspect. Knowing the essential features of ADHD, as well as general child psychopathology, provides the context within which you interpret the observed behaviors.

A third aspect of child psychopathology that guides diagnosis is knowledge of *prevalence* rates. Use greater caution when considering a diagnosis with low prevalence. For example, ADHD is much more common in children than bipolar disorder. This does not mean that you should assume that a more common diagnosis is accurate for a given child; even rare disorders occur sometimes. To quote one version of an old medical aphorism, “If you hear hoofbeats, it usually means horses are approaching . . . but if you never look for a zebra, you’ll always miss a unicorn.”

In sum, it is critical to be familiar with the broader field of child psychopathology before attempting to diagnose ADHD. This knowledge base expands your ability to recognize when a symptom cluster is more consistent with something other than ADHD. Your knowledge of psychopathology guides questions to clarify the underlying causes for behaviors, which can point to different diagnoses. Finally, being familiar with the relative prevalence of disorders can direct your thinking about the likelihood of a given disorder in a child.

Onset and Course

Review data from your record review and interviews, looking for information about onset and course. When were symptoms first evident? At times, identifying the *age of onset* can help eliminate diagnostic possibilities. For example, if the symptoms were not evident before age 12, then the child cannot be diagnosed with ADHD. For differential diagnosis, you are also looking at the *timeline* for onset of symptoms. Examine events preceding and coinciding with the emergence of symptoms. For example, if a child's inattention and impulsivity began after a brain injury, with no evidence of impairment prior to that neurologic event, a diagnosis of neurocognitive disorder due to traumatic brain injury should be considered rather than ADHD. If poor concentration is first noted after exposure to a traumatic event, trauma- and stressor-related disorders are more likely than ADHD. Problems associated with ADHD may be more evident at certain developmental stages (e.g., major educational transitions, such as occur at kindergarten, third grade, sixth grade, high school, and college) as expectations shift, but the context does not cause the symptoms. Remember, ADHD is a neurodevelopmental disorder; symptoms usually emerge in early childhood with a gradual (not abrupt) onset.

In your data review, also examine the *course* of the symptoms. ADHD presents with a persistent pattern of inattention and/or hyperactivity/impulsivity. If a child's symptoms wax and wane, try to identify any factors that exacerbate or optimize the child's environment (see Chapter 2, "Persistence"). Remember, ADHD is characterized by variability, but this tends to be consistent variability (e.g., on a daily or even hourly basis). Symptom presentation for ADHD may change with development, but symptoms typically do not disappear for weeks or months at a time during childhood. Stressors may temporarily exacerbate symptoms of ADHD (and relaxed demands during vacations may briefly reduce symptoms), but such time-limited factors should not be able to account for the *presence* of symptoms if it is ADHD, despite impacting their severity. When a child has weeks or months without symptoms, this is more likely a condition with episodic or sporadic features rather than the chronic pattern of ADHD. Primary considerations in such cases include mood disorders, psychotic disorders, and certain medical conditions.

Onset and course are particularly critical elements when determining whether ADHD is present in addition to an episodic diagnosis. Carefully gather information about the child's presentation when the other condition is waning or in remission. If the symptoms of ADHD are present only during active stages of another condition (e.g., only when the child is depressed), then support for a persistent pattern of symptoms is lacking and you can rule out ADHD.

Family History

Science is not at the stage where there is a genetic test for ADHD (see Chapter 1). That being said, information about the psychiatric history of blood relatives can provide hints about possible explanations for the child's presentation. In cases where you are deciding which diagnosis might apply, the suggestion of a genetic "loading" for one of the disorders gleaned from family history may help to inform your decision. For example, if there are no family members with a history of depression or bipolar disorder, but a high rate of ADHD in the family tree, ADHD is a more likely diagnosis for the child. This information is usually obtained through background questionnaires and initial interviews.

Remember, family history is far from a definitive diagnostic sign, but can provide hints about diagnostic possibilities and help to tip the scales when you are weighing competing diagnoses. At a minimum, a strong family history of a condition indicates you should consider it in your differential diagnosis for the child. You can use this information to plan proactive skill development (e.g., develop strong coping skills in a child with family history of using substances to deal with stress). When the child does not present with features consistent with a diagnosis that runs in her family, address this directly to reassure parents who may be concerned about history repeating itself.

Response to Intervention (RTI)

The response to intervention (RTI) model involves identifying a child's weaknesses, providing a research-based intervention, and monitoring progress (or lack thereof) in order to literally determine her response to the intervention. RTI gained popularity when it was included in the Individuals with Disabilities Education Improvement Act (IDEA, 2004) as a means to identify students with LDs. This encouraged a paradigm shift from "wait and see" to "try and see."

While a child's response to intervention cannot determine his diagnosis, it can provide useful information as you consider differential diagnosis. For example, if historical data suggest that a child showed significant improvement in her attention during a time she was participating in weekly therapy sessions designed to reduce anxiety, this suggests her attentional difficulties might be related to anxiety rather than ADHD. Usually RTI data can guide treatment recommendations, even when they may not clarify differential diagnosis decisions. Record review and interviews are good ways to learn about RTI for a child. You may also choose to try some interventions to observe the child's response firsthand, such as evaluating the benefit of dividing work sessions into smaller bursts of work separated by breaks, offering the child a choice of which task he completes first, or giving him options for how to complete a task.

Rapid Reference 5.2

General Considerations in Differentiating ADHD from Other Disorders

- Knowledge of ADHD's essential features
- Command of child psychopathology
- Onset and course
- Family history
- Response to intervention

Be very careful, however, that you do not assign a diagnosis based on response to treatment. Remember that RTI is a source of data, not a diagnostic procedure. This is particularly important in the case of a child's response to medication. It is easy to succumb to the assumption that a positive response to medication means the child has the disorder that the medication is typically used to treat. This is not true, as illustrated by the finding that most people without ADHD show some degree of cognitive enhancement when taking medications typically prescribed for ADHD (e.g., see Krueger, Leaman, Bergoffen, Pickett, & Murray, 2011; Müller, Rowe, Rittman, Lewis, Robbins, & Sahakian, 2013; Ragan, Bard, & Singh, 2013; Repantis, Schlattmann, Laisney, & Heuser, 2010; Smith & Farah, 2011; Vrecko, 2013). Do *not* assign a diagnosis based on a child's medication response; in fact, do not even include medication response among the data considered to inform diagnostic decisions.

Common Diagnostic Challenges

In this section, we describe how we approach a number of specific differential diagnostic and comorbidity challenges. All of the guidelines provided above should be considered with every child; the suggestions here may be referenced as you narrow down possibilities. This section does not provide exhaustive coverage of all the information relevant to differentiating ADHD from the disorders listed. It simply highlights some of the considerations that are useful when considering differential diagnosis of ADHD. You may find it helpful to review information provided in Chapters 1 and 2 about conditions that are often comorbid with ADHD. (*Note:* The following topics are generally arranged in the order they appear in the DSM-5 Table of Contents.)

The So-Called “Normal” Condition

The absence of any disorder at all should be the first possibility you consider in the differential diagnosis of ADHD. Remember that most typically developing, non-disordered children show some features of ADHD at times. As long as you follow DSM-5 criteria, particularly those related to developmental deviance and impairment, you will be able to rule out normality. This can be most challenging in young children given their high base-rates of ADHD-like behaviors (see Chapter 3), but remember you can always defer diagnosis and allow the passage of time to clarify whether ADHD is present. You can also follow RTI principles; behavioral approaches and parent training do no harm and are often beneficial for families with and without disordered children. When you suspect the normal condition, it can be helpful to explain the wide range of developmental variation in typical functioning to provide a context for why expressed concerns do not meet criteria for diagnosis. (*Note:* The DSM-5 uses V71.09 to indicate “no mental disorder present”).

We would be remiss if we ignored the issue of individuals feigning ADHD. In general, most children are referred for an ADHD evaluation because they are legitimately struggling. Unfortunately, there are cases where a diagnosis of ADHD is sought for other reasons, such as obtaining special accommodations (e.g., extended time on college admission exams) and/or medical prescriptions (for personal enhancement or for resale). It is fairly easy for a parent or adolescent to describe the hallmarks of ADHD in an interview or to endorse them on a checklist (particularly one that only asks about symptoms of ADHD). By completing a comprehensive evaluation you have a better chance of recognizing real ADHD versus faked ADHD. Again, by following the DSM-5 criteria for diagnosis, you will detect gaps and inconsistencies in the story. Record review helps you consider whether there were prior issues, even if they were not identified as ADHD. A sudden onset of symptoms without any historical evidence of distress or extreme effort to compensate is a warning sign. Your interview may reveal either a shallow or exaggerated quality in the report of symptoms (e.g., one prepared example per symptom with difficulty producing additional examples; endorsement of every symptom with seemingly “canned” examples). You may observe behaviors during the interview that are inconsistent with a diagnosis of ADHD; although these exceptions can occur with true ADHD, you can seek corroboration from other sources (e.g., teacher ratings, report card comments). Your choice of broadband rating scales that intersperse ADHD symptoms with other items and that include associated features in addition to the cardinal DSM-5 symptoms will improve your accuracy in detecting possible concerns about validity of report. Finally, you may capture information about effort during your cognitive testing (e.g., when you sense that a child is intentionally not exerting his best effort). In most cases, there

are underlying issues that motivate the child or parents to seek a diagnosis, and your care and concern during a comprehensive evaluation will help you identify ways to maximize the child's performance without compromising your professional integrity. For example, you might be able to offer study strategies based on relative strengths and weaknesses, even though the child does not meet criteria for a diagnosis.

Intellectual Disability (ID)

Identifying intellectual disability (ID) is relatively straightforward when a child has a low IQ and impairment in adaptive functioning. Without these data, mild ID may look like ADHD in that the child presents with attention and self-control below age-based expectations. Once a diagnosis of ID is confirmed, you must determine if there is comorbid ADHD. If the child's attention, activity levels, and impulse control are commensurate with her level of cognitive functioning, there is no support for an additional diagnosis of ADHD—remember that the DSM-5 requires that the symptoms are inconsistent with developmental level, which is not the same as chronologic age for a child with ID. If the child's inattention, hyperactivity, and impulsivity are worse than expected for her cognitive level (i.e., the old concept of "mental age"), you may consider a comorbid diagnosis of ADHD. Data from cognitive testing and your knowledge of typical development can inform this decision.

Language Disorders

Children with receptive language deficits often appear inattentive, particularly in language-rich environments. The more you talk, the less they listen. This behavior can also be observed with ADHD, but for different reasons. One way we differentiate between these issues is by examining the impact of environment and instructional modality on the child's performance. A child with ADHD is likely to show improvement when changing from a large group setting to individualized instruction. A child with language deficits will be more responsive when given demonstration and visual cues with reduced language. Results from a speech-language evaluation are a vital part of this differential diagnosis, although it is important to consider the impact of attention on receptive language tests. Consult with the speech-language evaluator to discuss whether attention impacted performance, so you can interpret whether low scores are due to language deficits versus inattention. Remember that ADHD and language disorders can be comorbid.

Autism Spectrum Disorder

Many children with an autism spectrum disorder (ASD) have features of ADHD, namely inattention and high activity levels (Mayes, Calhoun, Mayes, & Moltoris, 2012). For example, children with ASD and children with ADHD were

found to be indistinguishable on the basis of CPT scores (Mayes & Calhoun, 2007). Other possible overlapping features include irritability, executive deficits, fine motor impairment, and sleep problems. Some of the shared features appear to be related to other comorbidities (e.g., ADHD + ODD overlaps with ASD on behavioral issues like explosiveness) (Mayes et al., 2012). A handful of studies have pursued ways to discriminate between ASD and ADHD. Key differences include social impairment, language, play, and cognitive rigidity.

Although both ADHD and ASD often involve social impairment, the quality of social deficits is dramatically different. Within ASD, nonverbal communication (e.g., eye contact, facial expression, gestures) is less evident and less meaningful to the child. In contrast, when a child with ADHD is paying attention, he displays and understands these communication elements. Indeed, the pervasive deficits in social understanding that are commonplace in ASD are rare in ADHD. Social motivation, such as seen by the desire to please others or response to praise, is another distinctive feature present in ADHD but often absent with ASD. While children with either diagnosis may experience social rejection, a child with ASD is more likely to be content in solitary pursuits whereas a child with ADHD is likely to want friends (although some, after experiencing consistent social rejection, may opt for isolation as a defense against hurt feelings). From an RTI perspective, children with ADHD are more likely to respond to behavioral treatments involving social rewards than are children with ASD.

In addition to social communication differences, language and play are also qualitatively different. Children with ADHD rarely have stereotyped or idiosyncratic language, whereas these are common in ASD. Likewise, children with ASD tend to have limited imaginary play skills, but these are not typically impaired with ADHD (Hartley & Sikora, 2009).

Another distinctive difference is cognitive rigidity. Although consistent, predictable structure benefits children with either diagnosis, children with ASD are more likely to be distressed by and resist any change in routine. A child with ADHD will gladly accept change if it allows her to escape a dreaded activity or gains her a desired reward.

Until recently, the presence of autism excluded the possibility of a diagnosis of ADHD. As a result, comorbidity data are limited, although many clinicians and researchers have noted concerns about attention, activity level, and impulse control within the autism spectrum and have investigated the overlap (ignoring the DSM-IV-TR restriction that ADHD and ASD could not be co-diagnosed). Most studies find high rates of ADHD symptoms in the ASD population (Leyfer et al., 2006; Mayes et al., 2012). Although there are some overlapping features, children with ADHD rarely meet criteria for autism (Mayes et al., 2012). Several

studies have reported that children with ASD plus features of ADHD have greater impairment than those with ASD alone (Sikora, Vora, Coury, & Rosenberg, 2012; Sprenger et al., 2013). The DSM-5 now permits comorbid diagnosis, which should lead to improved knowledge about co-occurrence of these two conditions. When neither diagnosis alone adequately accounts for the child's presentation, comorbid diagnoses can be considered.

Specific Learning Disorders

When a child is frustrated by inability to learn or understand instruction in a particular subject area, she is likely to appear inattentive. Record review can reveal hints that a specific learning disorder (SLD) is possible, particularly when a pattern is noted that the child struggles in a particular academic area but not others. For example, if teachers across the years have consistently noted difficulty with reading (but not in math), consider a possible SLD in reading. If the child's difficulties occur in different subjects each year, that pattern is more consistent with ADHD, particularly if similar reports emerge from teachers whose experiences with the child have varied. During the early school years, SLD is usually characterized by specific academic struggles without accompanying impairment in social or community settings. By definition, the deficits seen with ADHD are not limited to one academic area, but occur across subject matter and setting. Thus, attention and behavioral problems that are confined to situations where a student is encountering his most problematic academic subject areas are more indicative of SLD than ADHD. Students with SLD but without ADHD are also likely to lack evidence of ADHD symptoms prior to school entry. Cognitive and academic testing are crucial for the differential between ADHD and SLD. When a child's performance on individualized academic testing is age-appropriate and his school performance is below average, this pattern suggests ADHD rather than an SLD (as it reflects a performance or application deficit rather than a learning or skill deficit). When an SLD is present, the child will show deficits in academic skills and knowledge in the content area affected. Remember that ADHD and SLD commonly co-occur. When there is evidence that a child is struggling in a specific academic area in addition to pervasive deficits related to ADHD, consider the possibility of a comorbid SLD.

Motor Disorders

Stereotypic motor disorder and ADHD both involve high levels of activity, but they differ significantly in the quality of the activity. Stereotypic motor disorder requires repetitive and fixed movements, as opposed to general restlessness and fidgeting observed with ADHD. These disorders can be comorbid.

Tic disorders (such as Tourette's) and ADHD have a common feature of outbursts, both verbal and motoric. Again, however, the quality of the outburst is a distinctive difference. Tics tend to be followed by a sense of release or relief, whereas subjective restlessness persists with ADHD. Vocal tics such as grunts and sniffs can be difficult to differentiate from the sound effects often observed with ADHD, and motor tics such as finger stretching, shoulder shrugging, and head turning can be hard to discriminate from fidgeting and squirming in ADHD. Observing the course of these behaviors over a period of time can be informative, as tics generally are formulaic (although they may change from time to time, the same tic is usually present for a sustained period) as opposed to ADHD-related movements and sounds, which are more variable. When these behaviors co-occur with deficits in attention and impulse control, suspect the presence of ADHD. Remember, there are high rates of comorbidity between these disorders.

Psychotic Disorders

We are not often confronted with this differential decision; in the rare cases, the presence of childhood psychosis has been quite evident. If deficits in attention and self-control occur only during a psychotic episode, this does not meet the persistence requirement for ADHD. Furthermore, the so-called “positive features” of psychosis, like hallucinations and delusions, are not part of an ADHD presentation. If a child presents during an active episode of psychosis, that will obviously be the primary treatment target. If a child presents with a history of past psychotic episodes, evaluate his symptoms during remission as you consider possible ADHD.

Bipolar Disorders

It appears that many children who would previously have been labeled as having bipolar disorder will now be diagnosed with the newly introduced disruptive mood dysregulation disorder. However, as clinical experience with children with disruptive mood dysregulation disorder has yet to accrue, we concentrate here on the still relevant need to differentiate the DSM-5 bipolar disorders from ADHD.

Emotional lability, a hallmark of bipolar disorders, is often observed with ADHD, representing another manifestation of impaired self-control. However, the lability and irritability in bipolar disorders are typically far more severe than the moodiness of ADHD and are more likely to be accompanied by rageful, destructive outbursts. Both ADHD and manic episodes include distractibility, excessive talking, impulsivity, and overactivity. A key difference is that DSM-5 bipolar disorder requires a distinct period of abnormal mood/energy levels that persists throughout the episode (at least four days). This episodic presentation differs from the persistence of ADHD, where symptoms vary in degree but are typically continuously present across time, without distinct episodes or weekly

fluctuations. Furthermore, manic episodes are characterized by new onset features of grandiosity, decreased need for sleep, and increased goal-directed activities; these features, along with the psychotic-like symptoms that can occur during manic episodes, are not characteristic of ADHD. Children with bipolar disorders, in contrast to those with ADHD, are also more likely to have a later age of onset and a family history of bipolar disorders.

Depressive Disorders

Irritability, difficulty with concentration, poor frustration tolerance, and psychomotor agitation are overlapping features for ADHD and major depressive disorder (MDD). When these features co-occur with sadness and/or anhedonia (loss of interest and pleasure, for example, in seeing friends or engaging in leisure activities), the presentation is more consistent with MDD than ADHD (or possibly MDD with comorbid ADHD).

Although both disorders can present with inattention, the underlying basis is different. Distractibility in MDD is usually secondary to preoccupation with upsetting thoughts or feelings (i.e., “rumination,” with content such as guilt, worthlessness, death), and tends to be present in all situations rather than varying in response to changes in the environment. In contrast, inattention in ADHD tends to be more situational, fluctuating with novelty and level of stimulation. A child with depression tends to lose interest in all activities (even those that are potentially pleasurable), whereas a child with ADHD will often maintain interest/motivation in highly rewarding, enjoyable activities. MDD is characterized by episodes at least two weeks long that are a change from prior functioning, as opposed to ADHD where symptoms are chronic.

When difficulty with concentration occurs exclusively during periods of depressed mood, a diagnosis of depression is likely a better explanation than a diagnosis of ADHD. The distinction can be more challenging when ADHD is suspected in the context of a chronic depressed condition (“persistent depressive disorder” in the DSM-5, also known as *dysthymia*) that persists for at least two years. In such cases, assess whether ADHD symptoms predated the onset of mood disturbance. Remember as well that the dysphoric affect and negative cognitions that typify depression are not characteristic of ADHD. If a depressive disorder appears to be present, try to determine if the symptoms can be fully accounted for by the depression, or if a diagnosis of ADHD is also needed to explain the child’s current presentation.

Anxiety Disorders

When a child is worrying, whether she worries about getting bad grades, disappointing her teacher/parent, or embarrassing herself in front of classmates,

this takes her mind off instruction, work, and social interactions. The end result is inattention, but for a different reason than the inattention that occurs with ADHD. With anxiety, it is more a hyperfocus on worry that limits attention to other information. In other words, anxious children are often inattentive *because* they are worrying. Although some children with ADHD do worry (e.g., about making careless mistakes or upsetting others), this anxiety is often a consequence rather than a cause of their ADHD symptoms. Inattention in a child with ADHD is more likely due to random thoughts (rather than a consistent topic of worry), seeing something else of interest, or thinking about something she would rather be doing. While restlessness and fidgeting can occur in both ADHD and anxiety, observation will often reveal them to differ in quality. Restlessness in anxious children often has a fretful, agitated quality unlike the motoric overflow and overstimulation apparent in those with ADHD. Whereas anxious children are more likely to be inhibited than impulsive, those with ADHD typically lack the ruminative qualities, chronic worry, and patterns of avoidance seen with anxiety disorders. Both conditions can be associated with procrastination, but the basis for delaying work is different. With ADHD, the child is generally avoiding sustained mental effort, whereas with anxiety he is avoiding the task due to feared outcomes and/or paralyzed by fears that he might do it wrong or make mistakes. When ADHD-like symptoms (e.g., inattention, restlessness) are present in children with anxiety disorders, they tend to be limited to anxiety-provoking situations (e.g., test taking, social interactions) as opposed to being more consistently (albeit variably) present when associated with ADHD. Despite these diagnostic distinctions, it is important to remember that ADHD and anxiety disorders can co-occur.

Trauma- and Stressor-Related Disorders

Children who experience a traumatic event often appear inattentive as their thoughts are turned inward with distress, re-experiencing symptoms, or dissociative episodes. Hyper-vigilance associated with trauma-related disorders can look like hyperactivity and distractibility. For example, if a child is constantly monitoring his environment for threats in reaction to a past trauma, he may look overactive and will be distracted, but not for the same reasons as a child with ADHD. Concentration problems, recklessness, and irritable/aggressive behavior can be manifestations of the over-arousal and high reactivity commonly experienced by victims of trauma. Whenever there is a history of trauma, diagnoses like acute stress disorder and posttraumatic stress disorder must be considered. We routinely ask about a child's exposure to violence, abuse, bullying, neglect, serious accidents, painful medical procedures, discrimination, and other forms of trauma. Do not assume that parents will make the connection between the past event and

current symptoms. A key distinction for trauma-related disorders and ADHD is the chronology of events. You should typically be able to find evidence of symptoms prior to a traumatic event when ADHD is part of the diagnostic picture; if symptoms begin only after a trauma, ADHD is unlikely. For children with chronic exposure to trauma beginning in early childhood, it can be difficult to establish a baseline. We advise beginning with treatment for the trauma-related disorder, perhaps noting that it presents with features of ADHD, and deferring a diagnosis of ADHD pending response to intervention.

Reactive attachment disorder (RAD) often involves poor inhibition, particularly in interpersonal situations, as can be seen with ADHD. The quality of relationships and comfort derived from interaction is a key distinction. By definition, children with RAD rarely seek or respond to comfort when distressed, as opposed to children with ADHD, who often rely on others to help them feel better when upset. RAD is associated with limited positive affect, whereas many children with ADHD express significant joy (sometimes as excessive silliness). Although there are some behavioral overlaps between RAD and ADHD, there are significant differences in the quality of social and emotional connections that will help differentiate these two disorders.

Disruptive, Impulse-Control, and Conduct Disorders

The DSM-5 has split ADHD from its former diagnostic partners, conduct disorder (CD) and oppositional defiant disorder (ODD), by assigning these to a different category. Nonetheless, these disorders are still frequently comorbid and part of a responsible differential diagnosis. You are more likely to be confronted with ODD and CD as diagnostic considerations when hyperactive and impulsive behaviors are part of the child's presentation.

When problems occur within a pattern of antisocial behavior, it is appropriate to consider a diagnosis of CD. A key differential here is whether the behaviors are intentional. In ADHD without CD, problems happen as the consequence of high activity levels and impulsivity (both of which statistically increase the chances a child will damage something or injure someone). When CD is present, destruction is deliberate. Untruths with ADHD are generally errors of omission or lies to avoid getting into trouble, whereas with CD, lies are intended to deceive others, escape an obligation, or obtain a desired item. Rule violations seen in true CD are severe (e.g., physical cruelty to others, deliberate fire-setting, forced sex, running away), not garden-variety infractions. These patterns of severe rule violations and infringements on the rights of others are part of CD, and are not seen with ADHD in the absence of CD. When a child deliberately annoys others or acts spiteful/vindictive, this is more likely to be ODD than ADHD. Children with ADHD

may impulsively snap, argue, or annoy others, but they are unlikely to purposefully do so. With ADHD, task refusal is more common when a child is required to use sustained attention/effort or control excessive activity levels; with ODD, refusal is pervasive across situations. When incomplete work is due to good-faith efforts that are undermined by symptoms (e.g., forgetfulness, disorganization, distraction), ADHD is more likely. In contrast, children with ODD tend to make purposeful decisions to defy instructions to complete homework or other unappealing tasks, often accompanied by argumentativeness and hostility.

Intermittent explosive disorder and ADHD can both share impulsive outbursts. In ADHD, these outbursts occur in the context of broader impulsivity that is persistent and pervasive, whereas intermittent explosive disorder has anger-specific impulsivity. It is possible to have comorbid ADHD and intermittent explosive disorder when aggressive outbursts are present above and beyond the level typically seen with ADHD alone.

Substance-Related Disorders

The relationship between ADHD and substance use is complicated. Many substances can impact cognitive functioning in ways that resemble ADHD, including acute effects as well as long-term consequences of chronic use. Sometimes a child seeks substances once he discovers they alleviate his symptoms of ADHD or other disorders. Clearly, the presence of substance use does not eliminate ADHD as a possibility. If a child is using substances (other than as prescribed by his doctor), such use needs to be evaluated clinically to determine whether it should be a focus of treatment. Once the child is no longer using substances, it will be more apparent whether symptoms of ADHD are present. If you discover substance use, it is important to ask about the child's presentation before she started using; this can help document possible symptoms of ADHD independent of effects of the substances. (See also comments in the following about medication side effects that can mimic ADHD.)

Neurocognitive and Other Medical Conditions

As referred to previously in this chapter, symptoms of ADHD can occur with neurocognitive issues like brain injury, seizure disorder, brain tumor, and some genetic disorders. Establishing the timeline for onset of symptoms is key. For example, if a child develops symptoms of ADHD after encephalitis, with no evidence of prior dysfunction, this should be considered as a neurocognitive disorder rather than ADHD. The differential is more challenging when the neurocognitive event occurs prenatally or in very early childhood. It is appropriate to identify the medical condition and specify that it presents with features of ADHD; another option is to report "ADHD, secondary to [fill in the medical

condition here].” This communicates results from the evaluation in a way that is meaningful to medical professionals and also useful to schools and families.

Other Possible Explanations

As reviewed in Chapter 3, differential diagnosis and comorbidity decisions go beyond disorders listed in the DSM-5. Sometimes environmental, cultural, and psychosocial factors are responsible for a child’s behaviors. For example, typical children may look like they have ADHD when they are placed in highly stressful environments. If a child is surrounded by disorganization and chaos, he may seem inattentive, but the problem resides within the environment rather than the child. Similarly, when a bright student is placed in an under-stimulating setting, he may not engage in learning and will seem inattentive. Sleep deprivation is another consideration, as it can cause inattention; resolution of environmental factors impacting sleep can resolve these problems (Gruber, Wiebe, Montecalvo, Brunetti, Amsel, & Carrier, 2011). The high rate of comorbidity between sleep disorders and ADHD is complicated (Yoon, Jain, & Shapiro, 2012); in some cases, treating the sleep disorder results in remission of hyperactivity and inattention (Chervin et al., 2006).

In addition to the medical issues discussed in Chapter 3, remember to consider possible side effects of medications (see also earlier comments about substances of abuse). For example, some common asthma and cold treatments impact attention and activity levels (Naude & Pretorius, 2003). Prescriptions for mood and anxiety disorders can also affect attention. Chemicals like caffeine and nicotine alter attention, impulse control, and activity level, with varying effects depending on the person and on the amount consumed. It is important to ask about homeopathic treatments, nutraceutical supplements, over-the-counter medications, prescribed medications, and other substance use when considering a diagnosis of ADHD as effects of these substances can mimic or mask symptoms.

SPECIAL TOPIC: DEALING WITH DIAGNOSTIC UNCERTAINTY

There will definitely be times when it is difficult to ascertain the cause of a behavior, particularly in chicken-or-egg situations (e.g., Is the child inattentive because she has poor receptive language, or does she fail to comprehend because she is not attending?). Sometimes a child seems to meet multiple sets of diagnostic criteria and you may have trouble deciding which diagnosis is the best explanation. A child may present with a number of complicating factors that make it difficult to determine whether the child has a disorder or her environment is disordered. There will be occasions when, despite your best efforts to gather comprehensive data, you do not

have a complete picture of the child. This can happen when a child is adopted, with limited information about biological family history and perhaps early development. Sometimes you do not have access to key sources (e.g., source is deceased, legally excluded, or uninterested), and sometimes sources are unreliable or limited in their knowledge (e.g., parent with history of severe mental health issues, medical conditions, or substance use may have spotty recall of events or awareness of his child). What do you do?

As described in Chapter 2, the DSM-5 has replaced the former *Not Otherwise Specified* specifier with two choices: *Other Specified* and *Unspecified* (discussed in Section I of the DSM-5, as well as within the text for ADHD). There is not yet explicit guidance on how these specifiers may or may not overlap with the *Provisional* specifier (also described in Section I of the DSM-5). Careful review of the DSM-5 text suggests that *Provisional* is warranted when you believe full diagnostic criteria are or will be met but you lack full evidence (e.g., unreliable history to establish the full six months of persistent symptoms or to document onset of ADHD symptoms prior to 12 years old). In contrast, *Other Specified* is appropriate in instances when, despite adequate history, criteria are not fully met (e.g., a 15-year-old boy with only five symptoms of inattention who otherwise meets criteria for a diagnosis of ADHD); in other words, this specifier may be used for subclinical diagnoses. The DSM-5 indicates that *Unspecified* can be used when prominent features of a disorder are identified but the setting precludes a full diagnosis at that time (e.g., in an emergency room); the implication is that this placeholder will eventually be replaced with a full diagnosis following a complete diagnostic workup.

These specifiers (i.e., *Provisional*, *Other Specified*, and *Unspecified*) should be used when you are fairly certain that a diagnosis is appropriate but you fall short of fully convincing proof. This should not be a routine solution, but reserved for cases when you cannot reach full determination. If you are less confident about the most appropriate diagnosis, you may consider *deferring* the diagnosis (DSM-5 code 799.9), although supplemental DSM-5 materials indicate you should use an *Unspecified* diagnosis rather than deferring, if possible (American Psychiatric Association, 2013b). When deferring or making a provisional diagnosis, report data that support the diagnosis under consideration. Explain what pieces are missing, and the reasons you cannot definitively assign a diagnosis. Outline the plan for obtaining necessary information to confirm or discard the diagnosis. An RTI approach may be part of your plan. For example, a child may present with features of anxiety and ADHD. With therapy, symptoms of ADHD may resolve as anxiety is reduced and coping strategies strengthened, suggesting that the primary diagnosis was an anxiety disorder that was masquerading as ADHD. Conversely, the symptoms of ADHD may persist even after symptoms of anxiety are addressed, indicating that the two conditions were likely comorbid.

DEALING WITH DISCREPANT DATA

In a perfect world, all of your assessment data converge on a single conclusion. In this rare scenario, parents, teachers, and the child report the same ADHD-related concerns in all settings, historical data indicate these symptoms were present and impairing well before 12 years of age, you observe evidence of

ADHD, and there are no other issues to complicate the diagnostic picture. In reality, we do not see such cases in our clinics. Epidemiologic data indicate that most children with ADHD also have another diagnosis (at least one, sometimes more). Psychometric data reveal that parents, teachers, and children typically differ in their symptom reports. When the same construct is assessed through different methods, you may obtain different data. For all these reasons, we can guarantee that you will find yourself routinely dealing with discrepant data when you conduct ADHD assessments. We introduced the subject of discrepant data in Chapter 3. Now we offer additional practical advice on how to resolve discrepancies.

DON'T FORGET

Discrepancies in your assessment data can arise for different reasons:

- The informant or assessment tool may be biased.
- Individual differences may lead reporters to perceive and describe the same behavior differently.
- The child's behavior may truly differ across persons and settings.

Evaluating Reasons for Discrepancies

It is helpful to consider possible reasons for discrepancies in assessment data. Understanding the cause can guide your interpretation. This is where a comprehensive evaluation is so important—the context of your other evaluation components helps you think about why the data are inconsistent.

Your interactions with a parent, teacher, or child during interviews may suggest a bias. Sometimes this reflects a stable trait, such as is the case for an eternal pessimist or Pollyanna optimist. Other times it is specific to the child, such as when overgeneralization of past experiences or global assumptions color the reporter's observations. There are occasions where disagreement has little to do with the child and everything to do with competing agendas, such as can occur when parents are embroiled in a custody battle or litigation with the school. Some reporters may be in denial, unable or unwilling to see the child's difficulties. Children (and sometimes parents and teachers) may be reluctant to admit areas of weakness, whether due to a desire to please others, a wish to not stand out from peers in a negative way, cultural pressures, or other factors. Some parents and teachers complete rating scales from a relative perspective (i.e., "He is not as bad as so-and-so"), while others adhere to directions to complete their ratings without comparison (i.e., "How often does he show this behavior?").

Beyond bias, varying tolerance and real differences can account for data discrepancies. Some parents and teachers are more tolerant than others. There are instances where biased reporting springs from an agenda to obtain an ADHD diagnosis for secondary gain (see discussion of possible feigning later in this chapter, in “The So-Called ‘Normal’ Condition”). And, for ADHD in particular, there is the possibility that the child’s behavior may very well differ across settings and people.

Who Is Right?

In many cases, every data source is correct. It is often not a matter of deciding which rater to believe and which to ignore, but finding the truth within each report. Understanding the *reasons for discrepancies*, as discussed earlier, can guide your interpretation of data. Recognizing, for example, that you have gathered information from both an “old-school,” “hardline” teacher and a free-spirited, highly tolerant parent can help you recognize that the reality of the child’s behavior is likely to lie somewhere between their discrepant reports. The *context of ratings* can also impact your interpretation. For example, when all scores on a parent rating scale are significantly elevated (e.g., T-scores > 90), a high score for inattention is less meaningful than when inattention is the only elevated score on the scale (e.g., with other T-scores in the 50s). The *source of information* may also affect the relative value of data. As discussed in Chapter 3, different reporters are privy to different types of information. This impacts inter-rater reliability (see Chapter 3). Teachers tend to be a key source of information about academic performance and social interactions. Parents are a primary source of information about family relationships and often the only source for developmental history. Children’s self-report may be the only way to learn about internalizing features and reasons for behaviors (although they are often the least preferred source for externalizing features). Your observations have the advantage of your clinical background, but lack a longitudinal view of the child. The *type of data* also impacts relative weight in interpretation. Record review is often more accurate than retrospective recall in interview, particularly when you are assessing older children and adolescents. Interviews add essential information to your database as you assess symptoms and impairment (both historical and current), critical parts of ADHD diagnosis. Rating scale data and your observations provide additional information about the child’s current presentation and inform judgments regarding developmental deviance. Results from cognitive testing can supplement these data, but generally are not the primary support for an ADHD diagnosis.

What Do I Do?

Usually there is a pattern in a child's assessment data. Step back from the specific details and look at the *big picture* (your data summary sheet can be helpful in this regard). Although data sources may not indicate the exact same symptoms, there is usually a cluster of symptoms that are endorsed (e.g., inattentive, hyperactive/impulsive, or both). You may notice that the child consistently excels or reacts poorly when placed with adults who have certain interpersonal styles. There may be environmental factors that correspond with the child's degree of struggle. Whether you group the data by symptom cluster, rater characteristics, environmental factors, or another variable, you will usually discover a preponderance of data supporting or rejecting the ADHD diagnosis.

When you identify the unifying pattern, don't forget to consider the dissenting data. Identifying *exceptions* can be an excellent way to plan interventions. For example, if a child with ADHD thrives with positive teachers who give immediate and consistent feedback in a hands-on learning environment, you will recommend integrating these elements when he is being taught (whether learning skills in the home, school, or community setting).

If you are unable to identify a unifying pattern for the majority of a child's data, revisit the DSM-5 requirements for *pervasive and persistent* symptoms and impairment. If the child is successful in nearly all settings, without distress or other indication of impairment, then his occasional struggles are likely not due to ADHD. If his difficulties appear and disappear over periods of weeks or months, and these changes cannot be accounted for by interventions (e.g., medication, optimizing environment, removing demands), ADHD is not the best explanation. The variability associated with ADHD means the child's performance will vary, but usually in the short term (e.g., minutes, hours, perhaps days). Within this consistent variability, you should be able to find a pattern of deficits and strengths that will help you ascertain whether she meets diagnostic criteria for ADHD.

Diagnosis of ADHD is not always "majority rules." You must apply *clinical judgment* to make determinations in cases where you have a few sources of strong support for the diagnosis. This is often the diagnostic struggle when assessing a bright child with ADHD who is compensating adequately in most settings such that few see the chinks in her armor. As a result, your data may include average ratings from teachers and even one of her parents. Your sole source of quantitative concern may be the primary parent's ratings. In these cases, return to the child's records and look for qualitative indicators of impairment (which are not always low grades, but can also include evidence of distress such as working much harder to achieve grades, variability in performance that averages out for the report card,

or social/emotional consequences of ADHD). Additional interviews may help as you search for clear evidence of impairment. Cognitive testing results may support the pattern of symptoms reported, either quantitatively (e.g., deficits captured by a CPT) or qualitatively (e.g., your observation that average range scores were obtained only with significant effort, angst, and compensatory strategies). Remember, the DSM-5 does not require evidence from multiple raters; it demands evidence of impairing symptoms in *multiple settings*. While information from multiple raters is the easiest way to meet this criterion, convincing evidence can also be established by data from multiple assessment modalities and by longitudinal data about the child.

Because people are complex and symptoms do not often present exactly as described in the DSM, definitive answers and diagnostic certainty can be elusive. This is particularly the case when you have a child who presents with features of inattention, hyperactivity, and impulsivity, as well as features of one or more other disorders that can coexist with ADHD or can account for the symptoms of ADHD. In such cases, remember that the primary purpose of a diagnosis is often to connect a child with appropriate services (and funding in some cases). The most important outcomes from your evaluation are helping people understand the child, appreciate her current impairments, and plan how best to help her. Assign the diagnosis or diagnoses that best fit the child's history and current presentation based on the available information. Do not hesitate to

ask additional questions or administer additional measures if you need more information to make your final decision. Remember that, if needed, you may defer a diagnosis or label it as provisional. If you are certain that the child is experiencing impairment, make sure his needs are communicated clearly in a way that will provide him with access to appropriate services.

DON'T FORGET

Remember, diagnoses represent your best clinical judgment. In the end, greater confidence in the accuracy of these judgments emerges when they are supported by preponderance of the data from information sources that are reliable, valid, and of greatest value to identifying ADHD.

BEYOND DIAGNOSIS

Although the focus of this book is assessment toward a diagnosis, we could not in good conscience forgo mention of what we see as an even more critical reason for assessment: intervention. An evaluation that ends with a label can provide some relief by explaining longstanding difficulties but rarely gives a child the help she

needs. Although referrals may focus on questions like, “Is this ADHD?,” the reason for referral is actually, “How can we help this child?”

As you review and integrate data from your assessment, be certain to consider the *presenting complaints*, or the main problems that led to the evaluation. Bring your evaluation full circle and connect your conclusions with those issues. For example, if the child’s teacher was concerned about the level of disruption he causes in the classroom, discuss how your results help explain the basis for the disruption. When parents, teachers, and children understand the causes for problems, they are better situated to respond in a productive way.

Take the next step and extend your findings to *treatment planning*. Apply the specific results obtained for this child to individually tailored interventions as opposed to generic recommendations that reinforce the assumption that all children with ADHD are alike. Be certain to offer treatment recommendations that correspond to the presenting complaints as well as to any other clinically important issues identified in your evaluation. If nobody endorsed concerns about a particular symptom, do not rotely include a recommendation for that behavior (e.g., if a child does not fidget, she is unlikely to need a fidget toy). Be familiar with the empirical support for psychosocial and pharmacologic interventions so that your treatment recommendations are, whenever possible, evidence-based.

Finally, *communicate* your results and recommendations in ways that are meaningful. We strongly advocate for both written and verbal feedback. Chapter 6 provides several examples of written reports. The written report serves several important purposes. It gives parents and children a permanent record of your assessment information, so they can refer back to it when they cannot remember what you said or when they need refreshed motivation and understanding. The written report provides documentation as needed for services, sometimes serving as a reference when teenagers and young adults seek accommodations and must establish a history of ADHD. Your report is also a record that will be reviewed in the context of future evaluations, offering a snapshot of the child’s functioning at a particular age. Note that while we write our reports as standalone documents, we never distribute them in the absence of a feedback session.

The feedback meeting is an essential component of your evaluation, providing a time for you to communicate your conclusions, the basis for diagnostic decisions, and your thoughts about how to help the child. We generally spend one to two hours preparing for this meeting, readying data for presentation and considering the most effective way to communicate our findings. Provide information in a clear, intelligible fashion tailored to the recipient’s level of sophistication; it is best to avoid psychological jargon in favor of common, accessible language. It can be helpful to present some information visually (e.g., graphs, one-page summary

table for intact versus impaired areas). Remember to describe the child's strengths as well as his deficits (see Chapter 3). It is important to use these intact skills as tools to compensate for areas of weakness. This also helps you and other participants view the child as a real, three-dimensional person with likeable and desirable traits, rather than as a composite of problems.

Establish a tentative framework for feedback sessions as part of your preparation (while remaining aware that the actual meeting will often diverge from these plans). For example, a feedback session might include the following elements (note, this is a suggestion rather than a rigid prescription):

1. *Review of presenting problems/referral questions* (demonstrate and confirm your understanding of the issues prompting the evaluation)
2. *Psychoeducation regarding ADHD and its assessment* (an interactive discussion where participants' understanding of ADHD is elicited, any misconceptions are addressed, and a synopsis of our current understanding of the disorder and how to assess for it is provided)
3. *Review of diagnostic impressions* (including the specific data supporting any assigned diagnoses, with efforts to weave into this discussion concrete examples of key symptoms from the child's current functioning and history)
4. *Summary of impairments* (that includes how they relate to key features of ADHD or other applicable disorders)
5. *Review of strengths, assets, and competencies* (in the child and her environment)
6. *Provision of treatment recommendations* (including their rationale and specific referrals, where indicated)

A good feedback session is not a one-way street but a reciprocal process. Encourage questions and comments throughout and remain empathic to the types of thoughts and feelings participants are likely to experience as they listen to your findings and recommendations. As participants hear the information, they may provide additional support for the diagnosis that they did not realize was relevant before. They may respond with ideas for intervention, or comments about things that were tried unsuccessfully in the past. A stance of collaborative problem solving is an effective way to connect your work with the child's reality, ensuring that the data are applied to help him. The in-person meeting is also a good time to determine participants' level of understanding, which can guide which resources you suggest (e.g., books, websites, support groups). You can also sensitively correct any misunderstandings about the child, the diagnosis, and the recommended interventions. This is your best chance to build bridges for the transition into treatment.

It is very important that the child also receives feedback. Whenever possible, schedule a time when you can talk with the child about results and recommendations (at a developmentally appropriate level, of course). As with adults, make this process as interactive as possible, demonstrate understanding of the child's thoughts, feelings, and concerns, and provide ample time for any questions he has to be asked and answered. When a child hears that you understand his struggles and what contributes to them, he is more receptive to your recommendations and the efforts of others to help. He will also become a better self-advocate. Once the appropriate releases of information are secured, provide your feedback to other professionals involved in the child's care, as it will enhance both their understanding of the child and their efforts to help.

Make it clear that you continue to be available for *future questions and concerns*. Your evaluation will serve as a launching pad for helping the child, but developing children are moving targets. In all likelihood, the child will need updated recommendations as she grows older and encounters different challenges (particularly at times of key educational transitions). It is much easier to keep progress on track when you remain involved and address minor issues as they arise rather than waiting for them to amass critical volume that overwhelms the child and her support system (i.e., "A stitch in time saves nine"). Your future contacts may not require another comprehensive evaluation, but may be brief consultations with updated rating scales and interviews. The child may later require updated documentation, such as if he requests extended time on standardized college entrance exams. In cases where you assigned a provisional diagnosis or deferred diagnosis, the passage of time may clarify the child's presentation. In cases where symptoms of ADHD have lessened, it may be appropriate to specify "in partial remission" while still assessing for any ongoing impairments in need of treatment. The impact of treatment (e.g., improved coping skills for stress and anxiety) and environmental changes (e.g., improved sleep habits, creating a dedicated homework area) may clarify the diagnostic picture. New symptoms or changes in how symptoms present may alter the diagnosis and necessitate new treatment recommendations.

SUMMARY

Application of the DSM-5 criteria for ADHD is straightforward when you keep in mind the essence of the requirements. In this chapter, we provided some suggestions for considering whether a child meets each diagnostic criterion, including components of your evaluation that are likely to yield relevant evidence. We discussed general guidelines for evaluating other explanations for symptoms of ADHD, including key ways to discriminate between ADHD and other disorders.

These include your knowledge of general child psychopathology, examining onset and course of symptoms, thinking about family history, and considering the child's response to intervention. We surveyed diagnostic challenges you are likely to face and provided hints for differential diagnosis as well as comments about comorbidity. We reviewed options for describing your impressions when full diagnostic criteria are not met or you are uncertain. We addressed the common conundrum of discrepancies in your data, including how to handle such inconsistencies. Guidelines for providing written and verbal feedback were provided. This chapter closed with a reminder that the assessment process continues past assigning a diagnosis, to applying your findings to the child's daily functioning so as to increase understanding of the child and to make meaningful changes in her life.



TEST YOURSELF



1. Which of the following statements are true about DSM-5 symptoms of ADHD? (Mark all that apply.)

- A behavior is not a symptom unless it negatively impacts the child's activities.
- A behavior must be inconsistent with developmental expectations to be considered for a symptom.
- An occasional behavior is sufficient evidence of a symptom.
- If poor follow-through is due to limited comprehension or oppositionality, it does not count as a symptom of ADHD.
- The symptom threshold changes by age, with more symptoms required for older adolescents and adults than are required for children.

2. Find two true statements (mark only two):

- A diagnosis of ADHD Combined presentation requires reaching symptom threshold for all 18 symptoms.
- A DSM-5 diagnosis of ADHD requires evidence of symptoms before 7 years of age.
- All symptoms must be persistent, impairing, and evident before 12 years of age to be considered for a DSM-5 diagnosis of ADHD.
- Impairment and persistence are part of determining when behaviors qualify as symptoms of ADHD.
- Rating scales can help establish frequency of symptoms.

3. When many symptoms in excess of the symptom thresholds are present, and they all occur very frequently, you do not have to show evidence of pervasiveness across multiple settings.

- True
- False

4. Which of the elements are part of establishing impairment for DSM-5 ADHD? (Mark all that apply.)

- a. Interferes with development
- b. Interferes with functioning
- c. Negatively impacts child's activities
- d. Reduces quality of functioning
- e. Vague evidence

5. A structured or semi-structured interview is the only way to obtain information relevant to differential diagnosis.

- a. True
- b. False

6. Which of the following can help you make decisions about differential diagnosis and comorbidity? (Mark all that apply.)

- a. Considering the basis for the behavior
- b. Examining the timeline for onset of symptoms and course of their development
- c. Knowledge of general child psychopathology
- d. Seeing the child improve in response to stimulant medication
- e. Recognizing when the presence or absence of a behavior indicates another disorder

7. Mark all the true statements below (mark all that apply):

- a. Deficits in sustained attention are a key distinction between ADHD and autism spectrum disorder.
- b. Evidence of inattentive, hyperactive, or impulsive behaviors indicate the child has a disorder, although not necessarily ADHD.
- c. Receptive language deficits can mimic symptoms of inattention.
- d. The DSM-5 classifies ADHD as a type of learning disorder; therefore they cannot both be diagnosed in the same child.
- e. When a child has intellectual disability, she cannot also have ADHD.

8. Find any true statements below (mark all that apply):

- a. When a child doesn't listen to lectures, this supports ADHD and rules out receptive language deficits.
- b. When a child has difficulty with concentration, this supports ADHD and rules out major depressive disorder.
- c. When a child looks inattentive, this supports ADHD and rules out anxiety.
- d. When a child seems distracted, this supports ADHD and rules out trauma-related disorders.
- e. When a child seems forgetful and makes careless mistakes, this supports ADHD and rules out substance use.

9. Environmental, cultural, and psychosocial factors should be considered as possible causes for a child's behaviors.

- a. True
- b. False

10. When confronted with discrepancies in your data, what should you do? (Mark all that apply.)

- a. Consider possible reasons for the discrepancies.
- b. Flip a coin to decide.
- c. Focus on the details; do not get lost in the big picture.
- d. Go with the majority opinion.
- e. Ignore the data that do not fit your initial impressions of the child.

11. Once you determine the best diagnosis to capture a child's current presentation and history, your assessment is complete.

- a. True
- b. False

12. Your evaluation can help with __. (Mark all that apply.)

- a. Diagnosis
- b. Documenting the child's current presentation
- c. Identifying comorbid disorders
- d. Treatment planning
- e. Understanding the child

Answers: 1. a, b, & d; 2. d & e; 3. b; 4. a, b, c, & d; 5. b; 6. a, b, c, & e; 7. c; 8. None of the statements is true; 9. a; 10. a; 11. b; 12. a, b, c, d, & e

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ILLUSTRATIVE CASE REPORTS

The goal of this chapter is to illustrate the application of key principles described in this book. In interest of providing you with several different report styles, we offer three cases prepared by each of the authors and a valued colleague (Patricia W. Collins, PhD; NCSU Psychoeducational Clinic). Rapid Reference 6.1 summarizes the key elements of written reports that are present in all three examples, although they are presented in different ways depending on clinician preference and case characteristics. Note that while these cases are based on real children seen in our clinics, they represent composite data and all personally identifying information has been altered or removed.

The first report describes the assessment of a 7-year-old boy, “Jack,” who was referred due to lack of academic progress despite a number of interventions, including work with a reading specialist. His case involves the differential diagnosis of ADHD and SLD. Next is the evaluation report for “Briana,” a 16-year-old girl who was referred for an ADHD evaluation. Briana’s case illustrates the increasing importance of self-report data with adolescents, how changing academic demands can unearth ADHD symptoms, differential diagnosis

CAUTION

Every written report must include language clearly indicating that it is *confidential*. Due to formatting constraints of this book, this is not clearly demonstrated for some of the cases. Original reports from all three clinicians include either a header or footer that uses the word *confidential*. One of us routinely notes in the footer, “CONFIDENTIAL INFORMATION—DO NOT RELEASE WITHOUT PERMISSION” to remind others that they must obtain permission from the child’s parent before giving the report to anyone else. However you do it, be sure you annotate your written reports so that you will continue to protect the child’s confidentiality even after the report leaves your hands.

with internalizing disorders, and how discrepant findings can complicate diagnostic decisions. The final report in this chapter is that of “Henry Smith,” a nearly 11-year-old boy who was referred to update his old ADHD testing for academic purposes. This is a case where the reevaluation suggested that the historical diagnosis of ADHD may no longer be the principal diagnosis.

Rapid Reference 6.1

Elements of a Written Report

Although all three of us have stylistic differences, you will find the same elements in each report (although not necessarily in the same order). These essential elements are:

- Clinic information, including clinic or provider name, address, and phone number (deleted in these case examples, but provided front and center on actual reports)
- Identifying information for child and evaluation, including:
 - Child's full name, date of birth, and age.
 - Date(s) of evaluation.
 - Some of us include school and grade.
 - Some of us include parent information, such as names and address.
 - Handedness and gender are other optional elements.
 - Some evaluators list their name and degree(s) here.
- Reason for referral
- Background information, including presenting problems, current functioning, and sources
- List of evaluation tools used
- Validity statement
- Behavior observations
- Test scores (either tables or text), with context for how to understand them (general explanation of score ranges and/or descriptive labels like “average”)
- Interpretation of results
- Impressions, including diagnosis and summary of other key factors
- Summary of strengths/assets; prognostic statement
- Recommendations and referrals
- Clinician signature, licensure/certification, and contact information (deleted from these examples but present in actual reports)

SPECIAL TOPIC: WHEN DO YOU WRITE THE REPORT?

There is no one right answer to this question. We have all tried it different ways, and discovered advantages and disadvantages for each option. In some situations, there are documentation requirements that dictate the timing of your report (e.g., in medical settings, there is often a stipulation that a medical note must be filed on the date of service). Barring a setting-based requirement, here are some considerations as you find the solution that works best for you in your practice.

Preparing the written report before the feedback session is very efficient, as it allows you to review and summarize the data once. Parents often like receiving the written document at the time of the feedback session. A disadvantage of writing the report before the meeting is that it does not include any new information that may emerge as you discuss results and recommendations. Parents may be distracted during the meeting as they flip through the report rather than giving you their full attention. It may be difficult for them to participate in discussion of the key points if they become fixated on individual scores (although if you wait to give parents the report at the end of a meeting, you may avoid this issue).

Writing your report after the feedback session can be fairly efficient, particularly if your schedule permits paperwork immediately after the in-person meeting. In most cases, there will be a lag between the feedback session and your paperwork time, resulting in the need to process data twice (once before the meeting, again for the report). An advantage of writing the report after the feedback session is that you can easily integrate new information, which may include additional examples of behaviors consistent with your diagnostic impressions or information that shifts your diagnostic impressions to a different conclusion. You can also include comments about how the information was received by the parents and child and how they plan to proceed. Meeting without a report can help participants attend to understanding the big picture rather than drowning in the details.

In many cases, a hybrid approach is recommended, that is, "write as you go." Some clinicians write the background section immediately following review of records and initial interviews, add test data as they are scored, and draft remaining elements of the report shortly thereafter. They hold the report until they have provided feedback to all relevant participants, and then finalize the written document. This process can promote active engagement with the assessment data and support ongoing hypothesis testing as recommended earlier in this book.

PSYCHOLOGICAL EVALUATION*CONFIDENTIAL***Name:** Jack S.**Date of Birth:** February 1, 2006**Evaluation Dates:** November 1, 2013**Address:** 101 Platter Lane Big City, USA**Gender:** Male**Age:** 7 years, 9 months**School:** Local Elementary School**Grade:** Second**Parents:** Mr. and Mrs. S.**EVALUATION PROCEDURES**

Conners-3, Parent and Teacher Report

Conners Continuous Performance Test (CPT-II)

Comprehensive Test of Phonological Processing (CTOPP)

Developmental Test of Visual-Motor Integration (VMI)

Diagnostic Interview

Formal Clinic Observation

Record Review

Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV)

Woodcock-Johnson Psycho-Educational Battery, Third Edition, Tests of Achievement (WJ-III)–Form A

DON'T FORGET

Provide the full name of each test in addition to the abbreviation/acronym. When a test has more than one version, be certain to specify which edition you administered. Likewise, when multiple forms are available, indicate which form you used.

REASON FOR REFERRAL AND BACKGROUND

The following information was gathered through an interview with Jack's mother, written teacher comments, a record review, and a background questionnaire completed by Mrs. S.

Reason for Referral

Jack's mother referred him for assessment due to concerns about a failure to progress in academics across the reading, math, and written language areas. In addition, school personnel report disruptive behaviors and suspect the possible

presence of an attention disorder. Goals of the evaluation are to better understand possible reasons why Jack is having difficulty learning, to rule in or out an attention disorder, and to develop suggestions to support his learning.

Background

Jack is an only child who lives at home with his mother, an assistant teacher.

His father lives separately and is a mechanic. (*Note:* Mr. S. signed required forms indicating his awareness of this evaluation and permission for it to proceed. Despite several attempts to reach Mr. S., he did not respond to invitations to participate by telephone, in person, or through completing rating scales.) Jack's mother describes him as a highly talkative and social child who gets along well with others and also enjoys electronics and watching television.

Jack was born a healthy, full-term baby, delivered by Caesarean section. Developmental milestones were met within normal limits. Health history is significant for asthma, for which he is treated with Advair, Singular, and Ventolin, but is otherwise uncomplicated. Jack passed vision and hearing screenings conducted in February of this year at the office of his pediatrician. His mother reports that alcoholism is present in the extended family, and an attention disorder is suspected as well. Otherwise, family history is not significant for emotional, learning, or attention disorders.

Educational history includes preschool attendance and enrollment at Local Elementary since kindergarten entry. Jack is currently a second-grader there. His mother reports that his first-grade year was disrupted through frequent teacher absences. He initially had difficulty reading, and he worked with a reading

DON'T FORGET

Be certain both custodial parents agree to the evaluation. If there are legal restrictions on a parent's participation, document these. Regardless of custody, note who provided information. If a parent did not participate in the evaluation, make a note of it for future reference. Even though it is ideal to have information from all caretakers, this is not always practical.

CAUTION

Note that the family history does not specify who has these disorders, although in some cases you may want to note that a disorder or feature is present in "many relatives" (to indicate the possibility of high heritability). The purpose of reporting this information is to identify possible genetic contributions to the child's presentation (unlike a genetics consultation, which might require detailed descriptions of pedigrees). Preserve the confidentiality of the child's siblings, parents, and other family members who may be known by readers of the report by keeping this section generic.

specialist that year, resulting in significant improvement in reading skills by the end of the year. In their written comments, Jack's current teachers describe him as a creative and enthusiastic student who is eager to help others. They also note, however, that he requires "constant" attention and individual support to complete tasks. Reading, writing, and math as well as attention and behavior are considered "clearly a problem." Teachers further note a need for preferential seating, positive reinforcement, and small-group instruction. Grades earned in kindergarten and first grade were primarily "3's" on the county's 4-point grading scale.

Early screening assessments in second grade resulted in scores of "2" across all academic areas tested (i.e., "needs additional support"). For this reason, his mother initiated contact with the school, and Jack is now working under a Personal Education Plan (PEP) to focus on literacy and math skills. School personnel also expressed concerns about behavior, suggesting the possible presence of an attention disorder with the potential to interfere with optimal learning. School-based behavioral concerns include, for example, pushing his desk into another child, talking in the hallway, climbing on inappropriate surfaces, and failing to raise his hand before answering.

At home, Jack's mother works with him regularly to improve his reading, writing, and math skills. Jack enjoys being read to, but does not enjoy reading. His mother describes his writing as sparse, with poorly positioned letters and misspelled words. Math is also an area of concern. Behaviors suggestive of the possible presence of an attention disorder are also present in the home setting. Jack has difficulty sitting through a meal, often handles objects around him or otherwise fidgets with his hands, has difficulty following multistep directions beyond two steps, takes a long time to accomplish tasks, and is unable to independently get himself ready in the mornings without multiple prompts from his mother. He is not a behavior problem at home, however, in the sense that he regularly complies with parental requests. He gets along well with his parents and other children.

BEHAVIORAL OBSERVATIONS

Jack was tested in two sessions on separate days. He easily left his mother to come to the testing room and generally complied with all requests and directions. However, it was frequently necessary to repeat directions to him; he appeared to experience difficulty waiting long enough for directions to be completed, instead frequently attempting to begin working before knowing what he was to do or interrupting with a comment or question of his own. Jack talked through much of

the assessment, even at times, such as during timed tasks, where he needed to focus on his work. He made comments, asked questions of me, talked to himself as he worked through problems, or simply made noises with his mouth.

Physical activity level was elevated as well; Jack was typically out of his seat, leaning back in his chair, or kneeling in his chair. He kept his hands “busy” as well, handling test materials such as the examiner’s manual or the stimulus books. Jack did not edit what he said, openly offering information about his own misdeeds such as hitting or slapping others, stealing, and lying. He seemed somewhat concerned about these things and discussed a behavior program at school that apparently was developed to motivate him to “behave.” The rewards that are a part of this program appeared motivating for him, and he appeared to want to be able to earn them.

Due to Jack’s distractibility and difficulty following directions, test results should be considered a minimal estimate of his abilities; he may have somewhat more ability, at least on some of the tasks included on the WISC-IV and other timed tasks, than current scores suggest. Instead, scores are likely to provide a good estimate of his habitual (as opposed to optimal) performance.

HOW TO READ THIS REPORT

Four main report sections follow. The first, *Test Results*, provides a general description of test findings and functioning across areas of interest. The following section, labeled *Clinical Impressions*, integrates history, observations, and test data to provide a profile of strengths and weaknesses across the domains evaluated. This section, therefore, provides both *objective* information gathered from test data and *subjective* information derived from best clinical judgment to respond to referral concerns. The *Recommendations* flow directly from identified strengths and weaknesses. An *Attachments* section follows the clinical impressions and recommendations. For each major test administered, the Attachments section includes a test description as well as specific test scores.

TEST RESULTS

Attention

Attention was assessed in three settings: home, school, and clinic. Assessment methods included interviews; maternal, paternal, and teacher ratings on a series of behavior rating scales; formal and informal clinic observations; and administration of a variety of clinical tasks.

Home Setting

Jack's mother completed one rating scale, the Conners-3. Paternal ratings were not returned. Each of these scales provides normative information about behaviors associated with broad attention deficits. For example, the Inattention subscale from the Conners-3 assesses those behaviors typically present in children with difficulties sustaining attention. These behaviors include difficulties completing tasks, following directions, and concentrating as well as tendencies to be distractible and poorly organized. The Hyperactivity/Impulsivity subscale from the Conners-3 assesses those behaviors typically present in children with difficulties inhibiting inappropriate responses. These behaviors include, for example, difficulties sitting still, fidgeting, difficulties thinking before acting, talkativeness, excessive motor activity, and difficulties waiting. Maternal responses to these scales are combined with interview data to provide evidence concerning the presence of symptoms of an attention deficit in the home setting.

Maternal ratings on the Inattention scale of the Conners-3 yield a T-score of 73. Of nine inattentive items, Jack's mother rates six of them at levels of clinical concern. Regarding activity level and impulsivity, maternal ratings on the Hyperactivity/Impulsivity scale of the Conners-3 yield a T-score of 70. Of nine hyperactive/impulsive items, Jack's mother rates eight of them at levels of clinical concern.

In combination with information from the diagnostic interview, these ratings are suggestive of significant difficulties in the home setting both sustaining attention to task and inhibiting inappropriate behaviors. In general, Jack's mother reports behaviors well beyond the norm for children Jack's age.

School Setting

Teacher ratings were obtained from Jack's classroom and Art teacher, each of whom completed the Conners-3 teacher form. Ratings by Jack's Art teacher should be interpreted with caution, given that the art setting is atypical of the normative sample. Teacher ratings on the Inattention scale of the Conners-3 yield T-scores of 87 (classroom) and 58 (Art). Classroom and Art teacher ratings of Hyperactivity/Impulsivity on the Conners-3 yield T-scores of 90 and 61, respectively.

Teacher ratings vary somewhat by classroom. Ratings from Jack's classroom teacher are suggestive of very significant concerns about Jack's ability to sustain attention to task and his ability to refrain from inappropriate behaviors. Ratings from his Art teacher support classroom teacher's observations of hyperactivity/impulsivity, while ratings of inattention in the Art classroom are not elevated. Teacher ratings are consistent with their written comments on a qualitative teacher questionnaire.

Clinic Setting

At the clinic, Jack was administered the *Conners Continuous Performance Test* (CPT-II) and was also observed during a formal observation task. The CPT-II is a computerized battery that assesses sustained attention, the ability to refrain from impulsive responding, and changes in these attributes over time (tendency to fatigue). The task involves monitoring letters flashed sequentially on a computer screen over a 20-minute interval; the intervals between presentations vary. The examinee is required to press the space bar after each letter except the letter X.

Examination of specific measures and combination of measures contributes to an understanding of Jack's attentional capacities. Jack tended to be slow, erratic, and inaccurate, a pattern that strongly suggests an attention disorder. In addition, his reaction time slowed over the course of the administration, further suggesting an attention disorder as well as a tendency to fatigue with time at a pace greater than is typical for his age. Jack is likely to benefit from short periods of work with breaks in between. Finally, Jack's responses became slower and more erratic when the time between presentation of the letters became greater, suggesting that he may have difficulty shifting performance to meet task demands and/or may perform best when his attention is captured through a quick presentation of information without lags between. It is important to note that CPT scores alone can neither rule in nor rule out an attention-deficit disorder.

For the observation task, Jack was observed through a hidden camera while he worked on a simple arithmetic task, intended to be tedious, for 15 minutes. During this observation, off-task, fidgeting, vocalizing, object play, and out-of-seat behaviors were tallied. Jack was out of seat (sitting on his knees in his chair or standing beside the chair) significantly more than is typical for a child his age. He was off-task at least momentarily during 70% of the intervals observed, a rate that falls at a borderline range between normal and clinical. All other behaviors fell within normal limits.

Behavioral Screening

Oppositional and conduct disorders commonly accompany ADHD and, for this reason, the *Conners-3* provides scales that screen for these issues as well as items that flag a potential anxiety or mood disorder. Maternal ratings on both the Conduct Disorder and Oppositional Defiant Disorder scales fall within normal limits and do not suggest concerns on the part of Jack's mother in the home setting. On interview, Jack's mother did report the presence of oppositional behaviors in the home setting

DON'T FORGET

Remember the importance of gathering data from multiple sources about multiple settings using multiple methods. This case illustrates this nicely. The clinician reviewed records, including information from past teachers. She interviewed the mother and child. She conducted a formal observation in addition to qualitative observations during testing. Jack's mother and two teachers completed rating scales. Cognitive tests were administered to investigate a possible learning disorder, a consideration in differential diagnosis and possible comorbidity.

but appeared to view these behaviors as typical of childhood. Teacher ratings differ significantly from maternal ratings. Both teachers report oppositional behaviors at levels of very significant concern. For example, teachers positively endorse items such as, "loses temper," "argues with adults," "is irritable and easily annoyed by others," "is angry and resentful," and "tries to get even with people." Teacher ratings are consistent with their written comments. Neither parent nor teachers positively endorsed items suggesting the presence of mood or anxiety disorders.

Psychoeducational Assessment

Jack's intellectual functioning and school achievement were assessed to better understand his learning needs and to rule out any processing weaknesses that might contribute to referral concerns.

Intelligence

Jack's intellectual functioning was assessed with the *Wechsler Intelligence Scale for Children, Fourth Edition* (WISC-IV) to set a general level of expectations for classroom performance. The WISC-IV yields an estimate of an individual's level of intellectual functioning at a specific point in time and is best used to predict future school performance. Cognitive processes assessed by the WISC-IV include verbal knowledge and reasoning, nonverbal reasoning and perceptual organization, working memory, and perceptual-motor speed and coordination. Individual subtests factor onto a number of scales and indexes. The Full Scale score is a composite score and is best interpreted when the discrepancy between measures is not great.

Test results suggest that Jack has good intelligence and, therefore, good potential to succeed in the school setting. His Full-Scale WISC-IV score of 98, which is a strong predictor of academic achievement, falls within the Average classification range when it is compared to the scores of a national sample of others

his age. It suggests that his general reasoning and problem-solving skills equal or exceed those of 45 out of 100 peers.

Four Index scores are obtained on the WISC-IV through the process of factor analysis (a method of *clustering* subtest scores that are assumed to reflect a unitary underlying ability). The four Index scores are: Verbal Comprehension, Perceptual Reasoning, Working Memory, and Processing Speed. Examination of Jack's performance across these four factors helps to further understand areas of relative strength and weakness.

The Verbal Comprehension Index (consisting of the Similarities, Vocabulary, and Comprehension subtests) assesses verbal reasoning. Jack's score of 95 (percentile ranking of 37) falls within the Average classification range. This score reflects Jack's verbal concept formation, fund of knowledge, ability to apply that knowledge to social and practical situations, and ability to understand and reason and express himself well using language. This factor is highly related to future school achievement.

The Perceptual Reasoning Index (consisting of the Block Design, Picture Concepts, and Matrix Reasoning subtests) assesses nonverbal reasoning. Jack's composite score of 100 on tasks on this Index falls at a percentile ranking of 50 and within the Average classification range. This factor assesses visual spatial analysis and synthesis skills, nonverbal concept formation and reasoning, and nonverbal problem solving in novel situations. One task (Block Design) is timed and requires quick performance for optimal scores.

The Working Memory Index (consisting of the Digit Span and Letter-Number Sequencing subtests) assesses working memory, or the ability to mentally hold information temporarily "online" while manipulating or further processing this information to create a new product. Anxiety or distractibility can impair performance and did appear to be a factor in Jack's performance on this Index; he missed several relatively easy items while proving capable on relatively more difficult items. Jack's score of 97 (percentile ranking of 42) falls within the Average classification range, but, had his attention been under better control, he might have performed yet better on these tasks.

Finally, Jack's score of 103 on a fourth factor, the Processing Speed Index (consisting of the Coding and Symbol Search subtests), falls within the Average classification range and at a percentile ranking of 58. This factor provides an estimate of the speed with which an individual can process simple information, particularly information with a strong visual/motor component. When these processes are automatic, mental energy is freed for more complex thinking and planning. Again, Jack had a difficult time sustaining focus on these tasks, often

stopping to ask questions or make comments. His ability may be somewhat stronger than suggested by his score for this reason.

Academic Achievement

Jack completed reading, mathematics, and written language tasks from the *Woodcock Johnson Psychoeducational Battery, Third Edition, Tests of Achievement* (WJ-III). Performance across major areas is described in what follows.

Reading Reading skills can be broken down into three primary areas. *Basic reading skills* are involved in single-word identification. Basic skills involve phonological awareness (awareness of the sequence of sounds within language), knowledge of sound/symbol associations (phonics), word analysis skills (syllabification), and sight-word knowledge. *Reading comprehension* is the ability to understand written text, once words have been decoded. Reading comprehension depends on a number of more basic skills, including decoding skills, sight-word vocabulary, ability to use context cues, vocabulary, general knowledge, reading speed, familiarity with passage content, oral language, and general intelligence. Finally, *reading fluency* is the speed and accuracy with which an individual is able to read.

Jack's basic reading skills (composite standard score of 93) test within the average classification range with a percentile ranking of 33. Tasks included on the Basic Reading Skills cluster include the Letter/Word Identification subtest (standard score of 94), which requires the ability to use decoding and sight-word skills to identify increasingly difficult English words, and the Word Attack subtest (standard score of 94), which forces the use of decoding skills alone to identify non-words with common English spelling patterns.

Reading comprehension skills also test within the average classification range, though toward the lower end of that range (Reading Comprehension composite standard score, 90, percentile ranking of 25). Tasks included on the Reading Comprehension cluster include the Passage Comprehension subtest (standard score of 92), which assesses the ability to fill in a word missing from a brief passage, and the Reading Vocabulary subtest (standard score of 90), which assesses knowledge of synonyms and antonyms. Jack's scores on reading comprehension subtests are likely to underestimate his potential for understanding text due to the fact that his decoding and sight-word skills were not strong enough for him to be able to read all the words necessary to respond optimally to the tasks.

Reading fluency tests within the Average classification range, though toward the lower end of that range. Jack's score of 91 on the Reading Fluency subtest falls at a percentile ranking of 27.

Basic reading skills, reading comprehension skills, and reading fluency are combined on the Woodcock Johnson to create a Broad Reading score. Jack's

Broad Reading score of 91, percentile ranking of 27, falls at the lower end of the Average classification range. Though this score is a weak “average,” and not suggestive of a learning disability, it is low enough to suggest that Jack would benefit from more intense instruction to develop his reading skills.

Written Language Achievement in the area of written language was also assessed in three broad areas: spelling, written expression, and writing fluency. *Spelling* is the reverse process of decoding. Decoding involves translating printed words into their auditory form, while spelling (or encoding) involves translating the auditory representation of words into their printed form. Skills involved, therefore, include phonological skills (appreciation of the sequencing of sounds within a word), phonics (the ability to map language sounds onto visual symbols, or letters), and revisualization skills (visual recall of the appropriate spelling pattern). *Written expression* is the ability to express the quality of one’s ideas on paper without regard to writing mechanics. It is a highly complex activity that involves the rapid and automatic simultaneous integration of multiple processes, including fine motor skills, language ability, memory recall, and organization. *Writing fluency* assesses the ability to quickly formulate and write very simple sentences.

Jack achieved a standard score of 86, 18th percentile, on the Spelling subtest. This score falls within the Low Average classification range when it is compared to the performance of his peers. His relatively weak spelling skills are likely related to his relatively weak basic reading skills. Written expression, as demonstrated by Jack’s score of 106, 66th percentile, on the Writing Samples subtest falls well within the Average classification range. Finally, the speed and accuracy with which Jack is able to formulate and write very simple and brief sentences tests within the Average classification range as suggested by his Writing Fluency subtest score of 102, 55th percentile.

Spelling skills, written expression, and writing fluency can be combined to create a Broad Written Language score. Jack’s Broad Written Language score of 95, 37th percentile, falls within the Average classification range but is a composite of very different scores (relatively weak spelling skills as compared to relatively strong written expression).

Mathematics Three aspects of mathematics performance were assessed: math calculation skills, math fluency, and math application skills. *Math calculation skills* are the paper-and-pencil calculation skills, which include memory for math facts and memory for math procedures (algorithms) such as multiplication and division. *Math fluency* is the speed with which rote math facts can be recalled from long-term memory store. In contrast, *math application skills* comprise a more complex understanding of the language of mathematics, including appreciation of number concepts, ability to separate extraneous from non-extraneous

information, language skills, metacognitive skills (the ability to make decisions about the best way to solve a problem), working memory (the ability to temporarily mentally hold and process information), and general math reasoning and concept formation skills.

Jack's ability to perform paper-and-pencil calculations tests solidly within the Average classification range. His Calculation subtest score of 99 falls at the 47th percentile. His ability to rapidly retrieve rote math facts tests within the Low Average range, as indicated by his standard score of 85, 16th percentile, on the Math Fluency subtest. Jack had to use his fingers to support this task. This is a good strategy but did slow him down. Finally, Jack's ability to apply his conceptual understanding of math to solve practical problems tests within the Average classification range, as demonstrated by his Applied Problems subtest score of 100, 50th percentile.

Math calculation, fluency, and application skills can be combined to create a Broad Mathematics score. Jack's Broad Mathematics score of 98, 45th percentile, falls within the Average classification range.

Cognitive Processes Related to Academic Functioning

A number of specific cognitive processes are fundamental to the development of sound reading, writing, and math skills. Processes of potential relevance to areas of concern were more specifically assessed. These include phonological processing and visual motor integration.

Phonological Processing

Phonological processing, a prerequisite for fluent reading and spelling, is an umbrella term that involves at least three yet-more-specific processes, all related to the ability to process language sounds. *Phonological awareness* is the ability to process the smallest sounds that comprise words (phonemes). Phonological awareness, therefore, involves the ability to identify phonemes, to sequence phonemes, to segment phonemes, and to blend phonemes. The ability to appreciate rhymes or to speak Pig Latin are reflections of phonological awareness. *Phonological memory* involves the ability to hold language sounds temporarily in working/short-term memory for further processing or manipulation. For example, when decoding each separate sound in an unknown word, these sounds must be held temporarily in memory so that they can then be blended together to form a word. Finally, it is important to be able to quickly recall phonetic information from long-term memory store (*rapid naming*). Without this ability, reading is slow and labored.

Each of these areas was assessed for Jack. His Phonological Awareness standard score of 91 falls within the Average classification range, though toward the lower end of that range, and suggests weak average ability to appreciate the ordering of

language sounds. Ability to hold phonemic information temporarily in mental store tests within the Average classification range as well, as suggested by Jack's standard score of 94 on the Phonological Memory task. Finally, Jack's performance on tasks assessing the ability to rapidly recall phonological information from long-term memory store (Rapid Naming composite, standard score of 94) falls within the Average classification range though, again, weak attention distracted from optimal performance on these tasks.

Visual-Motor Integration

Jack was administered a copying task to assess visual-motor integration skills. Visual-motor integration skills include visual-perceptual discrimination, fine-motor development, and the ability to integrate perceptual and motor processes. Weaknesses in this area can affect the ease with which an individual physically writes and copies. In addition, he was administered two supplementary subtests to assess motor coordination and visual processing alone, without the interference of additional processing requirements.

Jack's performance on the *Developmental Test of Visual-Motor-Integration* suggests that his ability to integrate visual and motor processes falls within the Average classification range (VMI standard score of 96). When tested separately, his fine-motor skills (pencil speed and coordination; Motor subtest score of 104) tested within the Average classification range, and his visual processing tested toward the lower end of the Average classification range (Visual subtest score of 91).

IMPRESSIONS

The *Diagnostic and Statistical Manual, Fifth Edition* of the American Psychiatric Association (DSM-5) describes three major ways attention disorders present: the Predominantly Inattentive presentation (difficulties sustaining attention, organizing oneself, and following through on tasks and directions), the Predominantly Impulsive/Hyperactive presentation (difficulties controlling activity level and thinking before acting), and the Combined presentation (a combination of the two above). To meet diagnostic criteria for any one of these subtypes, symptoms must be present at levels significantly beyond those appropriate to age and at levels that are in some manner impairing, symptoms must be present in at least two different settings, symptoms must have occurred early in development (generally, by age 12), and symptoms must not be better explained in another way. The DSM-5 adds a severity specifier to describe the number of symptoms and degree of impairment (i.e., Mild, Moderate, or Severe).

Jack meets DSM-5 criteria for the presence of severe Attention-Deficit/Hyperactivity Disorder, Combined Type (DSM-5 314.01). He demonstrates a

significant number of hyperactive/impulsive symptoms (difficulties waiting turn, leaving seat, excessive gross motor movement, heightened talkativeness) and inattentive symptoms (difficulties following through on tasks and requests, poorly sustained attention, difficulties listening, organizational weaknesses, avoidance of difficult tasks, and distractibility) across settings. These behaviors have been present since before he started elementary school and are not better accounted for by other conditions.

One prominent theory about cognitive processing weaknesses underlying ADHD is helpful in understanding Jack's difficulties. According to this theory, the challenges children with this type of attention weakness face have their basis in a delay in the development of the ability to inhibit behaviors: to impose a delay between a signal or an event and the reaction or response to it. Without this period of mental time or delay, it becomes difficult to evaluate incoming information to react to it objectively as opposed to emotionally, to keep an event actively in mind and study it so that past learning can inform current behavior, to use self-talk and rules to govern behavior, and to analyze and synthesize information. These areas of challenge result in difficulties sticking with tasks that are tedious, remembering to follow directions and carry out intentions, planning and making goals, monitoring the effectiveness of plans, accepting what is not immediately pleasing, refraining from emotional reactions, and monitoring performance for effectiveness and accuracy. All of this happens (or doesn't) in *working memory space*, the mind's ability to temporarily hold information on its "countertop" for further processing.

The above theory can help to better understand difficulties regulating behavior in addition to the overt symptoms of weak attention/impulsivity. Jack's response to a situation occurs before he has an opportunity to apply the knowledge he has about how to behave in that situation. This lack of reflection then leads to oppositional behaviors, including breaking rules, arguing, and refusing to comply with requests. Oppositional/defiant behaviors are present at a level beyond that typical for a child Jack's age *in the school setting*. They are not, however, reported at significant levels by his mother *in the home setting*. Again, paternal ratings were not returned. Jack is aware that he is not able to live up to the behavioral expectations of teachers and is at risk for learning to see himself as a "bad boy," a phrase he used referring to himself on interview. It will be crucial to help him understand that he is not "bad" himself, but that his actions can be disturbing to others and that, moreover, he can learn to take better control of his actions. Learning to regulate behavior is often a matter of time and practice and, with patience, can be taught. It will be important to praise positive behaviors and have clear expectations regarding behavior. It will also be important to respond

to infractions in a clear and strong but nonaggressive way, given Jack's tendency to become aggressive himself.

Jack's mother and teachers express concerns about his ability to learn in the classroom and, for this reason, academic skills were assessed. Assuming adequate instruction, learning disabilities are said to be present when performance in a specific academic area does not match general intellectual potential. Specific related cognitive processing weaknesses are also presumed present. In Jack's case, his general intelligence (Full Scale WISC-IV score of 98) falls within the Average classification range and at the 45th percentile when his performance is compared to the performances of a national sample of children his age. WISC-IV scores, which are used to predict academic achievement, are roughly consistent with scores on the Woodcock-Johnson, an instrument that assesses academic achievement across the reading, writing, and math domains. Broad Reading (91), Broad Mathematics (98), and Broad Written Language (95) composite scores all fall within expected limits. In addition, scores on tasks that assess phonological processing (necessary for learning to read and spell in a phonics-based system) also fall within the average range, though toward the lower end of that range, consistent with reading scores. This pattern of consistent intelligence and academic achievement is not suggestive of learning disabilities in any specific academic area. Specific learning disabilities, therefore, can be ruled out as a contributing factor to referral concerns.

Though specific learning disabilities are not identified, Jack's weakest performance occurred on tasks assessing basic reading and spelling skills. Though not so weak as to be considered a learning disability, these scores are some of his weakest, falling at the lower end of the average range. Given the intense effort that the school and his mother have put forth in enhancing reading skills (for example, small-group instruction in the school setting and additional practice reading at home), these scores are of some concern. It is also worth mentioning that Jack's scores on reading comprehension tasks fall at this same level; however, his ability to perform well on these tasks was significantly impaired by inability to decode words. When limits were tested, he did appear to understand what he was attempting to read. Weaknesses in decoding skills typically also result in spelling weaknesses; they sometimes also are related to difficulties with automaticity of basic math facts, and this is also an area of relative weakness for Jack. For the reasons noted earlier (relatively weak decoding and spelling skills in spite of efforts to remediate these weaknesses, relatively weak phonological processing skills, and relatively weak automaticity of math facts) Jack should receive additional support in reading. As a final note regarding academic skills, Jack's difficulty sustaining attention to task and thinking through issues before responding (his ADHD) has

DON'T FORGET

Remember to include a description of the child's personal, family, and community assets.

very likely hindered his ability to benefit from the instruction he has received as well as his ability to follow basic rules for behavior. Treatment of his attention weaknesses, therefore, is likely to increase his ability to benefit from instruction.

In summary, current test results suggest that Jack is a bright child with generally commensurate academic skills whose progress in the school setting is moderately impaired by somewhat weak phonological/decoding skills and significantly impaired by the presence of an attention disorder (ADHD, Combined Type). In turn, this disorder results in difficulties sitting still and listening and, therefore, picking up on desired information in the classroom; difficulties managing tedious work; and associated difficulties regulating behavior in the school setting. Jack also has many qualities that will help to overcome his challenges. He is bright and described as a social child with interests in electronics and drawing. Additionally, Jack has the support of a caring family.

RECOMMENDATIONS

This report should be submitted to school personnel for their consideration of appropriate support for Jack. He meets diagnostic criteria for the presence of ADHD, Combined presentation. In addition, basic reading and spelling skills, though not so weak as to be considered learning disabilities, are weaker than appears appropriate given general intelligence and intervention efforts to date. He will benefit from support in this area as well as development of strategies to help him view himself as a “good” boy while behavioral challenges are simultaneously addressed.

Recommendations to Address Attention-Deficit/Hyperactivity Disorder

General Suggestions

1. The first step in dealing with attention deficits is to become familiar with the way they present and methods of addressing them. Many excellent books on this topic are available, and a bibliography is attached for both child and adult reading.
2. Parents may benefit from joining CHADD (an educational/support group for parents and teachers who work with children with attention deficits). In addition to monthly meetings, membership includes excellent

newsletters and magazines. Further information can be obtained by visiting the website at www.chadd.org.

3. Medical personnel should be consulted regarding possible medical management to enhance attention and behavioral control. Our bias is to consider a double-blind placebo medication trial, with dosage levels systematically varied and objectively assessed for effectiveness on behaviors of concern.

Educational Setting

1. Jack is likely to learn best through an active, hands-on approach. Other considerations in matching Jack to a best-fit classroom situation include a need for structure, predictability, clarity of rules, an emphasis on positive consequences, and teacher understanding of the nature of ADHD in combination with a talent and willingness to make necessary modifications and allowances.
2. Impulsive behaviors in the classroom can be further addressed by developing a home/school report card system targeting specific problem areas. The home/school report card system involves identifying problem areas and awarding points on a daily basis for improved behavior. These points are backed up at home daily by a menu of reinforcers identified by Jack and his mother. A handout for implementing such a system is included with this report.
3. Teachers should carefully prepare Jack for transitions or times when he is apt to become overstimulated and lose control. Warn him of the upcoming situation, have him state the “rules” for behavior, and praise him for good self-control when he is successful.
4. Rules should be externalized by writing them down and placing them within Jack’s sight. He can then be reminded of these rules before situations arise that are likely to be difficult for him. For example, he could be asked to repeat a rule about walking, not running, before going to the gym.
5. Jack can be helped to develop more self-control by taking advantage of his verbal skills. Teach a “Stop and Think” method using external cues. For example, a small, red stop sign could be placed on his desk at appropriate times to remind him to stop and think before interrupting the class.
6. Work completion, monitoring of work, listening, and organization in the classroom may be encouraged by:
 - Targeting these areas on the home/school report card suggested above.
 - Seating Jack away from distractions.
 - Breaking longer assignments into shorter parts and checking back with Jack frequently.

- Developing with Jack a signal to help him identify when he is off-task or misbehaving.
 - Alternating written or tedious assignments with more active assignments.
 - Allowing ample opportunity to work off excessive energy. Jack might be designated as the “runner” for the classroom, to help the teacher. He should not be kept in from recess to complete classwork.
7. Listening and following directions in the classroom can be improved by the following:
 - Delivering directions slowly, keeping them brief and simple. Repetition will also be helpful.
 - For extended directions, ensure understanding by checking back with Jack.
 - When possible, write directions down to create a permanent reminder that can be referred to as needed.
 - For written directions, encourage Jack to highlight (underline or circle) points that might be forgotten or overlooked. Check back after finishing the task.
 8. Self-advocacy is important for children with areas of weakness. Jack should be encouraged first to check his own understanding and then to ask questions if necessary.
 9. Develop a consistent organizational system and good home/school communication.
 10. As Jack progresses through the grades, request that teachers initial assignments in an assignment book to ensure accuracy and understanding should he experience difficulty accurately writing down assignments.
 11. Again, as he progresses through the grades, if necessary, develop a backup system for remembering books/assignments. Suggestions include identification of a “buddy” who can be called if necessary, development of a color-coded system to ensure all books and assignments are packed for home, and the purchasing of a second set of texts to be kept at home.

Home Setting

1. Russell Barkley (internationally known researcher and practitioner)’s 10 guiding principles for parents:
 - Feedback and consequences must be more immediate.
 - Feedback must be more frequent.
 - Consequences must be larger and more powerful.

- Incentives should be used before punishment.
 - Strive for consistency.
 - Act; don't spend time in discussion.
 - Plan ahead for problem situations (be proactive).
 - Remember, you as a parent are the adult. Keep a disability perspective on child behavior.
 - Don't allow your child's problems to affect your own sense of self-worth or dignity.
 - Practice forgiveness.
2. To assist homework completion:
- Find a regular place to study. This study area should be away from all noise and distractions. All extraneous objects and materials should be removed so that the area is visually uncomplicated. All necessary study materials should be readily available. Regular study habits involving time and place should be developed. It will be helpful to have Jack's homework area at a place which can be visually monitored by a parent.
 - Develop a checklist for use during studying. This checklist should be permanently positioned in a place where it is easily visible. The checklist should list the important steps to follow. Such steps include: Carefully read the directions, circle the important words in the directions, do the work, proof to see that directions were followed and all work appears accurately completed, organize for tomorrow, etc. Practice and support with this checklist is important to assist the processes in becoming automatic.
 - Use a timer. Set the timer for the length of time anticipated to complete a portion of work. Check that work as well as the accuracy of time estimates for completing that portion reinforce for appropriate performance, and repeat the procedure.
 - Should inordinate parental assistance be required, or Jack distract himself too frequently from his homework, the following procedure may be helpful. Make available a number of small privileges or items (such as minutes of TV watching or small candies) at the beginning of a homework session. An item is relinquished each time assistance or a reminder to continue working is necessary.
 - Break homework assignments into smaller, manageable portions and provide opportunities for breaks in between. Written assignments should be alternated with more active or reading assignments.
 - Parents may find Lee Canter's book, *Homework Without Tears*, useful in dealing with homework issues.

3. Listening and following directions at home can be improved by the following:
 - First ensure attention. Turn off the television or other distracter, move physically close to Jack, and gain eye contact.
 - Deliver directions slowly, keeping them brief and simple. Limit the number of directions given at once.
 - For extended directions, ensure understanding by checking back with Jack.
 - When possible, write directions down to create a permanent reminder that can be referred to as needed. In the home setting, Jack might be given “chore cards” that list each step of a complex task. Alternatively, checklists work well for many children.
 - Monitor Jack’s response and follow up if needed.
4. Actively look for opportunities teach Jack to “wait.” For example, be sure he listens to all instructions before beginning a response.

Suggestions to Address Oppositional Behaviors

1. Set up a “prosthetic” environment.
 - Provide structure and predictability.
 - Implement regular routines and careful preparations for transitions. Warn him of the upcoming situation, have him state the rules for behavior, and praise him for appropriate behavior when he is successful.
 - Ensure regular eating and sleeping habits.
 - Avoid excessive stimulation.
 - Use differential attention. Actively search for positive behaviors and reward them through attention/praise. Ignore minor misbehaviors.
 - Set up a regular place in the house to which Jack can retreat should he feel himself beginning to lose control.
 - Teach Jack specific coping strategies. For example, along with his parents, he can devise a prearranged self-statement to employ when he becomes frustrated. This statement would both acknowledge the frustration and provide an appropriate response. For example, when frustrated, he might think to himself, “I’m getting mad; I need to take a quick timeout.”
2. Implement a positive behavior management system to decrease negative behaviors.
 - Oppositional behaviors in the home setting can be managed through clear communication of expectations, consistent consequences for inappropriate behavior, and positive attention for good behavior. Two

books might be helpful: *SOS for Parents*, by Lyn Clark, and *1-2-3 Magic*, by Thomas Phelan.

- Develop a point reinforcement system targeting specific problem areas. Points are awarded on a daily basis for appropriate behavior. These points are backed up daily by a menu of reinforcers identified by Jack and his parents. A handout for implementing such a system is included with this report.

Recommendations to Address the Development of Reading and Spelling Skills

1. Reading instruction should be multifaceted and include a highly structured, systematic, multisensory phonics approach.
2. Spelling instruction should be coordinated with reading instruction, so that similar principles are practiced in both the decoding and encoding areas. Basic spelling rules also should be addressed and thoroughly taught.
3. Jack's parents can help at home by continuing to read with him regularly. Home reading material should be coordinated with reading instructional materials, so that the same principles are being practiced in both settings and reading material is at an appropriate level. He should be encouraged to actively sound out difficult words. Computer software and phonics rap tapes (available at book stores) might also be helpful in learning basic reading skills. In addition, many reading games are available from local learning stores and offer an additional, and often enjoyable, opportunity to develop basic skills and fluency.
4. Phonological awareness should be specifically targeted for development. This goal can be achieved through a tutor or language pathologist. The *Explode the Code* series by Educator's Publishing Service might also be a useful home or class adjunct.
5. To improve sight-word recognition and reading fluency, find a brief reading passage at an instructional level. Reading out loud, together, read this passage three to five times, reading at a rate just quicker than Jack's. Continue this exercise for approximately five minutes a day. The HELPS website (www.helpsprogram.org) provides exercises that can be used at home to develop reading fluency.
6. Extended reading assignments should be broken into small segments with breaks in between. Jack should be encouraged to think through each reading segment before continuing his reading.

Some Strategies to Assist Written Work

1. Provide methods of simplifying writing skills, one of which is the use of a word processor (with a spell check). When Jack is ready, the continued development of keyboarding skills, including regular practice over a long period of time, will be necessary.
2. Grades for extended written work should be handled in one of two ways: (1) Separate the mechanics of writing from the content of writing and grade each separately, or (2) determine the focus of an assignment (e.g., accuracy in punctuation or discussion of a thesis) and base Jack's grade solely upon that focus.
3. A home-based self-correction technique for learning spelling words will be presented to Jack's mother. This technique should help Jack prepare for weekly spelling tests and better retain spelling words.
4. The COPS procedure is a strategy for proofing written work, and a copy is attached to this report. Use of this system should be backed up with praise or, if needed, other reinforcers. Charting his progress in being able to adequately use the checklist and correct errors may be monitored through graphing. This strategy may help Jack to become more independent in his work.
5. Make available a set of basic punctuation and capitalization rules for ready reference during writing assignments.
6. Use a Franklin SpellMaster or similar device. These hand-held "calculators" yield correct spellings when words are entered phonetically.

Recommendations to Address Math Weaknesses

1. Mastery of basic math facts often requires extensive (and sometimes boring) practice. Practice should include small doses over a period of time (10–15 minutes daily) with practice on a variety of problem types, practice until facts are over-learned, or automatic, and regular review. Engaging methods of teaching basic math facts include computer software; "Rap-'n'-Learn" tapes, available from local bookstores; and math games, available from local learning stores.
2. After significant efforts to automatize math facts are made, Jack should be permitted and encouraged to use a calculator if not successful. Use of a calculator will enhance ability to learn more complex aspects of mathematics, alleviate frustration, and provide a sense of mastery.

3. Jack is unlikely to be highly successful on speed drills. Therefore, focus on comparing the number of problems completed in a block of time to the number completed previously rather than setting an arbitrary time goal.

Additional Suggestions to Address Behavioral Issues and Self-Concept

1. Jack spontaneously brought up the difficulties he has “behaving.” It was not clear whether he was distraught about these difficulties or whether he simply looked forward to the rewards that he would receive if he did behave. In any case, it will be important to help him learn to see himself as a “good boy” whose challenge is to learn to control his behavior. As a part of this learning, he should be helped to understand ADHD in a simplified form, pointing out that sometimes it may be difficult to think about how he should respond to a situation before he actually responds but that it is indeed possible to learn these things. Help him to understand that there are things that can be done to help him, as well as things that he can do.
2. Jack should be encouraged to engage in activities in which he can be successful to help him gain a sense of mastery and competence. He is a good artist, and this is a skill that might be woven into the classroom to help him feel good about himself.
3. Jack’s behaviors often prompt negative responses from others, and, as a consequence, others withdraw from him. To encourage him to feel good about himself, it will be important to make an effort to intentionally develop positive interactions. Methods of doing this include:
 - Differential attention: ignoring minor problematic behaviors while intentionally searching for positive behaviors that can be recognized and acknowledged.
 - Special time: setting aside a period of time (15–20 minutes) on a daily basis to spend time with Jack in a non-controlling way. A handout on this technique is included with this report.
 - Making an effort to keep the ratio of positives to negatives at 5:1.
4. Emphasize and reinforce the effort Jack puts into his work and the progress he makes toward reaching the goals he sets for himself, rather than focusing on his performance as it compares to that of his classmates. Focus on the *process*, not the *outcome*. Effort is under his control; the outcome is not.
5. Ensure that adult expectations are set at an appropriate level to avoid frustration and avoidance.

6. It may be helpful in the classroom to pair Jack with a buddy who can help him when he is confused or uncertain. Ideally, also identify an area where he can be helpful to his buddy.
7. Focus on Jack's attributions for success. Help him to see that success consists of factors under his control such as effort, practice, and use of appropriate modifications. Success is dependent upon him and is not the responsibility of others or due purely to luck. This goal can be accomplished in part by noting and reinforcing those occasions during which he displays appropriate behavior/effort.

ATTACHMENTS

Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV)

The *Wechsler Intelligence Scale for Children, Fourth Edition* (WISC-IV), yields an estimate of general intellectual functioning for a given individual at a specific time. The WISC-IV consists of 10 primary subtests and 5 supplementary subtests and yields five IQ scores: Verbal Comprehension, Perceptual Reasoning, Working Memory, Processing Speed, and a composite or Full-Scale IQ. Verbal Comprehension subtests measure verbal knowledge and reasoning and require vocal responses to orally presented items. Perceptual Reasoning subtests assess nonverbal reasoning and typically require manual manipulation of test materials or pointing responses under timed conditions. Working Memory subtests can reflect one or more of a variety of intellectual and behavioral factors, including attention, anxiety, ability to mentally manipulate abstract symbols, and short-term memory. The Perceptual Speed Index assesses perceptual-motor speed and coordination. The Full Scale score is a composite of the other four scales and is best interpreted when the discrepancy between scales is not too great.

It is important to understand that IQ tests measure only a portion of the competencies involved with human intelligence. The IQ results are best seen as estimates of likely performance in school and reflections of the degree to which children have mastered the middle-class cultural symbols and broad culturally rooted facts, concepts, and problem-solving strategies. This information is useful but limited. IQ tests do not reflect only innate genetic capacity, and the scores are not fixed. Some persons do exhibit significant increases or decreases in their measured intellectual abilities over time.

Jack's performance on the WISC-IV is compared to the performances of a national group of children his age. WISC-IV standard scores, score ranges, score

percentiles, and classifications are listed here. Standard scores have a mean of 100 and a standard deviation of 15. Approximately half of all children will have standard scores between 90 and 109. The score range indicates the likelihood that, 90 out of 100 times upon retesting, the score would fall within the range noted. The percentile ranking indicates that Jack scored higher than that number of individuals out of 100. The classification range provides an arbitrary qualitative description of Jack's performance as it compares to that of other similar-age children across the nation.

Scale/Index	Score	Score Range	Percentile	Classification
Full-Scale	98	94–102	45	Average
Verbal Comprehension	95	90–101	37	Average
Perceptual Reasoning	100	94–106	50	Average
Working Memory	97	91–104	42	Average
Processing Speed	103	95–110	58	Average

The Verbal Comprehension, Perceptual Reasoning, Working Memory, and Processing Speed scale subtests measure more specific abilities. Subtest scores range from 1 to 19 with an average of 10. These subtests and their respective scores are listed below. “S” and “W,” when present, indicate subtests that are significant relative strengths or weaknesses, respectively. These latter comparisons are made relative to Jack's overall performance within each scale and not to the performance of other similar-aged children.

Subtest	Score	Classification
Verbal Comprehension Scale (95)		
Similarities (finding likenesses between concepts)	8	Average
Vocabulary (word knowledge)	11	Average
Comprehension (social and practical judgment)	8	Average
Perceptual Reasoning Scale (100)		
Block Design (copying designs with blocks)	10	Average
Picture Concepts	10	Average
Matrix Reasoning (nonverbal problem solving)	10	Average
Working Memory Scale (97)		
Digit Span (repeating digit strings)	10	Average
Letter-Number Sequencing (mental ordering)	9	Average
Processing Speed Scale (103)		
Coding (copying symbols)	9	Average
Symbol Search (perceptual matching)	12	Average

Woodcock-Johnson Psycho-Educational Battery, Third Edition, Tests of Achievement (WJ-III)

The *Woodcock-Johnson Psycho-Educational Battery, Third Edition*, is a broad-range battery of tests. Academic achievement is assessed in reading, mathematics, written language, oral language, and knowledge of specific content domains. Scores are derived for individual subtests as well as for broad clusters comprised of various subtests. The Reading Cluster assesses basic reading skills, reading fluency, and passage comprehension. The Mathematics Cluster assesses skills in written calculation, speed of recall of basic math facts, and the ability to apply mathematical concepts to solve practical problems. The Written Language cluster assesses basic writing skills such as spelling and punctuation as well as the ability to express ideas fluently through writing. The Oral Language Cluster assesses both listening comprehension and oral expression. When supplemental subtests are included, more in-depth assessment is possible within domains. Standard scores and percentile rankings are listed here as they compare to other similar-aged children. Standard scores have a mean of 100 and a standard deviation of 15. Approximately half of all children will have standard scores between 90 and 109.

	Standard Score	Percentile	Classification
Broad Reading	91	27	Average
Letter-Word Identification	94	34	Average
Reading Fluency	91	27	Average
Passage Comprehension	92	30	Average
Basic Reading Skills	93	32	Average
Letter-Word Identification	94	34	Average
Word Attack	94	34	Average
Reading Comprehension	90	25	Average
Reading Vocabulary	90	25	Average
Passage Comprehension	92	30	Average
Broad Mathematics	98	45	Average
Calculation	99	47	Average
Math Fluency	85	16	Low Average
Applied Problems	100	50	Average
Broad Written Language	95	37	Average
Spelling	86	18	Low Average
Writing Fluency	102	55	Average
Writing Samples	106	66	Average

Comprehensive Test of Phonological Processing (CTOPP)

The CTOPP is an individually administered test that assesses three aspects of phonological processing in individuals ages 5 through 24: phonological awareness, phonological memory, and rapid naming. Deficits in phonological processing are viewed as the most common cause of reading disabilities. Phonological awareness refers to the individual's awareness of and access to the sound structure of the language: the ability to identify, segment, sequence, and blend individual language sounds. Phonological memory refers to the coding of phonological information for temporary storage in short-term or working memory. Rapid naming of objects, digits, colors, or letters requires the efficient retrieval of information from long-term or permanent memory storage. Standard scores and percentile rankings are listed here as they compare to other similar-aged children. Standard scores have a mean of 100 and a standard deviation of 15. Approximately half of all children will have standard scores between 90 and 109.

	Standard Score	Percentile
Phonological Awareness	91	27
Elision	8	25
Blending Words	9	37
Phonological Memory	94	34
Memory for Digits	11	63
Non-word Repetition	7	16
Rapid Naming	94	34
Rapid Digit Naming	9	37
Rapid Letter Naming	9	37

Developmental Test of Visual-Motor Integration (VMI)

The VMI consists of 24 designs that are to be copied. The skills measured include visual-perceptual discrimination, fine-motor development, and the ability to integrate perceptual and motor processes. Additional supplementary tasks explore the visual and fine-motor components separately.

Standard scores and percentile rankings are listed here as they compare to other similar-aged children. Standard scores have a mean of 100 and a standard deviation of 15. Approximately half of all children will have standard scores between 90 and 109.

Task	Score	Percentile
VMI	96	39
Motor	104	61
Visual	91	27

Formal Clinic Observation

Jack was left alone with a simple math task for 15 minutes. Behaviors frequently associated with attentional weaknesses were observed and tallied through the use of a hidden camera. Behaviors tallied included: Off-Task, Fidgeting, Vocalizing, Playing with Objects, and Out-of-Seat. Percent of intervals during which Jack exhibited the targeted behavior are listed in the table. Also included are rough guidelines comparing the frequency of observed behaviors with expectations given age.

Behavior Tallied	Intervals Scored	Level
Off Task	70%	Normal/Elevated
Fidgeting	10%	Normal
Vocalizing	0%	Normal
Object Play	0%	Normal
Out-of-Seat	100%	Elevated

Conners Continuous Performance Test II V.5

The Conners CPT II is a computerized test that assesses an individual's ability to sustain attention to task and to refrain from impulsive responding. Respondents are required to press the space bar when any letter except the target letter *X* appears. The inter-stimulus intervals (time between presentation of the stimulus letters) vary from one to four seconds, and six blocks, each containing 20 trials, are presented.

Results are presented in T-scores that have a mean of 50 and a standard deviation of 10. Measures include, but are not limited to, omissions (the number of target stimuli missed), commissions (the number of inappropriate responses), reaction times, variability of reaction times, and performance across time. The Confidence Index reflects the likelihood that the pattern of results matches those of a sample of similar-aged individuals with attention deficits.

	Variable	T-Score	Guideline
Inattention Measures	Omissions	73.44	Inattention
	Commissions	49.53	OK
	Hit Reaction Time	72.90	Inattention
	Hit Reaction Time SE	76.01	Inattention
	Variability	67.86	Inattention
	Detectability (d')	52.67	OK
	Hit RT ISI Change	82.93	Inattention
Impulsivity Measures	Hit SE ISI Change	63.85	Inattention
	Commissions	49.53	OK
	Hit Reaction Time	72.90	OK
Vigilance Measures	Perseverations	70.91	Impulsive
	Hit RT Block Change	64.39	Poor Vigilance
	Hit SE Block Change	45.55	OK

Conners, Third Edition

The Conners-3 is designed to assess ADHD and its most common co-occurring disorders in children and adolescents aged 6 to 18 years old. It consists of two separate sets of scales, the Content Scales and the DSM-IV-TR Scales. Each set of scales assesses similar issues, with the DSM-IV-TR scales tied directly to the criteria included in the *Diagnostic and Statistical Manual, Fourth Edition*, of the American Psychiatric Association. The Conners-3 has parent, teacher, and self-rating forms. Frequency of behavior as observed in the past month is rated on a four-point scale. Results are reported in T-scores. T-scores have a mean (average) of 50 and a standard deviation of 10. Roughly two out of every three children will obtain scores within one standard deviation of the mean (T-scores from 40 to 60).

	Maternal Ratings			Paternal Ratings		
	Within Normal Limits	Area of Some Concern	Area of Significant Concern	Within Normal Limits	Area of Some Concern	Area of Significant Concern
Conners-3 Parent						

CONTENT SCALES

Inattention		70
Hyperactivity/Impulsivity		77
Learning Problems		77
Executive Functioning		61
Defiance/Aggression	56	
Peer Relations		67

DSM-IV-TR Symptom Scales	Within Normal Limits	Area of Some Concern	Area of Significant Concern	Within Normal Limits	Area of Some Concern	Area of Significant Concern
ADHD/Inattentive T-score			73			
Symptoms endorsed			6 of 9			
ADHD/Hyperactive-Impulsive			70			
Symptoms endorsed			8 of 9			
Conduct Disorder	54					
Oppositional/Defiant Disorder	53					

Conners-3 Teacher	Teacher Ratings (Art)			Teacher Ratings (Classroom)		
	Within Normal Limits	Area of Some Concern	Area of Significant Concern	Within Normal Limits	Area of Some Concern	Area of Significant Concern
Content Scales						
Inattention	58					80
Hyperactivity/Impulsivity		61				90
LP/EF Total	50					81
Learning Problems (LP)	44					76
Executive Functioning (EF)	53					76
Defiance/Aggression			90			90
Peer Relations		68				75

DSM-IV-TR Symptom Scales	Within Normal Limits	Area of Some Concern	Area of Significant Concern	Within Normal Limits	Area of Some Concern	Area of Significant Concern
ADHD/Inattentive T-Score	58					87
Symptom count	6 of 9					9 of 9
ADHD/Hyperactive-Impulsive		61				90
Symptom count		5 of 9				8 of 9
Conduct Disorder	58					78
Oppositional/Defiant Disorder			90			90

ADHD EVALUATION REPORT

CONFIDENTIAL

Name: Briana J.

DOB: XX-XX-XX

DOE: XX-XX-XXX; XX-XX-XXX; XX-XX-XXX

Age: 16-5

Examiner: XXX, PhD

IDENTIFYING INFORMATION/REASON FOR REFERRAL

Briana is a 16-year-old Caucasian girl who is currently completing the tenth grade at the private ANYSCHOOL in ANYTOWN, USA. Briana was referred for an assessment to determine whether she suffers from attention-deficit/hyperactivity disorder.

PRESENTING PROBLEMS/CURRENT FUNCTIONING

Concerns regarding the possibility that Briana might suffer from attention-deficit/hyperactivity disorder (ADHD) were initially raised by one of her teachers and by Briana herself. A music teacher requested that Briana be evaluated for ADHD based on difficulties she observed with concentration, focus, and motivation. Briana's mother (Tina J.) noted that a number of current teachers have expressed concerns regarding Briana's lack of focus, daydreaming, and inconsistent academic performance. The school psychologist indicated to Mrs. J. that she suspected that Briana has ADHD, but did not conduct a formal evaluation for the disorder. Briana came to believe that she might have ADHD due to difficulties maintaining her focus on academic and other tasks. Seeking to determine whether a diagnosis of ADHD applies to Briana and to be responsive to concerns raised by the school and their daughter, Mr. and Mrs. J. initiated the current evaluation.

Briana's mother and father are primarily concerned with her academic functioning. Specifically, they are troubled by relatively recent declines not only in her academic performance, but also in the level of motivation, effort, and investment applied toward her schoolwork. Although she is said to have previously been "a solid A-B student," Briana's grades have declined over the past two years such that she is receiving grades consistently in the B and C range (with the exception of music classes, where she has earned A-range grades). Her grade-point averages over the last four available grading terms (spanning the ninth and tenth grades) have been 2.9, 2.8, 2.5, and 2.7. Among her core academic subjects, she has tended to do best in

Math (B grades over the past two years), whereas her performance had tended to decline in English (from B to C grades), Science (from C+ to C and C– grades) and History (from B– to C+ grades). Her grades in Spanish have remained in the C range over the past two academic years.

Although comments from Briana’s current and recent teachers are complementary of her “good nature,” “graciousness,” “politeness,” insightfulness, and participation, they are also notable for raising concerns related to her focus and work habits. With respect to the latter, one teacher attributed her C-range grades to poor study habits (*viz.*, “cramming” rather than reviewing material more regularly) and to her tendency to “drift off” and be “engaged in class less than 50% of the time.” Indeed, multiple teachers identified problems with attention and focus. For example, her English teacher noted “a fog tends to descend on Briana . . . as does an air of distraction and disengagement that sometimes characterizes her in the classroom.” He regards her as “simply a kid for whom it is sometimes difficult to focus on the immediate tasks before her.” Her Algebra teacher remarked that Briana “needs to use all of her class time to focus on the material being presented to her.” Comments from Briana’s Spanish teacher also focused on attentional difficulties, noting that “better attention in class should be a priority,” and that she “does have the ability, when she maintains focus, to produce good work.” Teachers in a number of subjects (e.g., Art, English) commented on Briana’s difficulties completing class assignments within the allotted time frame and on her need to “manage time better.” Multiple teachers stated or implied that Briana’s performance has not been commensurate with her perceived abilities.

Briana and her parents identify a number of factors that appear to be contributing to her academic difficulties. Her current school comprises a demanding academic environment, which imposes high standards and a heavy workload on its students. As Briana recently transitioned to the “upper campus” at ANYSCHOOL, the level of academic demand (in terms of workload, the necessity of higher-order thinking in which material must be analyzed and synthesized, and expectations for more sophisticated work products) increased significantly. Thus, the combination of her innate abilities and modest effort are no longer resulting in reasonably strong grades as they did in past years. Briana, her mother, and father all note waning motivation and effort in the face of these increased academic demands. She is described as devoting less time to studying and homework (despite multiple tutors being in place to help enforce these activities), and as generally prioritizing social over academic pursuits. Parental- and self-reports both suggest a tendency to procrastinate and “wait until the last minute” to complete assignments or prepare for tests. Thus, Briana describes herself as “going to extremes” in that she will generally put little or no effort into

her schoolwork but periodically must devote many consecutive hours to completing projects or preparing for tests to compensate for her procrastination.

Briana readily acknowledges her declining motivation and effort, noting that she has been doing “as little as possible” to get by academically. However, she attributes these changes largely (though not wholly) to the impact of her attention problems in the context of increasing academic demands. She remarks that “I can’t concentrate well enough to put in the effort and I can’t get myself to be motivated if I can’t focus on something.” She also reports that even when well-motivated, “I still can’t focus.” For example, she describes sitting down and opening a book with the genuine intent to study, but consistently finding that “I can’t get my mind to focus and stick with it . . . I’ll sit down to read and will think of something else totally unrelated, and then it will be hard to get back on track.” Although she acknowledges that her procrastination is at times a product of her being drawn to activities that are more appealing than schoolwork, she attributes it largely to her simply avoiding activities that she knows will be difficult and challenging to her due to her problems sustaining her focus. With respect to her classroom performance, she describes herself as often “zoning out during tests and thinking of other things,” “getting off track very easily” when trying to study or take tests, frequently running out of time to complete assignments, and having difficulty “getting my thoughts connected [and articulated] so that they make sense on paper and not just in my head. . . . I’ll have one thought, then another, then another and I can’t tie them together.” She also comments that it is difficult for her to carefully listen to and absorb material that is being presented in class.

Briana’s motivation with respect to school appears to have been further undermined by the demoralizing effect of her recent academic struggles. Mrs. J. believes that Briana’s difficulties meeting her current school’s high standards for performance have eroded her confidence, spirit, and effort. Compounding this demoralization has been the sense that Briana’s grades have been in the low-B-to-C range regardless of whether she applied minimal or considerable effort to preparing for exams. Briana acknowledged this discouragement and remarked that her current school “makes me feel like a failure.”

Outside of her academic difficulties, Briana’s mother and father describe her as generally well-adjusted and voice relatively few concerns regarding her functioning. She has never posed significant behavior or disciplinary problems either at school or at home. Mrs. J. does describe a relatively recent increase in conflicts between herself and Briana around issues of autonomy and limit-setting, which seem fairly typical given Briana’s age. With respect to her mood, both self- and parent-reports indicate Briana to be a generally happy and “joyous” person who

laughs easily and often. However, Mr. and Mrs. J. did allude to some relatively recent changes in her demeanor, including becoming “less joyful,” “more irritable,” “very impatient,” “more sarcastic,” and “less sweet and interpersonally sensitive.” Although some of these changes may be attributable to normal adolescent development, they also appear to relate to an apparent depressive episode that Briana suffered between October XXXX and January XXXX (details of which are provided later in this report).

Briana is described as a highly sociable teenager. She is popular with her peers, has many friends with whom she regularly socializes, and is well-liked by adults. Although she has had some dates in the past, she is currently involved with her first “real boyfriend,” a student at a nearby school whom she has been seeing for approximately three months. No concerns regarding social functioning were voiced by Mr. or Mrs. J., Briana, or her teachers.

Despite the presenting academic difficulties and normative parent–adolescent conflicts, Briana regards both her mother and father to be loving and supportive figures who are invested in her happiness and well-being. She does perceive her conflicts with her mother as being exacerbated by her mother’s “stress level,” reluctance to accept change, and by differences in their respective temperaments. She also acknowledges that the level of trust between her and her mother has declined over the past year, in part due to some of her own transgressions. She describes her relationship with her brother as “very good.”

Although her current academic difficulties have adversely affected how intelligent she perceives herself to be relative to her peers at school, Briana’s self-image is said to be generally positive. Her interests and leisure-time activities include movies, music, water sports, skiing/snowboarding, and socializing with friends.

BACKGROUND INFORMATION

Briana lives in ANYTOWN, USA, with her mother, father, and 22-year-old brother, who is currently attending college out of state. Her 54-year-old mother, Mrs. J., is a real estate agent who attended two years of college. Her 52-year-old father, Mr. J., is an attorney. Mr. and Mrs. J. have been married for 23 years.

Briana was a healthy 8 lb., 7 oz. baby born at term via uncomplicated vaginal delivery following a 9-hour labor. Mrs. J. reports no exposure to alcohol, tobacco, or other teratogens during her uncomplicated pregnancy. Briana’s motor, speech and language, toileting, and self-help milestones are all reported to have been reached within normal limits. With regard to early temperament, Briana is described as having been a happy, affectionate, curious, normally active, and easy-to-manage infant and toddler.

Briana's medical history is positive for chicken pox (age 4), strep throat, and several bouts of flu. Briana is mildly allergic to dog hair. She is said to be in good physical health with no significant illnesses, operations, or hospitalizations. There is no reported history of seizures, tics, or head injury resulting in concussion or loss of consciousness. Briana's immunizations are up-to-date. She is not currently taking any medications.

Briana attended school at PRIVATE SCHOOL from kindergarten through the fifth grade. Mr. and Mrs. J. report that Briana earned A's and B's during these years and did not recall teachers voicing any concerns regarding her behavior, attentional functioning, or academic performance. In contrast to her mother's and father's report, Briana believes that she "always had trouble focusing," and did well in elementary school despite "not being engaged," due to the relatively low demands and her good relationships with teachers. Briana is described as never having enjoyed reading. Her lowest scores on standardized tests have consistently been on Reading Comprehension. Briana emphasizes that her tendency to "think of totally unrelated content while reading and having a hard time getting back on track, makes it hard for me to know what I've read." Briana has attended her current private school since the sixth grade. She has never posed behavior problems at school and has been well liked by teachers. Information on her recent academic performance is provided above.

Family psychiatric history is positive for ADHD, learning disorders, substance abuse, and anxiety disorders.

PREVIOUS TESTING AND INTERVENTIONS

Mrs. J. reports that Briana was evaluated with IQ and other testing during the first grade. Although specific results of that assessment were not available at the time of this writing, Mrs. J. reports that the testing yielded no specific diagnoses, suggested that Briana was "very bright," and revealed modest difficulty with early decoding skills. At the recommendation of her elementary school, Briana began seeing an educational therapist in the first grade, with whom she met regularly for a few years. Their work focused on building early reading skills and working together on homework. The educational therapist is said to have noted some slight "visual-motor integration problems."

DON'T FORGET

Attempt to obtain reports of past evaluations and treatment efforts, and include the evaluator's credentials when you describe their findings. When previous reports are not available, be sure to describe your source for results (in this case, the mother's recollection).

Since XX/XX, Briana has been participating in therapy with GOOD DOCTOR, PhD. Therapy, which has comprised approximately 8 sessions to date, parts of which have included Mrs. J., has focused largely on negotiating conflicts between Briana and her mother, trust-building, and parenting issues. Briana reports that she likes and feels comfortable with Dr. DOCTOR and that she has found the process helpful thus far.

There is no other reported history of mental-health-related evaluations or treatments.

TESTS AND PROCEDURES ADMINISTERED

- Intake interview (parents)
- Clinical interview (child)
- Semi-structured Interview for ADHD/disruptive behavior disorders (parents, child)
- Child behavior checklist (parent-version) (CBCL)
- Conners Third Edition (Conners-3): parent (C3P), teacher (C3T), and self-report (C3SR) rating scales
- Conners Continuous Performance Test (CPT)
- Child Depression Inventory (CDI)
- Record review (recent report cards and teacher comments)

BEHAVIOR OBSERVATIONS/MENTAL STATUS

Briana is a thin, attractive 16-year-old Caucasian female whose appearance was consistent with her chronological age. She was neatly groomed and casually but appropriately dressed for the evaluation. She had no difficulty separating from her mother and seemed comfortable with the examiner. Her demeanor was pleasant, outgoing, cooperative, and polite, and she maintained appropriate eye contact during the evaluation sessions. Briana appeared to be relaxed and at-ease, conversed easily and appropriately, and presented as forthcoming and candid in response to questions regarding her functioning in different areas. Her speech was normal in rate, rhythm, prosody, organization, and content and there were no indications of thought disturbance. Sensorium, orientation, and memory were all intact. Briana was somewhat prone to fidgeting, particularly with her legs and feet, but her motor behavior was otherwise unremarkable. At times, she required questions to be repeated, apparently due to wavering attention. Her affect was generally euthymic and appropriate. The self-report and test performance data she provided appear to be valid.

RESULTS OF ADHD BATTERY

Interview Data

Information on core and associated features of ADHD was collected through the *Semi-Structured Interview for ADHD and Other Disruptive Behavior Disorders* administered jointly to Mr. and Mrs. J. A separate interview with Briana obtained her self-report of ADHD symptoms. Briana reported a higher number and magnitude of symptoms related to ADHD than did her mother or father.

Briana's parents described a number of symptoms in the inattentive domain as being present to an above-average but not extreme degree relative to her same-sex peers. These included being absentminded and forgetful (e.g., leaving homework assignments, forgetting to take necessary items to and from school), losing things, having trouble organizing her tasks, materials, and activities, making careless errors, and failing to pay close attention to details. They note that her inattention to her surroundings has contributed to a longstanding tendency to be accident-prone (e.g., bumping into things, spilling drinks). They were unsure as to whether her levels of distractibility and difficulty sustaining attention to tasks were significantly greater than her age-mates. They reported her difficulties in these areas to be inconsistent and to vary considerably depending upon her level of interest and engagement in the task. With respect to onset, Briana's parents describe certain features as emerging in early childhood (e.g., being forgetful and absentminded, inattention to surroundings, proneness toward careless errors) and as being relatively consistent over time. However, it is their impression that any difficulties that Briana has experienced related to sustaining attention and completing tasks have emerged only over the past year or so. Mr. and Mrs. J. did not describe Briana as evincing any symptoms in the hyperactive/impulsive domain to a significantly greater degree than other girls her age.

Briana reported a higher level of both inattentive and hyperactive/impulsive symptoms than did her mother and father. She endorsed a majority of inattentive symptoms as being present to a significantly greater degree than peers. She describes herself as struggling to sustain her attention to a variety of tasks and activities, including lectures, conversations, reading, schoolwork, and, to a lesser extent, dance routines. She experiences herself as frequently losing focus on what is being said to her and remarked that she must "work hard" to conceal from others the fact that she has not been listening to them. She notes that even when she is motivated to do schoolwork or other effortful tasks, she has difficulty following through and completing such activities. Like her parents, Briana regards herself as absentminded and forgetful in daily activities,

somewhat disorganized, often losing things, inattentive to her surroundings and to details (which she also associates with her frequently spilling drinks and bumping into things), and as being prone to making careless errors (e.g., missing details in written materials, forgetting to reduce or to attend to \pm signs in Math). Briana also notes that she is distractible, “daydreams” and “zones out” out often (adding that friends have noticed these tendencies), avoids activities requiring sustained mental effort (e.g., schoolwork, reading, driving school), and that she has a poor sense of time (e.g., keeping track of time, estimating time, judging how much time has passed). Briana reports that the inattentive symptoms she endorsed have generally been present since early childhood (e.g., first grade), stable over time, pervasive across settings (e.g., in “every class, every subject” at school, home, socializing with friends), and increasingly impairing to her academic functioning. Unlike her mother and father, she does not believe that her difficulties with focus and sustained attention have emerged only recently, but rather that they have become far more apparent as the level of academic demands placed on her has increased.

With respect to hyperactive/impulsive features, Briana describes herself as often restless and as being prone to fidgeting with her legs when sitting. She can remain seated when required but does feel an internal sense of restlessness and would generally prefer to be “up and around.” She also reports some difficulty engaging in quiet activities, preferring to accompany activities with some music or other background noise. Impulsive features were generally not reported with the exception of having some difficulty waiting her turn or waiting in any type of line.

There is no evidence of clinically significant levels of oppositional/defiant or conduct disorder symptoms from parent-report, teacher-report, self-report, or behavioral observations. Although Briana’s mother and father report that she has become somewhat more emotionally labile and intolerant of frustration, and somewhat less interpersonally sensitive and trustworthy in contrast to her early and pre-adolescent years, she does not show excessive levels of argumentativeness, defiance, anger, vindictiveness, behaviors intended to deliberately annoy others, or other features of ODD. More serious behavioral problems associated with conduct disorder, such as aggression, cruelty to animals, property destruction, stealing, lying significantly more than peers, and truancy, are also noted to be absent.

Symptom Rating Scales

Briana’s mother, father, and selected teachers completed a number of behavior rating scales independently. In general, reports from these sources were mixed with respect to indications of clinically significant attention problems, but

consistent in suggesting the absence of other significant behavioral or emotional problems. Briana's father tended to report a lower overall level of symptoms than did her mother, who in turn tended to report a lower level of symptoms than did Briana and her teachers. It is worth noting that because Briana's father works long hours, is rarely at home on weekdays, and travels often, he may be somewhat less familiar with her recent day-to-day functioning than her mother or teachers.

The Child Behavior Checklist (CBCL) is a rating scale focusing on areas of social competence and behavior problems. With respect to the competence scales, reports from both mother and father indicated no significant problems regarding Briana's social functioning and participation in activities. Ratings from both Mr. and Mrs. J. were within the normal range for all clinical scales on the CBCL, with the exception of an above-average score ($T = 62$) from Briana's mother's ratings on the Attention Problems scale. This elevation reflected her "very true" endorsement of items such as "can't concentrate, can't pay attention for long," and "daydreams or gets lost in her thoughts" and "sometimes true" endorsement of "confused or seems to be in a fog" and "impulsive." Although his overall ratings did not yield significant elevations on the Attention Problems scale, Mr. J. did endorse a similar pattern of symptoms as Mrs. J., though generally at lower levels of severity. For example, he endorsed "somewhat or sometimes true" for the following items: "can't concentrate, can't pay attention for long," "daydreams or gets lost in her thoughts," and "impulsive."

On the Conners-3-Parent (C3P), Mrs. J. endorsed a significant number of concerns about inattention ($T = 67$) and executive functioning ($T = 64$), including "fails to finish things she starts," "has trouble getting started," "completes projects at the last minute," "poor focus," "short attention span," "difficulty concentrating," "easily bored," and "gives up easily." Her ratings of DSM symptoms of ADHD-Inattentive were higher than average for parents of 16-year-old girls ($T = 67$). In contrast, Mr. J's responses did not result in significant elevations on the content or DSM-based scales. However, he endorsed numerous attention-related items as being "just a little" true (e.g., "fails to give close attention to details/makes careless mistakes in schoolwork," "does not follow through on instructions of finish schoolwork," "has difficulty organizing tasks and activities," "avoids tasks that require sustained mental effort," "loses things necessary for tasks or activities," "is easily distracted," "is forgetful in daily activities"). Ratings from both parents yielded normal-range scores on the DSM-based Hyperactive/Impulsive scale.

Briana's academic advisor, who indicated that he knows her "moderately well," completed the Teacher Report Form for Achenbach's Child Behavior Checklist. His ratings yielded an elevated score on the "Attention Problems" scale ($T = 66$,

95th percentile), reflecting his endorsement of items such as “inattentive, easily distracted,” “fails to finish things she starts,” “can’t concentrate, can’t pay attention for long,” “daydreams or gets lost in her own thoughts,” and “apathetic or unmotivated.” Although he described her as “very friendly and warm,” “easy to talk with and generally quite pleasant,” he also commented that “she is unable to focus on her studies” and “seems concerned about her performance, yet is unable to find motivation to improve.”

Briana’s current Spanish teacher completed the Conners-3-Teacher (C3T). Her responses resulted in a very elevated ($T = 80$) score on the Inattention scale, and an elevated score ($T = 66$) on the Executive Functioning scale. Her ratings of DSM-based Inattention items resulted in a very elevated score for the DSM Inattentive scale ($T \geq 90$). Ms. TEACHER [Spanish teacher] endorsed similar concerns as those reported by Briana’s mother, but at higher levels of frequency. Her ratings did not indicate significant concerns in the Hyperactive/Impulsive domain.

Briana completed the self-report version of the Conners-3 (C3SR). She endorsed a very high level of symptoms, particularly about attention ($T = 80$) and executive functioning ($T = 66$). For instance, she indicated that she “very often” or “often” has difficulties with sustaining her attention to tasks or activities, giving close attention to details or making careless mistakes, listening when being spoken to directly, organization, avoiding or disliking activities requiring sustained mental effort, losing things, being easily distracted, and being forgetful in daily activities. She also endorsed items related to feeling restless, fidgeting, and leaving her seat in the classroom. Her ratings of DSM-based Inattention items were much higher than typical for 16-year-old girls ($T \geq 90$), but the DSM Hyperactive/Impulsive scale was not elevated.

Continuous Performance Test (CPT)

The CPT is a computerized measure of vigilance or attention span. In the version developed by Conners, the examinee is told to press a button whenever a letter appears on the screen, unless the letter is an *X*, in which case the examinee is to refrain from responding. The scores derived from the CPT include number of correct responses, number of target stimuli missed (omission errors), and the number of incorrect responses following nontarget stimuli (commission errors). The latter score is presumed to tap both sustained attention and impulse control whereas the two former measures are believed to assess sustained attention only. Measures related to the subject’s reaction times are also produced by this version of

the CPT and are considered by its author to be the most useful measures of attention generated by the test.

Numerous indices from Briana's performance on the CPT are suggestive of attention problems. She made an unusually high number of omission errors, indicating inattentiveness. Although her response speed was within normal limits, her reaction times were highly inconsistent from moment to moment, indicating difficulties in maintaining attention. Moreover, her responses became both slower and less consistent when the length of time between letters was increased. An impulsive style of responding was also suggested by her high number of commission errors. An overall index score derived from numerous measures from the CPT is strongly suggestive of attention difficulties.

Diagnostic Screening

Both structured- and semi-structured interviews were used to screen for other disorders that may either mimic symptoms of ADHD or coexist with ADHD. With respect to other disruptive behavior disorders, Briana, as noted earlier, does not present with current or previous symptoms suggestive of oppositional defiant disorder or conduct disorder.

As previously noted, Briana's baseline mood is reported to be euthymic. However, both self- and parental-reports are consistent in suggesting that she suffered from a single major depressive episode starting around October XXXX and persisting a few months until January XXXX. Briana describes the episode as being of gradual onset with no clear precipitant, with her symptoms becoming most severe in November XXXX. Both Briana and Mr. and Mrs. J. describe this episode as consisting of symptoms of sad and irritable mood (most of the day, every day) accompanied by fatigue and loss of energy (which was notable enough to lead her mother to have her checked for anemia). Although Briana still socialized during this period, she did so to a lesser degree than previously and is said to have derived less pleasure from these activities. Briana reports some degree of anhedonia, noting "nothing made me happy," "I had no desire to do anything," and "I didn't really want to go out." Other symptoms reported by Briana include terminal insomnia, weight and appetite loss, subjective feelings of being "slowed down," decreased focus and concentration (relative to her own baseline), occasional feelings of worthlessness (" . . . where I thought everything I did was stupid and meaningless"), and thoughts of death without any active suicidal ideation or behaviors. Briana was asked to complete the Child Depression Inventory (CDI) based on her functioning during this period. The number and magnitude of affective symptoms she reported ($T = 89$; > 98 th percentile) are

very much above average and highly suggestive of a depressive episode. These depressive symptoms gradually resolved around January XXXX. Although Briana reports no clear precipitant for the improvement in her mood, her father suspects that it may have been coincident with the beginning of her relationship with her current boyfriend. Neither Briana nor her parents report current symptoms suggestive of a depressive episode and the results of another CDI completed by Briana based on her current functioning are in the normal range ($T = 52$). There is no history suggestive of any manic or hypomanic episodes.

Responses to screening questions pertaining to generalized anxiety disorder, social anxiety disorder, and separation anxiety were all negative. Although Briana does not care for small spaces, there is insufficient evidence of avoidance or impairment to suggest that she suffers from a specific phobia. Briana does describe a few incidents where she experienced a sudden onset of anxiety accompanied by physical symptoms that are suggestive of possible panic attacks or limited symptom attacks. The most recent episode occurred when she was awake late one night in March XXXX, and consisted of feeling “really nervous,” shortness of breath, heart palpitations, sweating, lightheadedness, shaking, and both chills and hot flushes. Although there was no apparent direct trigger for this brief episode, it did occur during her final exams, which was a period of elevated stress. Briana estimates that she has had three such attacks, though in the other incidents she recalls them being triggered by some interpersonal stressor. Briana does not meet criteria for Panic Disorder as none of these attacks was followed by persistent concerns regarding possible future attacks or a significant change in her behavior related to the attacks. No symptoms of agoraphobia are reported.

Briana and her parents also report some history of obsessive-compulsive features. Until fairly recently, Briana describes herself as experiencing intrusive, upsetting thoughts multiple times per day about her mother, a friend, or some other significant person dying. These thoughts would often be triggered by significant others getting into cars or planes. In response to these upsetting thoughts, she would engage in rituals such as repeatedly touching her forehead, opening and closing her mouth to touch her upper and lower lips together, or touching her ears with both fists three times. She estimates that she engaged in this ritualistic behavior 15–20 times per day. However, at the urging of her mother (who was aware of her compulsive behaviors), Briana was able to reduce and gradually eliminate these behaviors approximately two months ago by simply “not allowing myself to do it.” She did not report any current problems with intrusive thoughts or compulsive behaviors. Of note, Briana indicated that her presenting and longstanding difficulties with focusing are not related to obsessive-compulsive features. Although her mind does indeed wander often when she is trying to stay on-task, she notes that the interfering content does

not relate to a specific idea, issue, or upsetting intrusive thought but rather to rather mundane and random thoughts.

Responses to screening questions pertaining to eating disorders, substance abuse/dependence disorders, post-traumatic stress disorder, and psychotic disorders were all negative.

SUMMARY AND CONCLUSIONS

Briana J. is a 16-year-old Caucasian girl who is currently completing the tenth grade at the private ANYSCHOOL in ANYTOWN, USA. Briana was referred by school personnel for an assessment to determine whether she suffers from an attention-deficit disorder.

The primary concerns identified by Briana's mother and father relate to her academic performance. After having been a fairly consistent A–B student, Briana's grades declined to the B–C range over the past two academic years. Teachers, parents, and Briana all believe that these recent grades have not been commensurate with her intellectual abilities. The decreased level of motivation and effort that she has applied toward her schoolwork during the current academic year also distresses Briana's mother and father. Although Briana has never been a particularly driven student, the amount of time that she has been devoting to studying and homework has decreased while her tendency to procrastinate and cram to prepare for exams has increased. Multiple current teachers have expressed concerns with Briana's lack of focus, daydreaming, and inconsistent performance. These reports, along with Briana's self-described difficulties in sustaining her attention to academic and other tasks, initially prompted concerns that her functioning at school may be adversely affected by an attention-deficit disorder. Outside of her academic difficulties, Briana presents as a generally well-adjusted teenager. Although some developmentally expected changes with respect to her emotional lability and parent–teen conflicts are described, there do not appear to be any clinically significant current concerns related to her social, behavioral, or emotional functioning. Thus, the current evaluation was aimed at determining whether Briana suffers from an attention-deficit disorder and identifying any appropriate treatment recommendations.

The preponderance of findings from clinical interviews (conducted with Briana and with her mother and father), rating scales (obtained from Briana, her mother, father, and multiple teachers), and a computerized test of vigilance (administered to Briana), support the diagnosis of Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Presentation (ADHD). Data collected from Briana and from her teachers are rather strongly suggestive of an ADHD diagnosis.

DON'T FORGET

Remember, it is not necessary to meet symptom threshold for every setting and/or source (see Chapter 5). In this case, Briana and her Spanish teacher endorsed numerous symptoms of inattention, more than expected for a 16-year-old girl and more than required by the DSM-5 for diagnosis (presuming other criteria are met). Evidence of these symptoms was also observed in the clinic. Multiple examples were provided in interview. Mrs. J. described significant features of inattention; although her total symptom count was just below DSM-5 threshold for this age, the other sources provided more than sufficient data to support Criterion A for DSM-5 ADHD.

Information gathered from Briana's parents is more mixed, though not inconsistent with an ADHD diagnosis.

Briana endorsed 8 of 9 symptoms of ADHD, Predominantly Inattentive Presentation, as being present to a significantly greater degree than in other girls her age. These features include difficulty sustaining her attention to a variety of tasks, frequently losing focus on what is being said to her, distractibility, problems following through and completing tasks, avoiding tasks that require sustained mental effort, being absentminded and forgetful, losing things often, disorganization, inattention to details,

and a propensity to make careless errors. Briana also describes other features that, although not part of the diagnostic criteria for ADHD, are commonly found among persons with this disorder, including daydreaming, poor time-sense, and struggles in organizing and articulating her thoughts both verbally and in writing during academic tasks. Her Spanish teacher endorsed the same 8 of 9 Inattention symptoms at levels higher than expected for 16-year-old girls. Briana's mother and father endorse fewer (5 of 9) inattentive symptoms, including absentmindedness, forgetfulness, losing things, disorganization, inattention to details, and a propensity toward making careless errors. They were unsure as to whether her levels of distractibility and difficulty sustaining attention to tasks were significantly greater than her age-mates, noting her difficulties in these areas to be inconsistent and to vary considerably depending upon her level of interest and engagement in the task.

Whereas the number and severity of inattentive symptoms reported by Briana and her Spanish teacher are clearly sufficient to meet current criteria for ADHD, Predominantly Inattentive Presentation, the number of symptoms endorsed by her parents falls just short of meeting these diagnostic criteria. However, Briana is likely to soon qualify for this diagnosis based on parent report as well, given the lower diagnostic threshold that applies beginning at age 17. It is also worth noting that some experts advocate a lower diagnostic threshold be applied to females, given that the current criteria were based largely on data collected from male

children, who show higher base-rates of ADHD symptoms than do females. Although Briana describes some restlessness, fidgeting, and impatience, neither she, her parents, nor her teachers report hyperactive/impulsive features of sufficient number or severity to warrant a diagnosis of ADHD, Combined Presentation.

Results of standardized rating scales completed by Mrs. J., Briana, and school personnel were all suggestive of significant symptoms in the inattention domain and consistent with a diagnosis of ADHD, Predominantly Inattentive Presentation. Moreover, results of the Continuous Performance Test completed by Briana were strongly suggestive of current attention problems. Thus, the vast majority of data suggest that Briana is currently struggling with clinically significant attentional difficulties. Moreover, there are no apparent medical conditions, other psychiatric disorders, or environmental circumstances that can adequately account for these symptoms. Although Briana appears to have had a single major depressive episode (occurring from October XXXX through January XXXX), some obsessive-compulsive features (which have declined markedly over recent months), and a few isolated episodes of intense anxiety that may have comprised panic attacks, neither the symptoms nor the time-course of any of these provide adequate alternative explanations for her ADHD features, and thus do not contraindicate a diagnosis of ADHD. Similarly, although the possibility of a specific learning disorder cannot be definitively ruled out at present (see recommendation for a *psychoeducational evaluation* ahead), the presence of a learning disorder would not adequately explain the patterning of her ADHD symptoms.

The diagnosis of ADHD requires that symptoms be of early onset (*viz.*, prior to age 12), present in multiple settings, and that they impair functioning. Mr. and Mrs. J. describe certain ADHD features as emerging in early childhood (*e.g.*, forgetfulness, absentmindedness, inattention to surroundings, proneness toward careless errors) and as being consistent over time. However, it is their impression

DON'T FORGET

If Briana's report cards from elementary and middle school had been available, this might have provided further evidence that symptoms of ADHD were present before age 12. In this case, there was sufficient anecdotal evidence to support Criterion B (age of onset) for DSM-5 ADHD. Even though her parents noted the more recent onset of short attention span and incomplete tasks, they described some symptoms present in early childhood. As discussed in Chapter 4, there are times when records are difficult to obtain. When they are available, they can enhance your understanding of the child and improve your ability to diagnose and make recommendations.

that difficulties with sustaining attention and completing tasks have emerged more recently. In contrast, Briana reports that the inattentive symptoms she endorsed have generally been present since early childhood, stable over time, pervasive across settings, and increasingly impairing of her academic functioning. Although she clearly believes that her attentional abilities were deficient in elementary school, she speculates that they were not readily apparent because they did not have a pronounced adverse impact on her performance due to the relatively low level of academic demands and to her good relations with her teachers. However, as the level of academic demand has increased dramatically over the past two years, her difficulties focusing and sustaining her attention to tasks have had a far more pronounced negative impact on her academic functioning. Indeed, it is not uncommon for youngsters with mild-to-moderate-severity ADHD, high intellectual ability, and the absence of hyperactivity and behavioral problems to go undiagnosed until the increased demands of middle or high school lead to the emergence of academic problems.

It is clear that multiple factors have contributed to Briana's declining academic performance. These include the high and rising level of academic standards, expectations, and demands present at her current school, her prioritization of social over academic pursuits, waning motivation and effort with respect to academic work, and her tendency to procrastinate. In light of increasing academic demands, the combination of Briana's innate abilities and modest effort is no longer producing strong grades as it did in past years. However, results of the current evaluation suggest that an attentional disorder is also contributing significantly to her academic difficulties and impairing her ability to meet current academic demands. Such disorders will have increasingly pronounced and apparent effects as the academic demands placed on a bright student increase both in terms of time requirements and the need for higher-order thinking where material must be organized, synthesized, and presented at a more sophisticated level. Thus, Briana's attention deficit compounds the challenge presented by her recent schoolwork and in turn adversely affects her motivation, effort, and tendency to procrastinate as she seeks to avoid that which is difficult for her. Subsequently, her declining performance has led to some demoralization and reduced confidence with respect to her scholastic abilities.

Despite the presence of ADHD, Predominantly Inattentive Presentation, Briana's presentation is marked by a great many strengths and assets that bode well for her current and future functioning and adjustment. Specific positive prognostic features include her warm, sensitive, and likable nature, positive peer relations, apparently above-average intellectual abilities, talent in music, good

physical health, physical attractiveness, the absence of significant behavioral or emotional problems, and a mother and father whom she perceives as loving, supportive, and genuinely invested in her well-being.

DIAGNOSIS

- 314.00 Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Presentation (Moderate) (principal diagnosis)
- 296.21 Major Depressive Disorder, Single Episode, Mild, In Full Remission
- 300.3 Obsessive-Compulsive Disorder, With Good Insight, In Full Remission (provisional)
- V62.3 Academic Problem

RECOMMENDATIONS

Medication trial

Briana may respond positively to a medically supervised trial of psychostimulant medication. These agents have a well-documented history of beneficial effects both on primary symptoms of ADHD, including inattention, restlessness, and impulsivity, as well as on associated features such as noncompliance, negative social interactions, and academic productivity and accuracy. Improvements in the areas of sustained attention, time spent on-task, persistence, attention to details, careless errors, and both academic accuracy and productivity all appear to represent appropriate pharmacologic targets for Briana.

In order to promote appropriate use, the prescribing physician should provide thorough educational information to Briana and her parents regarding the medically indicated use of these medications. Steps should be taken to ensure that the doctor's instructions regarding dosage and timing of any prescribed medication are followed.

CAUTION

Notice that the clinician did not go beyond the bounds of professional competence with this recommendation. It is clear that the child is being referred to a medical professional, with additional comments about relevant research on medication for children with ADHD. The psychologist does not indicate a specific medication or dosage. Licensure in most states prohibits non-medical professionals from any statements that might resemble medical advice. Be careful that you do not make any direct recommendations about starting, stopping, or changing medications.

If a stimulant trial is undertaken, it is generally useful to have regular feedback from parents, Briana, and school personnel regarding the behavioral effects and possible adverse side effects. Should Mr. and Mrs. J. wish, the rating scales and continuous performance test given as part of the current evaluation could be re-administered on one or more active doses of stimulant medication to evaluate their efficacy. Briana's therapist has already referred Mr. and Mrs. J. to a local psychiatrist, Dr. MEDICAL DOCTOR, for a medication evaluation. Dr. MEDICAL DOCTOR can be reached at XXX-XXX-XXXX.

Educational interventions and accommodations

Various classroom and curriculum accommodations can often render improvements in the academic functioning of students with ADHD. Adults involved in Briana's care might consider applying some of these methods if treatment with medication is not pursued or if significant target symptoms persist following the completion of an adequate medication trial. Indeed, such interventions can often work in concert with a beneficial response to psychostimulant medication. Children whose ADHD symptoms adversely affect their school performance and learning qualify for educational accommodations under a number of federal laws. Given that she attends a nonreligious private school, Briana is eligible for accommodations under Section 504 of the Rehabilitation Act, as stipulated by the Americans with Disabilities Act of 1990, provided that her ADHD diagnosis is disclosed to the appropriate school authority. Should Briana and her parents wish to pursue such accommodations, they should contact the school's Section 504 representative (or other staff member who oversees services for students with disabilities) in order to make an application for services. Consultation with the school psychologist, student assistance team, an educational therapist, and/or Briana's psychotherapist might be considered to provide specific recommendations regarding appropriate expectations, behavioral management programs, teaching methods, and classroom accommodations to help optimize Briana's academic performance. Many schools now provide some special services and accommodations to the curriculum designed especially for students with ADHD. Briana's parents may use the current evaluation as part of the documentation necessary to support her eligibility for such services, though school procedures may include additional steps.

Attached to this report is a handout that lists many of the school-based interventions and accommodations that have proven to be effective with youngsters with ADHD. The specific interventions and accommodations implemented

should be tailored to Briana's unique needs based on input from Briana, her teachers, tutors, parents, and school psychologist and from diagnostic and psychoeducational evaluation reports. A list of accommodations and interventions deemed indicated for Briana might be presented to school officials as part of a request for services based on her ADHD diagnosis. Following are some sample modifications that often prove to be useful:

- Youngsters with ADHD often respond better to more vibrant, enthusiastic teachers who move about more, engage students frequently while teaching, and allow greater participation of the class members in the teaching activity.
- Give one direction at a time; repeat and simplify instructions about in-class and homework assignments.
- Provide a checklist (school) or a "chore card" (home) outlining the steps of a task or instruction.
- Use both visual and auditory stimuli at once; additionally, the use of increased stimulation within a task (e.g., color, shape, texture, rate of presentation) may enhance attention to academic work.
- Classroom rules should be written, displayed, and reviewed often.
- Adjust class schedules.
- Modify test delivery.
- Allow extra time in class for completion of written assignments, quizzes, and exams; permit extended time for completion of standardized tests.
- Consider reducing homework load.
- Accept and grade completed work without penalties for incomplete work (provided that a good-faith effort has been put forth).
- Provide short breaks during a tedious task or reinforce a percentage of completed study with a break.
- Check back with the student frequently and provide positive reinforcement.
- Move seating to the front of the room or to an area with fewer distractions; limit (as much as possible) the noise level in the classroom; provide the student with an opportunity to move to a quiet, "distraction-free" area if necessary.
- Seat the student near classmates whose behavior is appropriate and well-regulated.
- Use alerting cues to gain attention before giving directions.
- Reduce task length by chunking tasks into smaller units.
- Set quotas for the student to achieve within shorter time intervals.

- Praise and otherwise reward attention, organization, the timely completion of assignments, and other desirable behaviors; consider using rewards (bonus points, free time, valued assignments, extra time in valued activity) for students who stay on task; a point system comprising the contingent administration of rewards and punishments (e.g., response cost or the removal of points or privileges) can be considered.
- Use proximity and touch to encourage on-task behavior; provide personal cues such as maintaining eye contact, touching the student's shoulder, pointing, writing on the board, and so on, to keep the student's attention.
- Provide an outline for students to follow during presentations of lectures; consider providing the student with a copy of teacher notes, transparencies, or PowerPoint slides before or following instruction.
- Use a daily report card technique with a home-based reward system (target specific classroom behaviors such as "stays on-task," "carefully checks work," "follows directions," and "completes class assignments" and have the student earn checks for meeting those goals for a specified time frame (e.g., one class period); a daily reward should be instituted in the home for achieving a certain percentage of possible "checks"). For adolescents, a negotiated, written, and signed "contract" specifying both desirable target behaviors at school and the privileges/rewards that are to be granted contingently upon the display of those targets is often used instead of a daily report card system.
- Briana may benefit from a classroom-based self-monitoring program designed to improve her attention to task. A brief manual explaining such a program and providing instructions on how to implement it is available upon request.
- Prioritize the student's work.
- For the student's personal awareness, identify the frequency of distracting behaviors; work with her to decrease the amount of off-task behavior; give the student a cue (either verbally or nonverbally) to return to task.
- Teach and institute organizational and time-planning methods. If not already instituted, Briana would benefit from a system to assist her in organizing her academic schedule and tracking her assignments (e.g., a list of apps and websites for this purpose is available upon request; alternatively she could use daily-weekly assignment sheets compiled in a notebook for homework and upcoming tests; personal notebook for daily

planning; have the student develop a daily log of tasks to be completed). Be sure to prompt and reinforce the regular use of any organizational methods and tools that the student is using.

- Clearly define requirements of a completed activity (e.g., “Your math is finished when all 30 problems are complete, checked, and corrected; do not begin on the next task until it is finished”).

Parents often find it beneficial to introduce as much structure into homework sessions as possible. Thus, to the extent possible, institute “protected time” for homework where it is explicitly scheduled (preferably at the same time each day). Given Briana’s report that she doesn’t fare well when trying to work in the presence of ambient noise (e.g., music, conversations), her academic work should be done in a quiet, well-lit, comfortable place with minimal distracters. Homework may be supervised by Briana’s tutors, school-based personnel, and/or by her parents, provided that parental supervision does not regularly intensify parent-child conflicts and parental stress.

In order to provide Briana with a helpful level of structure and support while encouraging the type of independent work skills that will be necessary for her success in the future, it might be useful for Mr. and Mrs. J. to adopt a balanced approach with respect to their monitoring and supervision of Briana’s homework. For instance, a parent might make him- or herself available at the outset of her homework sessions in order to help her clarify the assignment(s), establish her goals, develop an appropriate strategy for the task at hand, gather necessary materials, and set a time frame for breaks and completion. Subsequent to this orientation period, the parent might leave her to work independently and check in with her only periodically on the basis of either time elapsed (e.g., every 20 minutes) or the amount of work completed.

Many families use a timer to set short blocks of time for homework. For instance, one might begin with 15 minutes of work, take a 5-minute break, and then work for an additional 20 minutes, followed by a 10-minute break. Raise the break time by 5 minutes for every half-hour worked. Breaks should be taken away from the homework area and should end at the sound of a timer. Furthermore, access to privileges and rewards will need to be made closely contingent upon adequate homework compliance.

Parents and school personnel should maintain regular contact (through assignment sheets, phone calls, and conferences) so as to closely monitor the student’s progress and accommodation plan and to address problems as they arise in a coordinated fashion.

DON'T FORGET

Sometimes circumstances do not permit completing all evaluation components at the same time. In such cases, note any limitations (as was done earlier in the "Summary and Conclusions" section) and make a recommendation to have other components completed. When possible, try to describe how the additional assessment pieces could clarify or change the diagnosis and treatment plan.

Psychoeducational evaluation

Briana may benefit from a psychoeducational evaluation, including IQ and achievement testing, in order to assess her intellectual strengths and weaknesses, determine her level of academic functioning across curriculum areas as compared to national norms, identify her optimal learning style, and rule out the presence of any specific learning disorders that may have gone undetected. This evaluation might also closely evaluate Briana's

reading skills, as reading comprehension and speed have been identified as possible areas of concern. The results of this assessment might help to set appropriate expectations for her performance, to guide a discussion regarding the goodness-of-fit between Briana and her current school, and to provide valuable information to her teachers and tutors regarding areas in need of improvement and optimal teaching methods. Briana's therapist has agreed to provide Mr. and Mrs. J. with a referral to a psychologist skilled in providing psychoeducational evaluations.

Support, information, and advocacy groups

Briana and her parents might benefit from involvement in an organization (viz., Children and Adults with Attention Deficit Disorders [CHADD]) designed to support and provide valuable practical information to persons with ADHD and their families. In addition to the possibility of attending local meetings, one's involvement might consist of reviewing their website and educational materials for the latest research and treatment methods available for individuals with ADHD as well as their legal rights in school and the workplace. Information about CHADD can be obtained at www.chadd.org. Local CHADD chapters can be reached by calling XXX-XXX-XXXX or XXX-XXX-XXXX. Briana and her family might also benefit from the information on CHADD's website specific to adolescents, which provide valuable information regarding the nature of ADHD in teenagers, strategies to

manage the symptoms across various contexts, educational and occupational advocacy, and planning for college (www.chadd.org/Understanding-ADHD/Parents-Caregivers-of-Children-with-ADHD/Adolescents-and-Young-Adults.aspx).

Continue individual therapy

Briana has been participating in therapy with Dr. GOOD DOCTOR since January XXXX. Briana appears to have formed a good therapeutic relationship with Dr. DOCTOR and is likely to benefit from continuing with this intervention. In addition to the ongoing focus on negotiating conflict and improving trust between Briana and her mother, this therapy appears to be the appropriate context in which to monitor Briana's mood and anxious symptoms (in light of the history of a prior depressive episode and obsessive-compulsive features, as described earlier) and, if indicated, to teach her cognitive and behavioral skills to help manage such symptoms. In addition, Dr. DOCTOR's expertise in working with persons with ADHD might prove to be invaluable in fashioning an educational accommodation plan, assisting in the ongoing monitoring of her medication response (should pharmacologic treatment be pursued), teaching Briana self-management skills, and helping to prepare her for college and other future challenges.

NEUROPSYCHOLOGICAL EVALUATION

CONFIDENTIAL

Name: Henry S.

DOB: April XX, 2002

DOE:

February XX, 2013, Initial interview (1.5 hr): John & Jane S.

March XX, 2013, Testing session (2.5 hr)

March XX, 2013, Testing session (3.25 hr)

March XX, 2013, Testing session (3.0 hr)

March XX, 2013, Testing session (1.25 hr)

March XX, 2013, Feedback session (1.5 hr): John & Jane S.

Age: 10 years, 10–11 months

CAUTION

As mentioned earlier in this chapter, be certain a medical professional is in charge of any medication-related decisions, and document his or her involvement.

REASON FOR REFERRAL

Henry S. is a nearly 11-year-old, right-handed boy who was brought for a neuropsychological evaluation by his parents to identify changes from the last evaluation and update treatment recommendations. During the evaluation, questions about medication

arose, so a medication monitoring component was added after Mrs. S. consulted with Henry's prescribing physician.

KEY BACKGROUND INFORMATION

This is not a complete background history. This summary is intended to highlight critical elements of the background that have immediate impact on interpretation of results, impressions, and recommendations.

Parents remember their first concerns around 4yo, when Henry was not listening, and was showing impulsivity and aggression. They met with Dr. Ted Seuss a few times to learn behavior management skills (around 5yo). Dr. Lorna Doone diagnosed Henry with attention-deficit/hyperactivity disorder (ADHD), combined type, when he was 6yo and a first-grader at Local Elementary. Primary concerns at that time were attention and focus. Although his academic performance in kindergarten and first grade was stellar (3s, 3*s, and 4s on a 4-point scale), notes indicate difficulty with following rules, using time wisely, staying on task, and controlling his impulses. Following that evaluation, he began taking stimulant medications. His report cards indicate all A's in second and third grade. In the fourth grade, he had two B's (English, Social Studies) in a quarter, which his mother remembers as a quarter he was not taking his medication. Group test scores from the end of fourth grade reflect very high achievement levels, with relative weaknesses in reading comprehension and writing concepts/skills. Henry's fifth-grade report card from the first quarter reflected 1 C, 4 B's, and 3 A's. These grades were earned with the following accommodations: 50% extended time, copy of notes, preferential seating, assignment notebook initialed by parent and teacher, multipage assignments divided into one page at a time, and option of less distracting test environment.

Parents' current concerns are impulse control, focus, and time management. His parents are also concerned about his self-esteem and relationships, both

family and peer. Henry forgets to take his gym clothes home, so ends up with multiple sets of clothes at school. He constantly forgets his books and agenda. His room is a mess and his clothes are often rumpled. Current teacher concerns include: “does not always work to his full potential, does not complete work on time, blurts out comments during class, and lacks organization and study skills.” Mr. Churr, Henry’s tutor, notes that he has difficulty with organization, problems finding important items when he needs them, and trouble remembering to turn in completed work. He does not always remember his scheduled meetings, and he often fails to bring necessary materials to his sessions. Teachers have indicated to Mr. Churr that Henry can be slow to start and need help to think of and gather necessary materials for tasks (e.g., paper, pencil).

Henry lives in Big City with his parents and younger brother (first grade). Extended family history includes bright relatives who struggled when it was time to study, high academic achievers, hyperfocus (i.e., intense focus in one area, not necessarily focused or organized in all areas), anxiety, depression, substance dependence, and left-handedness. Despite an emergency Cesarean section due to loss of fetal heartbeat during delivery, Henry was a healthy 7-pound baby who was discharged at one day old.

Emergency room visits occurred at 2yo (stitches in chin after falling off a stool) and 3yo (stitches for riding tricycle into a short brick wall). He was prescribed antibiotics for repeated ear infections as a child, which remitted after pressure-equalizing tubes were placed at 5yo. Other prescription medications include a series of stimulants and other medications for symptoms of ADHD over the past five years, including Ritalin, Dexedrine, Concerta, and Intuniv. He has been taking Vyvanse since mid-third grade. Mrs. S. feels the Vyvanse helps with symptoms of ADHD like focus, but also notices side effects like reduced appetite, difficulty sleeping, and flattened personality.

Major developmental milestones were achieved within expected time frames. Henry was late to lose his teeth, and his growth spurts are often after his peers. He tends to fall when playing sports. He gravitates toward younger children, seems immature than same-age peers, and relates well to adults. Emotionally, Henry can overreact and be sensitive. He seems to focus on his shortcomings rather than his successes and can be very self-critical. At home, he is often grumpy and argumentative. He wakes up irritable on school days but not on weekends. He enjoys doing well in academics and sports, but is quick to give up when he encounters a failure. He can be uncertain about entering a new situation and scared to try new things, but once he has tried something, he “really gets into it” and seems less impulsive.

Henry's teachers describe him as a good problem solver and self-advocate. His parents describe him as a kind and intelligent boy. He enjoys playing sports and video games, as well as reading and history. He is motivated by praise and earning rewards.

VALIDITY

Henry was evaluated over four days, with one-hour work blocks separated by breaks ranging from 5 to 45 minutes. Each of these sessions began at 10:00 A.M., with the exception of the last session, which was scheduled in the afternoon for medication monitoring purposes. His mother brought him to all sessions and remained in the waiting room while he worked. Henry was a hard worker and seemed motivated to do well. Instruments used are valid for Henry and for the referral question(s). The tests were administered by a qualified examiner. Observed behaviors during the evaluation were consistent with parent report of usual behaviors. Available validity indicators were all within acceptable limits, unless noted otherwise.

NOTE: The majority of these test results were obtained while Henry was taking Vyvanse as prescribed by his physician. As such, they may represent an overestimate of his functioning without medication. With the consent of his prescribing physician, Henry did not take Vyvanse for his final session, and a few tests were repeated to allow comparison of performance with and without medication (and are identified as such in the results tables and interpretation section).

Therefore, results of this evaluation are judged to be a valid representation of Henry's current neuropsychological functioning when taking Vyvanse.

DON'T FORGET

Document whether the child was taking any psychoactive medications during testing. This is essential for your interpretation of data, as these medications might impact his performance on some tests. When someone is reading your report in the future, she will need to know if the scores represented medicated or unmedicated performance. Moreover, it may be relevant to know which medication was being used at that time.

In cases where you are collaborating with the prescribing physician to evaluate performance across different medication conditions (e.g., off vs. on medication, comparing different medications, comparing different dosages), be particularly careful to note which scores were earned under which conditions.

TEST RESULTS

The results from Henry's performance during this neuropsychological evaluation are summarized here. All scores were obtained while Henry was taking his regularly prescribed Vyvanse unless specified otherwise. Results from formal tests are reported as standardized scores, which compare his performance with other students who are the same age. Standardized scores take a variety of forms, including those summarized in the following table. Higher scores generally represent better performance, unless noted otherwise.

DON'T FORGET

Include the test name, abbreviation/ acronym, edition, and form for each test used. This can be done with a separate list, in the text, or in score tables. Offer guidance for how to understand the scores. In this example, the clinician provided a summary table for average ranges of various standardized scores. In addition, some of the tables have a note about the direction of interpretation (for example, see Conners CPT-II, NEPSY, CVLT-C, BRIEF, Conners CBRS, and ABAS-II).

Standardized Score	Average Range of Scores
Scaled score (ScS)	7 to 13
Standard score (SS)	85 to 115
T-score (T)	40 to 60
z-score (z)	- 1.00 to +1.00

Wechsler Intelligence Scale for Children, Fourth Edition, Integrated (WISC-IV-Int)	Subtest Scaled Score (ScS)	Index Standard Score (SS)	Composite Standard Score (SS)
Similarities	14	Verbal Comprehension (VCI) SS=130 [^]	<i>The Full-Scale IQ score is not a valid representation of Henry's abilities, given the significant discrepancies among the index scores.</i>
Vocabulary	15		
Comprehension	16		
Information*	12		
Word Reasoning*	—		
Block Design	11	Perceptual Reasoning (PRI) SS=112 [^]	
Block Design—No Time Bonus*	12		
Picture Concepts	14		
Matrix Reasoning	11		
Picture Completion*	12		

(continued)

(Continued)

Wechsler Intelligence Scale for Children, Fourth Edition, Integrated (WISC-IV-Int)	Subtest Scaled Score (ScS)	Index Standard Score (SS)	Composite Standard Score (SS)
Digit Span Digit Span Forward* (span = 4) Digit Span Backward* (span = 6)	11 6^ 16^	Working Memory (WMI) SS=113^	
Letter-Number Sequencing (span = 6)	14		
Arithmetic*	—		
Coding Coding Copy*	6 6	Processing Speed (PSI) SS=88^	
Symbol Search	10		
Cancellation* Cancellation Random* Cancellation Structured*	9 9 8		
Elithom Mazes*	—		

* = Supplemental subtest/score; not used in calculating Index or Composite scores unless noted otherwise in text.

^ = Discrepancies in Scores:

VCI > PRI (p < 0.05, Base Rate = 8.5%)

VCI > WMI (p < 0.05, Base Rate = 11.4%)

VCI > PSI (p < 0.05, Base Rate = 0.5%)

PRI > PSI (p < 0.05, Base Rate = 5.5%)

WMI > PSI (p < 0.05, Base Rate = 6%)

Digit Span Forward < Backward (p < 0.05, Base Rate = 0.0%)

Wechsler Intelligence Scale for Children, Fourth Edition, Integrated (WISC-IV-Int)	Vyvanse		No Meds	
	ScS	Raw Score	ScS	Raw Score
Digit Span	11	17	14	20
Digit Span Forward	6	6 (span = 4)	13	11 (span = 7)
Digit Span Backward	16	11 (span = 6)	14	9 (span = 5)
Coding	6	33	5	30
Coding Copy	6	74	5	64

Woodcock-Johnson III Tests of Achievement (WJ-III-Ach), Form A	Subtest SS (age)	Cluster SS (age-based)		
Word Attack	107	Basic Reading Skills SS = 111		
Letter-Word Identification	112		Brief Reading SS = 113	Broad Reading SS = 115
Passage Comprehension	110			
Reading Fluency	114			

Woodcock-Johnson III Tests of Achievement (WJ-III-Ach), Form A	Subtest SS (age)	Cluster SS (age-based)		
Calculation	115	Math Calculation Skills SS = 112		Broad Math SS = 124
Math Fluency	103			
Applied Problems	127		Math Reasoning SS = 135	
Quantitative Concepts	136			
Spelling	121			Broad Written Language SS = 115
Writing Fluency	93	Written Expression SS = 106		
Writing Samples	116			
Academic Skills*		121		
Academic Fluency*		105		
Academic Applications*		123		
Total Achievement*		121		

* These composite scores combine results from subtests across academic domain, reflecting reading, writing, and arithmetic.

Woodcock-Johnson III Tests of Achievement (WJ-III-Ach), Form A	SS Vyvayne	SS No Meds
Reading Fluency	114	107
Math Fluency	103	104

Conners Continuous Performance Test, Second Edition (CPT-II)	T-score* Vyvayne	T-score* No Meds
# Omissions	40	42
# Commissions	19	37
Hit Reaction Time (RT)	51	59
Hit RT Standard Error (SE)	40	56
Variability	37	56
Detectability (d')	24	56
Response Style (Beta)	47	55
Perseverations	42	44
Hit RT Block Change	45	32
Hit SE Block Change	41	34
Hit RT ISI Change	43	64
Hit SE ISI Change	45	58

* Note: Extreme scores on the CPT-II, whether high or low, indicate atypicality.

Test of Everyday Attention for Children (TEA-Ch)	ScS Vyvanse	ScS No Meds
Score!	6	4
Score! DT	14	14

Children's Memory Scale (CMS)	ScS
Sequences	13

Delis-Kaplan Executive Function System (D-KEFS)		ScS Vyvanse	ScS No Meds
	Measure		
Trail Making Test	Visual Scanning	12	—
	Number Sequencing	13	—
	Letter Sequencing	12	—
	Number-Letter Switching	12	—
	Motor Speed	12	—
Verbal Fluency Test	Letter Fluency	13	—
	Category Fluency	14	—
	Category Switching: Total Correct	12	—
	Category Switching: Switching Accuracy	11	—
	First Interval: Total Correct	15	—
	Second Interval: Total Correct	10	—
	Third Interval: Total Correct	13	—
	Fourth Interval: Total Correct	14	—
	Percent Set-Loss Errors	12	—
	Percent Repetition Errors	10	—
Color-Word Interference Test	Color Naming	12	13
	Word Reading	12	13
	Inhibition	13	13
	Inhibition Total Errors	11	8
	Inhibition/Switching	12	14
	Inhibition/Switching Total Errors	9	6
Twenty-Questions Test	Initial Abstraction	11	—
	Total Questions Asked	12	—
	Total Weighted Achievement	13	—
Tower Test	Total Achievement Score	11	—
	Mean First-Move Time	8	
	Time-per-Move Ratio	9	
	Move Accuracy Ratio	11	
	Rule-Violations-per-Item Ratio	11	

Purdue Pegboard	z-score Vyvanse	z-score No Meds
Dominant Hand	-2.60	-2.60
Nondominant Hand	-1.03	-1.58
Both Hands, Simultaneously	-2.28	-1.68

A Developmental Neuropsychological Evaluation, Second Edition (NEPSY-II) Subtest	Scaled Score or Percentile
Auditory Attention and Response Set	
Attention Task	ScS = 13
Attention Task, Total Correct	ScS = 13
Attention, Omission Errors	>75 %ile
Attention, Commission Errors	51–75 %ile
Attention, Inhibitory Errors	26–50 %ile
Response Set Task	ScS = 13
Response Set Task, Total Correct	ScS = 13
Response Set, Omission Errors	>75 %ile
Response Set, Commission Errors	>75 %ile
Response Set, Inhibitory Errors	>75 %ile
Attention vs. Response Set Contrast	ScS = 12
Inhibition	
Naming	ScS = 7
Naming, Uncorrected Errors	51–75 %ile
Naming, Self-Corrected Errors	6–10 %ile
Naming, Total Errors	11–25 %ile
Naming, Completion Time	ScS = 9
Inhibition	ScS = 8
Inhibition, Uncorrected Errors	>75 %ile
Inhibition, Self-Corrected Errors	2–5 %ile
Inhibition, Total Errors	11–25 %ile
Inhibition, Completion Time	ScS = 12
Switching	ScS = 13
Switching, Uncorrected Errors	>75 %ile
Switching, Self-Corrected Errors	11–25 %ile
Switching, Total Errors	51–75 %ile
Switching, Completion Time	ScS = 16
Comprehension of Instructions	ScS = 14
Speeded Naming	ScS = 13
Completion Time	ScS = 13
Total Correct	51–75 %ile
Self-Corrected Errors	11–25 %ile
Narrative Memory	
Free Recall	ScS = 11
Free and Cued Recall	ScS = 13
Recognition	51–75 %ile
Recall vs. Recognition Contrast	ScS = 13
Imitating Hand Positions	
Dominant Hand	>75 cumulative %age
Nondominant Hand	>75 cumulative %age
Visuomotor Precision	
Completion Time	ScS = 7
Total Errors	ScS = 11
Pencil Lifts	11–25 %ile
	>75 %ile

* Percentile ranks on the NEPSY:

2nd–5th %ile = Significantly slower (or more errors) than expected for age

6th–10th %ile = Slower (or more errors) than expected for age

11th–25th %ile = Borderline range

26th–50th %ile = Average speed (or number of errors)

51st–75th %ile = Average speed (or number of errors)

> 75th %ile = Faster (or fewer errors) than expected for age

California Verbal Learning Test, Children's Version (CVLT-C)	Raw Score	Standardized Score (z-score unless indicated otherwise)
List A Total Trials 1–5	50 (6 + 9 + 10 + 11 + 14)	T = 55
List A Trial 1 Free Recall	6	0.0
List A Trial 5 Free Recall	14	1.5
List B Free Recall	7	0.5
List A Short-Delay Free Recall	14	1.5
List A Short-Delay Cued Recall	14	2.0
List A Long-Delay Free Recall	13	1.0
List A Long-Delay Cued Recall	13	1.0
Semantic Cluster Ratio	1.1	–0.5
Serial Cluster Ratio	1.4	–0.5
Percent of Total Recall from:		
Primacy Region	30	0.0
Middle Region	38	–0.5
Recency Region	32	0.5
Learning Slope	1.8	1.0
Perseverations (Total)	9	0.5*
Intrusions (Total)	3	–0.5*
Correct Recognition Hits	15/15	1.0
False Positives (Total)	0/30	–1.0*

* A high score for these variables indicates more errors than typical for age (i.e., cause for concern).

Rey Complex Figure Test with Recognition Trial (RCFT)	Score
Copy	> 16 %ile
Immediate Recall	T = 43
Delayed Recall	T = 43
Recognition Total Correct	T = 52
True Positives	> 16 %ile
False Positives	> 16 %ile
True Negatives	> 16 %ile
False Negatives	> 16 %ile

Behavior Rating Inventory of Executive Function (BRIEF)*	T-Score Parent	T-Score Teacher	T-Score Teacher	T-Score Teacher
Inhibit	80	66	62	75
Shift	67	55	44	74
Emotional Control	76	60	45	69

Behavior Regulation Index	79	62	51	76
Initiate	84	60	63	66
Working Memory	80	66	66	69
Plan/Organize	82	66	53	68
Organization of Materials	71	70	57	54
Monitor	78	62	60	64
Metacognition Index	86	66	61	66
Global Executive Composite	85	66	58	71

* Note: Higher scores on the *BRIEF* indicate higher levels of concern. Parent rating scales were completed by Mrs. S. Teacher rating scales were completed by Mrs. J. (5th-grade English teacher/advisor), who has known Henry for 7 months, Ms. P. (5th-grade Math Honors), who has known Henry for over 6 months, and Mrs. F. (5th-grade Language Arts), who has known Henry for 6 months.

DON'T FORGET

Indicate who completed the rating scales, including how well each rater knows the students (many rating scales ask the rater for this information). Some clinicians identify which rater produced which scores. In some cases, that can lead to disgruntlement among parents and/or staff. In this example, the raters are identified in a note at the foot of each rating scale results table, but not specifically linked to the scores.

Conners Comprehensive Behavior Rating Scales (Conners CBRS)	Parent T-Score*	Teacher T-Score*	Teacher T-Score*	Teacher T-Score*	Self-T-Score*
Emotional Distress	72	62	45	?	48
Upsetting Thoughts	46	66	49	66	—
Worrying	60	—	—	—	—
Social Problems	64	63	47	61	—
Separation Fears	68	56	45	76	45
Social Anxiety	—	49	46	78	—
Defiant/Aggressive Behaviors	90	56	45	?	57
Academic Difficulties	52	52	48	?	46
Language	47	53	45	55	—
Math	49	44	50	?	—
Hyperactivity/Impulsivity	73	59	56	78	55
Perfectionistic and Compulsive Behaviors	41	45	56	90	—
Violence Potential Indicator	80	51	46	?	51
Physical Symptoms	77	70	46	46	50
Clinical Index	97%	61%	61%	?	33%

* Note: Higher scores on the *Conners CBRS* indicate higher levels of concern. Parent rating scales were completed by Mrs. S. Teacher rating scales were completed by Mrs. J. (5th-grade English/advisor), Ms. P. (5th-grade Math-Honors), and Mrs. F. (5th-grade Language Arts).

? = could not be scored due to omitted items.

Adaptive Behavior Assessment System, 2nd edition (ABAS-II)		
Adaptive Skill Area	ScS* Mother	ScS* Teacher
Communication	10	11
Functional Academics	9	10
Self-Direction	2	7
Conceptual	SS = 85	SS = 98
Leisure	5	10
Social	2	8
Social	SS = 68	SS = 93
Community Use	7	12
Home Living/School Living	1	4
Health and Safety	7	9
Self-Care	2	11
Practical	SS = 65	SS = 92
General Adaptive Composite*	69	96

* Note: Higher scores on the ABAS-II indicate higher levels of adaptive functioning. Parent rating scale was completed by Mrs. S. Teacher rating scale was completed by Mrs. J. (5th-grade English teacher).

INTERPRETATION OF RESULTS

Key findings are reviewed in this section with a focus on areas of concern. Specific tests and scores are listed in the previous tables. Relevant behavior observations are included in this section.

Many aspects of Henry's intellectual abilities are in the high-average to above-average range for his age, with some significant variations within his profile. He performed particularly well on tasks involving verbal skills, such as defining vocabulary words, making connections between verbal concepts, and explaining the reasons for social conventions. He also exhibited a superior working memory, or the ability to manipulate information while remembering it. The only low scores from IQ testing were on a brief auditory attention task (Digits Forward) and a symbol transcription task (Coding). Henry scored in the mildly impaired range for these tasks.

Because of the extreme range of scores, there were significant discrepancies among the index scores on the WISC-IV. When a statistically significant discrepancy is present between any two index scores, the "Full-Scale IQ" score is invalid. Simply put, this means that the Full-Scale IQ score, a summary score, is not an accurate way to describe Henry's overall intellectual abilities.

When Henry was given other tests of auditory attention, he scored in the mildly impaired range for the simple auditory attention task. When he was given a more

difficult divided attention task, he scored above the average range. This corresponds with his performance on Digit Span, where he scored in the mildly impaired range for the straightforward repetition of numbers but in the superior range when he was challenged to remember the numbers then repeat them in a different order. This pattern is sometimes seen with executive deficits, as if the brain requires a certain level of challenge or stimulation to become activated and engaged with a task. It can be confusing to teachers and parents when a student misses the “easy” items and gets the “hard” items, but for brains like Henry’s, the so-called easy items can present more of a challenge.

Executive functioning is a term used to describe the so-called “higher-order” skills of the human brain. It seems that certain parts of the human brain (including the frontal lobes and white matter tracts) help coordinate all of the brain’s functions, just like a chief executive officer (CEO) coordinates the activities of a large corporation. Skills that are thought of as executive functions include: organization (both physical and mental), prioritization, integration of information, forming and implementing a problem-solving strategy (with backup plans if the first way does not work), efficiency, self-regulation (of thoughts, actions, and emotions), and mental flexibility. Initiating a task or engaging in a task that is not inherently interesting is also part of executive functioning.

The human brain continues developing after birth, and the last areas to reach maturity are the frontal lobes and white matter tracts. These areas continue developing into early adulthood. Thus, as typically developing children grow older, we see increased ability to show self-control, be independent, and accept responsibility. This developmental path makes it difficult to recognize deficits in executive functioning at very young ages, because most young children have limited skills in this area (e.g., it is typical for a 2yo child to have a temper tantrum). These deficits in executive functioning become more apparent as children grow older (e.g., it is unusual for a 13yo child to have a temper tantrum).

In addition to the activation or engagement issues described earlier, Henry also showed deficits in inhibition of verbal errors during timed tasks. For example, when Henry was asked to quickly name shapes, he had a number of errors. He corrected many of them, but his quick initial

DON'T FORGET

It can be helpful to introduce some terms so that parents, teachers, and students will understand what they read about the topic (both in your report and elsewhere). Whenever you use technical terms or words that might be unfamiliar to the general public, give a resource or explanation. In this case, the clinician provided a little background about executive functioning, a key concept for understanding Henry’s struggles.

response suggests he failed to think before speaking. This does not reflect a lack of knowledge, but a failure to inhibit responses within the same word-web (i.e., see a shape, activate shape-related words in the brain, say one but not necessarily the right one). As the task increased in difficulty, it taxed his inhibitory skills even further and his scores dropped lower.

Another executive deficit seen during the evaluation was in gestalt reasoning. Henry tended to focus on specific details, to the exclusion of the big picture. This was particularly evident in his copy of a complex design, although his details were accurate enough that he scored in the average range for the task. He also missed gestalt elements during a block design task. His detail-based strength resulted in an average score for the task, but a less efficient approach than if he had noticed the larger elements organizing the designs. This executive deficit was seen not only during visual-spatial tasks, but also during verbal tasks. For example, when Henry was asked how two items were similar, he listed four specific shared features, but never identified the major overarching category. Similarly, during a 20-questions-type task, he began with specific questions that only eliminated three possibilities. With practice, he began asking broader questions, resulting in an average-range abstraction score (despite his below-average initial attempts).

It is important to consider information about everyday functioning when evaluating executive functioning. Parents and teachers are often aware of these deficits because they see children in unstructured situations where executive functioning is required. The very nature of most formal, standardized evaluations makes it difficult to detect executive deficits, as the child is evaluated in a highly structured, reduced distraction setting with clearly stated rules and expectations. Henry's mother and four of his teachers completed the *BRIEF* to describe everyday examples of executive functioning. All of the raters indicated higher than average levels of concern about at least one aspect of executive functioning. In particular, all of the raters endorsed concerns about items that are called "working memory" on the scale. Results from testing indicate that Henry's actual working memory is intact. After reviewing the specific items from the *BRIEF*, it seems that the raters are describing his difficulty sustaining effort across multistep directions or tasks, his tendency to be distracted, and his frequency of not completing tasks. All of these skills are impacted by attention and sustained effort. Other areas of concern across settings include inhibition (e.g., interrupting, blurting out answers, talking out of turn) and planning/organizing (e.g., have necessary materials for a task, hand in homework, misses big idea, overwhelmed by large projects). These parent and teacher observations are consistent with the test data.

Henry's mother and one teacher also completed the *ABAS-II*, a measure of adaptive functioning. Adaptive functioning involves two components: having

skills and independently initiating their appropriate use. Results indicate that Henry possesses age-appropriate skills for adaptive functioning. His executive deficits (including initiation) impact his independent use of these skills, resulting in some low-domain scores. Without reminders and prompts from his parents and teachers, Henry would miss a number of daily tasks such as clearing his place at the end of a meal and tidying his room/desk. Although Henry's social functioning is not atypical at school, his mother observes that he is inconsistent about initiating social activities and that he needs reminders to use manners. Self-direction is weak in both settings (although still in the low average range based on teacher ratings), with consistent observations that Henry sometimes needs prompts or reminders to begin or complete a task. These observations reflect the impact of executive deficits on adaptive functioning.

Henry also shows impairment in fine-motor coordination, or dexterity. He scored in the mild-to-moderate impairment ranges when asked to quickly place small metal pegs into a pegboard. This deficit in fine motor functioning impacts his pencil use, resulting in effortful pencil control and slow written work. As mentioned previously, he scored in the mildly impaired range when asked to quickly transcribe a code by writing the letter-like symbols. A companion task required him to copy the symbols without worrying about transcribing a code. Henry still scored in the mildly impaired range, indicating that his low score was due to slow graphomotor skills (not to slow information processing). This pattern was confirmed by his average scores on timed paper-pencil tasks that did not require much pencil control (e.g., drawing a slash over certain designs or responses rather than writing a letter or symbol). He also had more errors than expected for his age on a pencil control task.

Henry used his right hand for handwriting, grasping the pencil close to the point in a modified tripod grip. Rather than his index finger perching on top of the pencil, he pinched the pencil between the side of his fully extended index finger and his thumb tip. He pressed hard on the pencil tip, causing the paper to move when he wrote. The tips of his index finger and thumb were white. This type of pencil use suggests that Henry may not be receiving adequate sensory feedback from his fingers to his brain; as he presses harder, it increases the amount of sensory information that is sent to the brain. This type of pencil grip is problematic in that it limits the range of movement for his fingers to manipulate the pencil, forcing him to use larger muscle groups (e.g., elbow, shoulder) to complete fine-motor tasks such as handwriting. This results in more rapid physical fatigue and less legible handwriting.

Henry demonstrated subtle signs of neuromotor dysfunction during a dexterity task, including significant motor control errors on a hand movement task. These

errors were primarily *overflow movements* (literally meaning that a motor command to a specific body part “overflows” to other body parts). One type of overflow movement demonstrated was *orofacial overflow* (overflow from the hand to the mouth and face); for Henry this included lips twisting, mouth open with lips closed, and tongue movements. He also demonstrated *mirror movements* (overflow from one hand to the other hand so that they move as if mirroring each other). Furthermore, Henry required visual guidance to complete this hand movement task, further suggesting that he does not receive sufficient feedback through the sensorimotor modality alone. Despite these subtle signs of neurologic immaturity, Henry performed well on the hand movement task (but poorly on the pencil control task and pegboard task described previously).

The outcome of these deficits in fine-motor control and inhibition is that Henry has more difficulty (at a neurologic level) isolating and directing his motor plans. This results in greater levels of fatigue after a shorter time using his fingers or hands in a coordinated manner (e.g., after handwriting). It is fairly common to observe these subtle neurologic signs in people who have executive deficits, as both reflect poorly developed frontal systems (including the white matter tracts that connect all the areas in the brain). In a sense, these overflow movements provide a physical demonstration of the poor inhibitory skills in his brain.

At times, Henry struggled to think of a word, such as when he pointed to a watchband saying, “The, *uh*, the band that connects to the watch.” His spoken responses often had several false starts with lengthy pauses as he revised and formulated what he was trying to say (e.g., “Well, they . . . they both have . . . they . . . I guess some people, well, *hmm* . . .”).

Henry performed well on memory and learning tasks, including incidental memory (i.e., remembering something he did not know he would be quizzed about) and explicit memory (i.e., remembering something he was told to remember). He scored in the average range for his age on both visual and verbal memory/learning tasks, including learning a list of items read aloud, retelling a story he heard once, drawing symbols from memory after using them on a worksheet, and drawing a complex figure from memory after copying it once. He was able to retain information even after a delay period filled by other kinds of tasks. He benefited from cues to help him remember details he forgot to mention, but his free recall of information was so good that there was not much room for improvement. This is not an area of concern at this time.

The majority of Henry’s academic achievement scores are consistent with his high-average to above-average cognitive abilities. He scored in the average range when asked to quickly complete simple academic tasks (simple math calculations, write simple sentences about pictures using words provided on the worksheet).

Given his high scores on other aspects of achievement testing, these low-fluency scores are a relative weakness. Henry's emphasis on accuracy may have impacted his fluency scores, as discussed ahead.

Results from teacher rating scales (*Connors CBRS*) suggest that Henry does not seem different from other 10yo boys in most of his classes, in terms of most aspects of social, emotional, and behavioral functioning. His mother and one teacher report some separation issues, including worrying about family members and needing reassurance regarding their well-being. At home, he seems afraid to be alone. He expresses a number of physical symptoms at home and school, including fatigue, stomachaches, and vague aches and pains. He has difficulty sleeping, including falling asleep and staying asleep. In some classes he spends a lot of time organizing materials rather than beginning the task. He fidgets and squirms, and talks when he should be quiet.

In interview and on his self-report form, Henry described a number of symptoms of anxiety. These include worrying about embarrassing himself, particularly when he has to do things in front of other people. He worries about what other people think of him. He indicated he sometimes worries about being lost or kidnapped. He gets sad when he thinks about his neighbor, who died a few weeks ago, and his great-aunt, who died a few months ago. He is scared of spiders, snakes, and surprises. He is afraid to be at home alone for even 15 minutes. He worries about robberies to the point that he does not like to take the trash out after dark. He becomes nervous walking to a neighborhood friend's house, because someone was chased at the bus stop last year. Henry worries that he might get hurt if he plays sports, that he might not be the best player on the team, and that the coach might get mad if he doesn't run the exact right route in flag football. He worries about family members being sick, injured, or dying, particularly his grandmother. Henry describes sleep issues, including difficulty falling asleep sometimes. He says he usually wakes up 1–2 times per night. Sometimes he has bad dreams related to his brother and himself being shot or kidnapped. He says he feels tired most days. He appeared very tired during the evaluation. He frequently yawned and had circles under his eyes.

Henry reports that he has a lot of difficulty sitting still. He says he gets confused by all the books, and that sometimes he forgets to turn in homework or to do it, while sometimes he does not have enough time to complete assignments. He worries about running out of time on tests and assignments, feeling like he must rush through without enough time to double-check his answers.

During the evaluation, Henry was very careful in a number of ways. He was certain to straighten each block he placed during a block design task. He looked at each option before choosing his response on multiple-choice tasks. He considered his responses carefully on untimed, fill-in-the-blank items. He counted and

recounted the number of lines on a design he was asked to copy. It seemed very important to him to get things right. At times, he did not attempt difficult items until encouraged to do so by the examiner (items which he then got correct). He seemed very uncertain of himself and his abilities. During a math calculation task, he crossed out a correct answer and rewrote the same number, commenting, “That was the answer I wanted, it just looked messy.” Similarly he erased and rewrote words during a sentence-writing task. During both of these tasks he was encouraged to work as quickly as possible, but accuracy seemed to be a higher priority for Henry.

Henry tended to ask extra questions before beginning a task, even a simple task. For example, when the examiner asked him to repeat some numbers, he interrupted the practice item to ask, “Are they going to be big numbers?” (The answer would have become clear during the practice item, which was two digits long.) At times, he discounted his abilities before even attempting a task; for example, when the examiner explained a verbal similarities task to him, he commented, “I’m not the best at language and things like that.” (He scored above the average range on this task.) He often sought feedback about his performance after a task, asking questions like, “How fast did I do that? Was it faster than the other one?”

Henry kept his jacket on in a warm room for the first half-hour of the first two sessions. He was aware of subtle changes in tasks as they progressed, commenting on them as he noticed them. He was neatly groomed, but his nails were very short and his cuticles were raw. He periodically picked at a scab on his arm. He fidgeted with his water bottle, swiveled in his chair, tapped his fingers on the table, flipped page corners, and ran his fingers through his hair during testing. He did not show any behavioral signs of impulsivity during the evaluation (including the off-medication session). He consistently waited to start timed tasks and stopped when signaled to stop. He waited for a sentence when homonyms were given during a spelling task. Henry made nice conversation during breaks. He easily initiated conversation and reciprocated as well. His comments and conversation were on topic. Throughout the evaluation Henry had very nice manners.

Medication Monitoring Results

Some tests were given twice, or alternate forms given, to compare Henry’s performance on and off Vyvanse. Henry reported he felt very tired on the day he came in without taking stimulant medication. Behaviorally, he seemed more sluggish without medication, laying his head on the table at times. He commented that it was harder to focus during an auditory attention task. There was not a meaningful difference between the medicated and unmedicated performance on

many of these particular tasks. The one meaningful difference was in the number of self-corrected errors during a verbal inhibition task. Henry had an average number of these errors when he completed the task on Vyvanse; his number of errors doubled and tripled when he repeated the task without medication. The difference in scaled scores between these two administrations is statistically significant and clinically meaningful. This suggests that the Vyvanse may be helping with aspects of Henry's verbal inhibition, or stopping to think before he begins to speak.

Other differences in scores across the two administrations are not clinically meaningful. There was an improvement in the number of digits he could remember after hearing them read aloud once (improved from remembering 4 numbers in a row on Vyvanse to remembering 7 numbers in a row without medication). This is an unusual finding, and may represent practice effects or chance. It is also possible that the novel task was anxiety-provoking to Henry the first time (on Vyvanse), and that he was more relaxed when he knew what to expect the second time (no medications). Henry's scores also showed significant change across administrations of the Conners CPT, a sustained visual attention task; however, the majority of the scores remained in the average or better-than-average range even off medication so these statistically significant differences are not clinically meaningful.

To summarize, Henry showed good impulse control both on and off medication. He stayed on task in the supervised, one-on-one setting both on and off medication. He fidgeted and seemed restless in both conditions. The majority of his test scores were the same across conditions, although he had more self-correction errors without the Vyvanse (suggesting weaker verbal inhibition). He was slightly quieter and more sluggish without the Vyvanse.

OVERALL IMPRESSIONS

Henry S., a nearly 11-year-old, right-handed boy, was brought for a neuropsychological evaluation to determine his current cognitive profile and guide treatment. Family history may be contributory to his current presentation. The majority of his test scores from this evaluation are in the average or higher ranges when compared to students his age.

Henry's test results indicated significant core weaknesses in these areas:

- Executive functioning, particularly inhibiting verbal responses, recognizing gestalts, initiating tasks, and engaging in tasks

- Speed of graphomotor responding and fine motor control in general, with the suggestion of reduced sensory feedback

Additional concerns are present about symptoms of anxiety, including separation anxiety, perfectionism, and social anxiety. He worries about injuries and danger, for himself and loved ones. Henry expresses physical symptoms in stressful situations. He shows possible anticipatory anxiety in his irritability on school mornings. His sleep difficulties are consistent with anxiety. During the evaluation, he was very focused on details and getting things “just right.” This precision impacted his score on timed tasks, in that he insisted on erasing and correcting “sloppy” work. He asked more questions than typical before beginning a task, even interrupting the examiner to ask about something that would have been explained. He required encouragement to attempt difficult tasks, including ones that he successfully completed. He generally assumed he had not done well on tasks, and sought frequent feedback about his performance. Henry finds it difficult to manage his anxiety. He often seems restless, fatigued, and irritable. He has difficulty concentrating and shows significant sleep disturbance. All of these symptoms are consistent with a DSM-5 diagnosis of Generalized Anxiety Disorder (300.02, F41.1).

Perfectionism can be a confusing form of anxiety to understand. It seems counterintuitive that a perfectionist would fail to complete a task and accept a 0 in the gradebook. It may help parents and teachers to realize that for a perfectionist, it seems safer to *not* do a task than to risk doing it wrong. A bad grade resulting from not doing a task is not seen as personal; it does not reflect on lack of ability to do the task (even though that is the fear that leads to avoiding the task). Attempting a task and earning a bad grade can feel more personal, that a student’s best effort was “not good enough.” The fear of doing something wrong can paralyze a student to the point that he runs out of time and cannot do the assignment. Sometimes the fear is related to how to do the task and sometimes it is related to content. All of these factors should be considered when a perfectionist procrastinates or does not turn in an assignment.

Anxiety has been associated in the research literature with deficits in executive functioning, particularly with cognitive rigidity and difficulty shifting, including shifting perspective. Planning and organization as well as task initiation can be impacted by anxiety. Worry about being right can become paralyzing, resulting in “waiting until the last minute” to start a task or comments like, “I don’t know what to do or where to start.” A person with anxiety can seem to “freeze,” or have difficulty responding when “put on the spot” by direct questions. At times, anxiety can lead a person to rush through a task “to get it over with.” These are all

examples of how anxiety can impact problem solving, another key component of executive functioning. A person with anxiety may try to control his environment, making it more predictable and less likely to require on-the-spot problem solving or flexibility. It can be difficult for a person with anxiety to process multiple types of information simultaneously, resulting in the appearance that he is lost, confused, or overwhelmed. Executive deficits can make it hard for a person to filter information, including sensory information.

Anxiety can also look like attention-deficit/hyperactivity disorder (ADHD) at times. When a child is focused on worrying, this takes his attention away from his teacher or parent. Both anxiety and ADHD have been associated with executive deficits, impacting attention, concentration, and self-regulation of behavior and impulses.

By history, Henry has a diagnosis of ADHD, Combined type. His mother reports that he often struggles with attention to detail, sustained attention, listening, follow-through, organization, and sustained mental effort. He often loses necessary things, is easily distracted, and is forgetful. He often fidgets and squirms and has difficulty staying seated. He is rarely quiet. He often blurts out answers, has difficulty waiting his turn, and interrupts and intrudes on others. All three teacher ratings indicated that Henry does not pay attention to details, and two teachers rated a number of ADHD symptoms at clinical levels. Henry is showing greater levels of ADHD symptoms at home and school (both inattentive and hyperactive/impulsive) than other boys his age. It is possible that ADHD is comorbid with the anxiety disorder, or that symptoms of anxiety are presenting in a similar way to ADHD. The historical diagnosis of ADHD, Combined presentation (314.01, F90.2) is retained for the time being, with a DSM-5 specifier of mild severity assigned. As Henry's anxiety is reduced, he may show improvement in these other areas. If so, this diagnosis should be reconsidered in future assessments.

Henry is at risk for depression given personal and family characteristics. At this time he describes active interests and goals. His appetite is low, but that seems to vary with his stimulant medication. His sleep is

DON'T FORGET

When you are seeing a child for reevaluation, you have the advantage of perspective. Results from the first evaluation describe the child at one point in time. Each successive evaluation better describes his trajectory. As children grow older, symptoms may become more evident, or new issues may arise. Approach a reevaluation with an open mind and a hypothesis-testing attitude rather than relying solely on past impressions. Take previous diagnostic impressions into account, but do not assume they are still the best explanation for a child's symptoms.

disrupted, which could reflect a variety of interests. He has a negative outlook on life, but denies feeling helpless or hopeless. He does not meet full criteria for a clinical depression at this time, but should be proactive about learning strategies to cope with sadness and signs of possible depression so that he can actively seek help.

Finally, Henry shows significant fine motor impairment affecting pencil control. He requires modifications on tests and assignments due to these deficits.

These areas of concern are mitigated by a number of positive, protective factors. Henry is a pleasant, interactive, engaging young man. He would like to do well and please others. He has a number of cognitive strengths, and is supported by very invested parents and school staff. All of these factors positively impact long-term prognosis for Henry, and support intensive treatment efforts.

RECOMMENDATIONS

1. It is recommended that Henry's parents share this report with members of his educational team. The deficits documented by this evaluation suggest that his needs continue to require accommodations and modifications. The team will need to consider the impact of anxiety on classroom performance in addition to the previously identified ADHD. The following recommendations are suggested for consideration by the school team.
2. Given Henry's heightened level of worries and anxiety, it is critical to monitor how feedback is provided about his academic and behavioral performance.
 - It is important for his teachers, therapists, and parents to be aware of how self-critical Henry is, and how much focus he places on pleasing others and being "right."
 - Recognize that a negative comment will affect Henry more severely and longer than other students his age, and disrupt further concentration, attention, and problem solving.
 - As Henry thinks about what he "did wrong," this will take his attention away from listening and learning.
 - Those who work with him need to be conscious of responding in a warm, supportive manner using positive comments—strive constantly to find something to compliment and reinforce (for academic performance as well as behavioral control). In other words, "catch him being good and comment on it."
 - Place an emphasis on the positives, what he did correctly.
 - Grade Henry's papers by marking the items he gets correct (rather than marking his errors). This reinforces that he is learning the skills or

concepts, and decreases his focus on mistakes. If he does not demonstrate skill mastery, identify what he has mastered, and build on this skill base. Present errors as opportunities to work together, rather than as things he has done wrong.

- Teach him how to make mistakes without becoming upset. Point out to him the times that you make mistakes, including the fact that it is only human to have errors.
 - Be considerate of Henry's sensitivity to perceived criticism and embarrassment. When possible, try not to put him on the spot during class.
 - If Henry's answers on assignments and tests are incomplete or overly focused on details, give him an opportunity to explain or expand his response. It may be helpful to keep in mind that the purpose of an assignment or test is generally to assess a student's knowledge, not to penalize him for anxiety.
 - Whenever possible, provide explicit guidelines for an assignment or test. Be specific about the features of a successful response or project, or be available to meet with Henry and answer his questions so that he can create the structure he needs to reduce anxiety's impact on his cognitive functioning, including executive functioning.
 - When Henry asks questions about how to complete an assignment or test, try to remain patient even though the answer may seem obvious. Anxiety can interfere with a person's ability to see the whole picture, and he sometimes focuses excessively on details or becomes so worried that he cannot process information clearly. Provide a straightforward response in a kind manner.
3. Realize that Henry's variable rate of work is likely due to a combination of factors, but that "laziness" is not a primary factor.
- If he is required to integrate information, he will likely require more assistance and more time than other students at his cognitive level.
 - Assignments may need to be prioritized for Henry, without penalty for incomplete work that is low on the priority list.
 - Another option is to shorten assignments for him (e.g., ask him to do just the odd items in math). At this time, his rate of learning and his memory skills suggest that he does not require significant repetition or drill to master new concepts.
 - It is critical that Henry participate in nonacademic activities with his classmates. He must not be kept in the classroom during lunch, recess, or other free time. Likewise, classwork should not be sent

home for completion (unless an equivalent amount of homework is canceled). If he is not completing his work in the time allotted, this indicates the need to investigate whether he needs more structure/support, or whether assignments must be modified further.

- Similarly, school-based standardized testing should be administered over several shorter sessions over several days, with breaks for Henry to relax or do something different.
4. The following academic modifications and accommodations are suggested by this evaluation:
- *Extended time for tasks that cannot be shortened* (e.g., in-class timed assignments, school assessments, standardized testing); current accommodation of 50% extended time seems reasonable.
 - *Structured, “stop-the-clock” breaks* during lengthy tests or exams. Henry fatigues more rapidly than his peers. Without these breaks, extended time may not be helpful.
 - *Multiday testing*. Given Henry’s rate of fatigue, exams should be administered over multiple days with time to recover after each exam. In other words, he should not take two course exams on the same day. Long standardized exams such as EOGs may need to be administered over multiple dates.
 - *Copy of class notes and boardwork*, either from the teacher or from a thorough and responsible classmate. This could be provided through low-tech means (e.g., no-carbon-required [NCR] paper) or high-tech means (e.g., scanned materials, use smartphone to take a picture of the board).
 - *Write-on tests*. Henry needs to write on the actual test form/booklet when he is being tested. Transferring his answers to a Scantron sheet will be an unfair penalty given his fine-motor control deficits.
 - When an essay is part of a test or assignment, give Henry a *variety of options* for completion, such as discussion, bullets, and webbing. Do not penalize him for spelling, grammar, or other mechanics if the purpose of the essay is to demonstrate knowledge of a subject or creativity. When an essay is necessary, give Henry blank paper to brainstorm and organize his ideas before he drafts the essay. Provide him access to a computer or dictation.
 - *Electronic device for all written work* (in or out of class). These might include a computer, tablet, word processor, or speech-to-text equipment. Another option is to allow Henry to orally answer items with her teacher, or to dictate his responses (with the ability to edit and change the written

transcript from that dictation). Henry's fine-motor deficits impact his writing skills and limit his ability to communicate ideas.

- *Testing in separate room.* Testing should be conducted in a private, reduced distraction environment, with a staff member available to check in with Henry every 10–15 minutes to see how he is doing. Given his worries about his performance relative to other students, it is important to remove this source of distraction.
- *Preferential seating.* For Henry, this may actually be seating in the rear corner of the room, so he feels less self-conscious about who may be looking at him in the front. This is contrary to what is usually recommended for students with ADHD, and may take some experimentation and tweaking. It is important to consider his anxiety when determining what “preferential seating” means in this case.
- *Divided work.* It is helpful to divide Henry's work and tests into several packets, giving him a small chunk at a time. This reduces the risk that his executive deficits will be overwhelmed.

5. Sometimes bright students miss early opportunities to learn *how* to study and complete work, as things come easy during the first few years of school. Henry will benefit from learning study skills so he can “work smart” rather than just working “hard.”

6. It is important that Henry actively processes information as he reads. One way to do this is to create a summary while reading. Henry can keep a notepad by his book and write a summary for each paragraph or concept as he reads (jotting down the relevant page number in the margin, and chapter/section heading at the top of the page). At the end of each section, he should review his small summaries and write a

DON'T FORGET

Be specific when it comes to testing accommodations. When possible, obtain a list of the standard accommodations offered by a school system, private school, or formal test board (e.g., the College Board for SATs) so that your recommendations use the exact language they recognize. Explain what you mean rather than assuming everyone uses the term the same way. For example, “preferential seating” does not always mean in the front of the class (as illustrated by this example). Some settings, particularly standardized entrance examinations, require that you specifically include data supporting each accommodation with a statement of impairment. This was not relevant in Henry's case. Your attention to mirroring the language of the student's setting, explaining what he needs, and fulfilling documentation requirements simplifies the process of requesting consideration of appropriate accommodations and increases the chances the student will receive them.

larger summary for the section. This should be repeated for each chapter. At the end of this process, Henry will have actively thought about each thing he read, and he will have created a summary that can be used as a study guide when preparing for exams as well as a quick reference for finding key concepts in the book.

7. Another way Henry can actively process information and prepare for tests is by thinking about the concepts he is learning rather than just reading about them. He can choose various combinations of key concepts to compare and contrast, which is a way of applying his knowledge. When learning chronological information, he might summarize the information on a timeline and think about each piece relative to other pieces, or overlap timelines for different concepts or cultures to see how they might relate to each other. In addition to this helping Henry process and apply the information, it may help him anticipate possible essay topics for tests.
8. Given Henry's tendency to focus on the facts and details, he will benefit from practicing looking for the big picture while reading, listening, and responding. As he approaches middle school, he can anticipate that most assignments and content will have main themes and underlying symbolism. He may benefit from bracketing his identified details to gradually expand them into larger ideas. This might look much like the NCAA basketball brackets in that he will begin with many details/facts on the left side of the page, then begin to match these facts into larger concepts as he moves across the page, ending up with a final four "big ideas" on the right side of the page.
9. Many students with executive deficits have difficulty with multitasking; they perform better when doing one thing at a time. Henry may benefit from breaking complex tasks into smaller components. For example, when writing a paper, he might start by brainstorming ideas, and then circle the one he intends to use with lines connecting it to related facts. The next step might be sequencing these ideas and organizing them. Adding powerful words (such as action verbs, adjectives, and adverbs) and supporting details might be separate steps. Spelling, punctuation, grammar, verb tense, and other mechanics might be subsequent steps. Henry can make a cue-card that reminds him of the things he often needs to correct.
10. One way to address deficits in sustained auditory attention is by visual cues, anchors, and techniques. If information is given auditorily, a lapse in attention means the information is lost. If information is presented visually, the student can look back after a lapse in attention. Hands-on learning can also capture attention more effectively than a pure lecture format.

- Recognize that “visual and hands-on” does not necessarily mean “experiential” learning. Students with executive deficits can be overwhelmed by a Montessori type approach that expects them to independently extract a rule or information from a free-form experience. Henry requires explicit instruction that presents information in the visual or hands-on modalities.
 - Henry will benefit from learning visual organization techniques such as webbing and mapping to prepare for writing assignments. It will likely be most effective to choose a universal template that he can use for most writing assignments, so that it can become more automatic. If he is exposed to many different types of webs/maps, he may not remember to use these techniques in the future.
 - Structure visual materials so that there is not too much information on a single page.
 - Use visual techniques to draw his attention to important details. For example, use different color highlighters for addition versus subtraction versus multiplication signs. Initially you may need to highlight these for him; eventually the goal is for Henry to independently pull out markers and implement the strategy.
11. Henry should have reduced expectations for handwriting (amount of handwriting and quality of handwriting). Written assignments must be shortened, or he should be allowed to dictate or type his responses. Typing requires less coordination of fine motor plans, especially if he is allowed to be a two-finger typist. Typing assignments on a computer also allows the writing process to be broken into multiple steps (e.g., idea development, organization, forming sentences, adding adjectives/adverbs, proofing for punctuation, grammar, and spelling).
12. Henry needs increased levels of support and structure. Regardless of diagnosis, people with executive deficits require more external structure than their peers, because they have less self-generated structure.
- *Structure can be physical.* Create a homework planner that lists standard materials next to each class. Henry should learn to cross-out materials he does not need for homework and circle materials he does need. At the end of the day, this will give him a packing list for his backpack.

Structure large spaces like desks, lockers, closets, or dresser drawers. Use bins and labels so that Henry can easily see that each thing has a spot. Keep it simple so he does not need to think about the system. Be consistent with where items are placed, and place them there every time. For example,

have hooks in the coat closet to hang backpack, house keys, wallet, and jacket. Henry can practice “chaining” this good habit by *always* putting the items there *every time as soon as* he enters the house. If he realizes that he accidentally carried them past that point, he must go back to the driveway, reenter the house, and put them where they belong. This will strengthen the habit more than putting them in place after the fact, as it will link the event of entering the house with the event of putting them in their place.

- *Structure can also involve time elements.* Help Henry set personal goals for what he will achieve in a 15-minute time period, then help him revise his goal at the end of 15 minutes. Establish a schedule with him, so that he can predict what activity will be coming next. Structure his work time (at home or school) into brief working periods separated by breaks. Be certain to give him clear end-points for each task.
 - *Structure can be cognitive.* Give Henry a short list of what needs to be accomplished, so that he can learn to work more independently. As he develops good use of lists, work with him to learn how to make his own lists. Help him structure complex information by showing him how to divide a big project into smaller, more manageable steps. Teach him to tackle one part of a task at a time, rather than being overwhelmed by the entire assignment.
13. Avoid head-to-head confrontations with Henry. These essentially back him into a corner, and set up the situation for conflict and argument. A more effective approach with him is side-by-side collaboration. For example, if you ask, “Do you have homework?,” the immediate response is likely “no” because at that moment, he is not thinking about homework. Henry is not necessarily lying, but he is not taking the time to think through everything that happened that day. A more effective approach would be to say, “Let’s look at your homework book together, to see what’s on the plan for tonight.” This establishes collaboration, and models a good habit for him to learn for the future. Even if he does not have anything due tomorrow, he can always work ahead to prepare for a test or make progress on a long-term project.
 14. Given the initiation deficits that Henry has, he will likely require prompting to begin a task at home or school (unless it is highly familiar). One way to help him do this more independently (without being nagged each step of the way) is to establish good habits and routines. Help him make a “cue-card” that lists the steps for successful completion of a recurring task. For example, the “morning routine” cue-card might include pictures of using the bathroom, eating breakfast, brushing teeth, washing face, taking off pajamas, putting on

clothes, and so on. A similar approach can be used for recurring routines at school (e.g., the order of operations in PEMDAS). It may be helpful to laminate these cue-cards or cover them with clear contact paper so that Henry can mark off items as he completes them. This establishes the beginning of a good habit that can develop into using lists and day-planners to initiate and organize tasks later in life. This is an example of an externalized prompt that allows more independence than reminders given by another person.

15. Provide Henry with a duplicate set of books to keep at home. Eventually he must learn strategies for bringing the correct materials to the correct place. At this time, however, there are other priorities to address, and it is important that he have the materials needed for homework completion.
16. Avoid sounding punitive when Henry forgets to bring something or do something. Chances are that he is already berating himself for his “failure.” Work collaboratively to find a solution so he can complete the task, whether academic or domestic.
17. Recognize the role that fatigue plays across Henry’s school day. Students with executive deficits and attention deficits have to exert significantly more effort than their peers. Therefore, they become more quickly fatigued. As Henry becomes fatigued, he is even less able to pay attention and engage in problem solving. Build flexibility into his schedule so that he can request mental downtime as needed.

REFERRALS

Suggestions for local providers are available on request.

- Henry and his parents will benefit from working with a therapist who specializes in anxiety. Given his good verbal communication and reasoning skills, Henry will likely respond well to cognitive-behavioral therapy strategies. It is important for his parents to participate in therapy as well so they can support and reinforce Henry’s new skills on a daily basis. They may also find it helpful to have guidance and support in how to respond to his irritability and defiance, which can be challenging even after understanding that they are related to feelings of anxiety. In addition to the symptoms of anxiety impacting Henry at school, possible targets for therapy include his sleep problems and proactive strengthening of his coping skills (given family history of depression and substance use).

- It may also be helpful to consult with a psychiatrist who routinely treats children and adolescents who have anxiety and ADHD. It is possible that a different medication or dosage may be worth considering given Mrs. S.'s description of Henry on and off medication, as well as results from medication monitoring during this evaluation. I am available for additional medication monitoring as needed.
- Neuropsychological *consultation* in 6–12 months to discuss progress made and current intervention efforts. This will likely take the form of a parent meeting and some parent and teacher rating scales, as well as reviewing information from other professionals involved in Henry's care.
- Neuropsychological *reevaluation* in 2–3 years, prior to Henry entering high school. It is possible that his performance on neuropsychological measures will improve as his anxiety is decreased and attention is increased. Follow-up evaluation will also provide more accurate information about long-term cognitive prognosis. The reevaluation will provide data about whether Henry may need accommodations on standardized exams like the PSAT, SAT, and ACT. Additionally, moving into high school is a major educational transition. It is important to be certain that Henry has effective strategies in place so that he can take this next step forward. This reevaluation will allow development of new recommendations, accommodations, and modifications that are appropriate for the high school setting.

The results of this assessment and these recommendations were shared and discussed with Mr. and Mrs. S. in a feedback session on March XX, 2013. Although they were initially surprised by the shift in diagnosis, they indicated that this fits what they see on a daily basis and explains why past efforts have not been entirely effective. They plan to discuss these findings with Henry and initiate therapy once school ends. At the explicit request of Mr. and Mrs. S. (written consent on file), results and recommendations were discussed by phone on March XX, 2013, with the dean and director of Henry's Special Support Team. If there are further questions or concerns, please contact Dr. XXX (direct phone: XXX-XXX-XXXX).

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About the Authors

Collaborations between Elizabeth P. Sparrow, PhD, and Drew Erhardt PhD, began over 20 years ago at the Duke University Medical Center ADHD Clinic. Led by C. Keith Conners, PhD, they worked together to provide clinical evaluations and conduct clinical research. Other partnerships have included co-authoring the Conners Adult ADHD Rating Scale (CAARS, with Dr. Conners), writing journal articles, developing instructional materials for ADHD-related studies, and training psychiatrists involved in ADHD trials. This is their first book together.

Dr. Sparrow is a clinical neuropsychologist in Raleigh, North Carolina, where she evaluates children, adolescents, and young adults for a variety of reasons (including ADHD). When not in the clinic, she is often writing or presenting. Completed projects include authoring *Essentials of Conners Behavior Assessments* (2010), co-authoring *Guide to Assessment Scales in Attention-Deficit/Hyperactivity Disorder, Second Edition* (2011, with Dr. Scott Kollins), and co-editing *Executive Function and Dysfunction: Identification, Assessment, and Treatment* (2012, with Dr. Scott Hunter). Past journal articles have explored ADHD-like presentations of genetic disorders and relationships between prenatal substance exposure and later symptoms of ADHD. Dr. Sparrow enjoys providing training on practical aspects of her clinical work, particularly those related to attention and executive functioning. She served as the primary clinical consultant for development and standardization of the Conners 3, Conners CBRS, and Conners EC. Dr. Sparrow's academic and clinical work reflect her strong commitment to helping parents, teachers, and students understand why they are struggling and what they can change to improve the situation.

Dr. Erhardt is a Professor in the Graduate School of Education and Psychology at Pepperdine University. His teaching interests include child psychopathology, clinical interventions with children and adolescents, and cognitive-behavioral therapy. Dr. Erhardt has authored numerous chapters and journal articles on the nature, assessment, and treatment of ADHD. He was a co-investigator and therapist on the seminal Multimodal Treatment of Attention Deficit Hyperactivity Disorder (MTA) study and has served on the editorial board of the *Journal of Attention Disorders*. He is also the co-developer of the cognitive-behavior therapy-based *MoodKit – Mood Improvement Tools* mobile app. Dr. Erhardt is a licensed psychologist, providing clinical services to children, adolescents, and adults.

Index

A

abuse or neglect, 47, 77, 162, 175. *See also* trauma
academic achievement, 16. *See also* cognitive testing, academic achievement; underachievement
adaptive functioning, 19, 116, 119, 133, 136, 170, 256, 258–259
age-based comparisons, 9, 28–29, 84, 85–86, 87–90, 95, 131–132, 156–157
agreement and disagreement among sources.
 See discrepancies
alternative explanations, 62, 71, 75–77, 91, 92, 98, 114, 162, 164, 237. *See also* differential diagnosis; exclusions
anxiety, 5, 17, 20, 61, 62, 63, 76, 78, 80, 90, 108, 111, 121, 124, 127, 129, 145, 162, 165, 167, 174–175, 178, 179, 186, 199–200, 201, 216, 234, 237, 245, 261–262, 263, 264–265, 266–267, 269, 273–274
associated features of ADHD, 5, 10–11, 13, 14–20, 23, 24, 25, 27, 128, 159, 161, 166, 169, 175, 176, 182, 229, 239, 265
attention. *See* cognitive testing, attention; inattention
autism, 19, 62, 63, 65, 121, 145, 165, 170–172

B

basis for a behavior, 165
bias, 79–80, 81, 93, 97–98, 112, 118, 133, 159, 180
bipolar disorder, 17, 18, 20, 76, 165, 167, 173–174
brain, 22–23
brightness and ADHD, 74–75, 145, 178, 182, 238, 269
bullying, 18, 77, 175

C

caregiver data, 108–109, 118, 119, 129
categorical, 8–9, 83–86
change, developmental, 28–29, 58, 84, 87–90, 112–113, 132, 166
clinical judgment, 83, 88, 92, 122, 130, 154, 163, 182–183

cognitive testing, 8, 75, 82, 90, 94, 110–111, 133–148, 158, 161, 162, 164, 169, 170, 172, 181, 183, 200, 244, 249–250
academic achievement, 16, 22, 136, 137, 138, 145, 172, 202–204, 207, 218–219, 244, 250–251, 260–261
attention, 138, 140–141, 197–199, 199, 207–208, 216, 220, 232–233, 252, 253, 256–257, 270–271
CPT, 141–144, 220–221, 232–233, 251
examples of measures, 138–139, 143–144
executive functioning, 138, 145, 171, 219–220, 252, 253, 254–255, 257–258, 259, 263–265, 269–273
fine motor, 139, 147, 171, 205, 216, 219–220, 252, 253, 259–260, 264, 266, 268–269, 271
IQ, 133, 137, 138, 145, 147, 170, 200–202, 216–217, 244, 249–250, 256
language, 138, 146, 204–205, 219, 253, 260
memory, 139, 146, 206, 216, 252, 253, 254, 256, 260
multiple sessions, 127, 147–148
speed, 12, 139, 142, 146–147, 199, 201–202, 216, 232–233, 262, 264, 267–268
visual processing, 138, 145–146, 205, 219–220, 254
comorbidity, 14–20, 46, 63, 78, 111, 113, 115, 129, 130, 131, 133, 137, 162, 163–178, 179, 200
compensation, 74, 161, 182, 183, 238
comprehensive, 80
comprehensive assessment, 78–79
conduct, 6, 12, 16–17, 18, 19–20, 63, 157, 176–177, 199, 230, 233
confidentiality, 191, 195
consent, custodial, 195
contextual factors, 79, 90–96
continuous performance test (CPT), 4, 141–144, 158, 171, 183, 199, 237. *See also* cognitive testing, CPT
core features of ADHD, 11–14
course, 25, 28–29, 87, 166, 173, 174, 176–177
culture, 11, 25, 27–28, 76, 79, 90–96, 156, 163, 178, 180, 216

D

depression. *See* mood disorder
 deferred diagnosis, 87, 98, 157, 169, 176, 183, 186.
See also DSM-5, deferred
 developmental, 19, 76, 84, 87–90
 deviant, 9, 71, 74, 82, 86–90, 158, 169, 181.
See also inconsistent with expectations
 diet, 25. *See also* nutrition
 differential diagnosis, 62, 75–77, 91, 111,
 114–115, 116, 121, 125, 126, 129–131,
 133, 137, 163–178, 191–191, 200. *See also*
 DSM-5, differential diagnosis
 dimensional, 8–9, 11, 84–86
 discrepancies, 72–73, 81–82, 160, 179–183, 192,
 200
 disruptive mood dysregulation disorder, 76, 173
 dissociative disorder, 61–62, 121, 162, 175
 distress, 48, 73, 161, 169, 175, 176, 182, 183
 DSM-5, 11, 45–65, 70–77, 85–86, 87, 88–89, 163
 codes, diagnostic, 56–58, 169, 179
 comorbidity, 63 (*see also* comorbidity)
 criteria, diagnostic, 49–65, 71, 148,
 155–163
 deferred, 179 (*see also* deferred diagnosis)
 development of, 46–47, 85
 differential diagnosis, 62, 64
 exclusions, 61, 71, 162, 171–172
 frequency, 156 (*see also* frequency)
 gender, 84 (*see also* gender)
 hyperactivity (*see* hyperactivity)
 impairment, 60–61, 65, 71, 160–161
 (*see also* impairment)
 impulsivity (*see* impulsivity)
 in partial remission, 57, 186 (*see also* remission)
 inattention (*see* inattention)
 mental disorder, defined, 48
 onset, 59–60, 65, 71, 159–160 (*see also* onset)
 organization, 46–48
 other specified/unspecified, 47–48, 57, 159,
 179 (*See also* other specified/unspecified)
 persistence, 58–59, 60, 71 (*see also* persistence)
 pervasiveness, 60, 71, 160 (*see also* pervasiveness)
 presentations, 6, 9, 56–58, 63, 65, 155, 158,
 205, 208, 235, 236, 237, 238, 239, 265
 provisional, 179, 183, 186, 239 (*see also*
 provisional)
 rules, symptom count, 49–50, 63–64,
 71–72, 155–159, 205–206,
 236–237
 severity, 61, 65 (*see also* severity)

symptoms, 49–56, 155–159 (*see also* symptom
 expression)

DSM-IV vs. DSM-5, 64–65

D's, three (disturbance, disability, distress), 48,
 161

E

environment, 3, 4, 23–24, 77, 80, 91, 97, 178,
 182, 186
 epidemiology, 25–29
 epigenetics, 23, 24
 equifinality, 21
 ethics code, 94
 ethnocultural factors, 92–96
 etiology, 20–25
 exacerbating factors, 92, 114, 119–120, 126, 140,
 160, 166
 exceptions, 10, 80, 115–116, 160, 182
 exclusion. *See* DSM-5, exclusions; goals of ADHD
 assessment, exclusion
 executive functioning, 5, 15–16, 263, 264–265.
See also cognitive testing, executive
 functioning

F

factor analysis of ADHD symptoms, 11, 27
 false positives and negatives, 71–72, 122,
 157, 254
 family history, 167, 174, 195, 227, 247, 263
 fatigue, 109, 114, 119, 126, 127, 141, 199, 268,
 273. *See also* sleep
 feedback session, 184–186, 193, 274
 feigned ADHD, 80, 169–170, 181
 frequency, 49, 64, 74, 114, 116, 128, 129, 130,
 156, 158

G

gender, 9, 25, 26–27, 84, 87–88, 95,
 131–132, 156–157
 general assessment principles, 78–98
 genetic factors, 3, 5, 21, 22–24
 goals of ADHD assessment, 69–77
 exclusion, 70–71, 75–77
 inclusion, 70–75, 77
 gold-standard, 82
 guidelines, 70, 128, 137
 AACAP, 8, 14, 70, 86, 107, 130
 AAP, 69, 70, 79
 AMA, 70
 CADDRA, 70

H

- heterogeneity, 84
- history of ADHD, 2–8
- hyperactivity, 2, 10, 11–12, 13–14, 50, 56–57, 89, 121, 230
- hypothesis testing, 97–98

I

- ICD-10, 45
- illness, 126
- impairment, 9–10, 25–26, 28–29, 48, 60–61, 65, 73–75, 88–89, 91, 112, 114–115, 116, 120, 126, 128, 129, 141, 145, 160–161, 169, 182, 183, 185, 205, 237. *See also* DSM-5, impairment
- impulsivity, 2, 10, 11–12, 12–13, 50, 56–57, 89, 121, 141–142, 230, 232–233
- inattention, 2, 10–12, 50, 56–57, 89, 121, 274
- inclusion. *See* goals of ADHD assessment, inclusion
- inconsistent with expectations, 156–157, 170
- intellectual disability, 62, 130, 136, 157, 162, 170
- intelligence, 15–16. *See also* cognitive testing, IQ
- intermittent explosive disorder, 62, 177
- interpersonal. *See* social
- intervention, 183–186. *See also* response to intervention (RTI); treatment of ADHD
- interview, 8, 75, 78, 81, 82, 85–86, 87, 88, 90, 91, 93–96, 113–125, 126, 133, 140, 141, 147, 148, 158, 159–160, 161, 162, 164, 166, 167, 169, 180, 181, 183, 186, 194, 197–200, 229–230, 233–235, 261
 - child, 110–111, 117, 118–119, 124
 - parent, 110–111, 117, 119–120, 124–125, 136
 - structured vs. semi-structured, 83, 122–123
 - teacher, 117, 120–121, 124
 - treatment provider, 117, 121–122, 124
- intuition, clinical, 71–72. *See also* hypothesis testing

L

- labels, historic, 5–6
- language barriers, 94, 96
- language disorder, 19–20, 62, 115, 126, 140, 146, 157, 165, 170, 171, 178
- laws
 - IDEA, 5
 - Public Law 94-142, 4
- learning disorder, 5, 12, 16, 20, 62, 63, 76, 77, 111, 115, 131, 136, 137, 145, 162, 172, 191, 200, 207–208, 237, 244

M

- medical, 12, 19, 73, 76, 83, 115, 124, 162, 163, 166, 175, 177–178
 - medication, 7, 19, 142, 147, 168, 177, 178, 239–240, 246, 248, 249, 262–263, 274
 - mental retardation. *See* intellectual disability
 - mirror movements, 260
 - misdiagnosis, 74, 77, 91, 93
 - mood disorder, 5, 17, 20, 61, 62, 63, 76, 78, 80, 90, 98, 121, 129, 145, 162, 166, 167, 174, 178, 192, 199–200, 233–234, 237, 239, 245, 265–266, 273
 - moral control, 3, 4
 - motor disorders, 19, 172–173
 - motor functioning. *See* cognitive testing, fine motor
 - multifinality, 24
 - multiple domains, 78–79
 - multiple informants. *See* multis, three
 - multiple methods. *See* multis, three
 - multiple settings. *See* multis, three
 - multiple sources. *See* multis, three
 - multis, three, 10, 72, 79–83, 108, 117, 129, 131, 148, 183, 200
- N**
- neurobiology of ADHD, 5, 21–22
 - neurocognitive, 166, 177–178
 - neurotransmitters, 3, 22
 - normal condition, 169–170
 - normative data, 85, 90, 95, 130, 131–132, 141–142, 156–157
 - Not Otherwise Specified, 6, 47, 57, 179
 - nutrition, 120, 126. *See also* diet

O

- observation, 8, 75, 82, 91, 96, 110–111, 115, 124, 125–128, 137, 140–141, 141–142, 147, 148, 158, 160, 161, 162, 169, 175, 181, 183, 199, 200, 220, 230. *See also* reports, observations
- obsessive-compulsive disorder (OCD), 63, 131, 165, 234–235, 237, 239, 245
- onset, 59–60, 64, 65, 87, 112, 114, 116, 159–160, 166, 169, 172, 174, 177, 179, 237
- oppositional, 6, 12, 16–17, 19–20, 62, 63, 157, 165, 171, 176–177, 199–200, 206–207, 230, 233, 272
- other specified/unspecified, 47–48, 57, 159, 179

outcome, 28–29, 74, 97
 overflow movements, 260

P

perfectionism, 264
 persistence, 4, 5–7, 10, 28–29, 58–59, 60, 64,
 87–89, 112, 113, 114, 116, 124, 157–158,
 160, 166, 173–174, 182
 personality disorder, 61, 62, 162
 pervasiveness, 10, 60, 64, 72, 80–81, 91, 112, 113,
 114, 116, 121, 124, 125, 160, 175, 182,
 237. *See also* DSM-5, pervasiveness
 pesticides, 24
 plan, assessment, 108–109, 109–111
 play, 171
 premature hardening of the categories, 98
 prevalence, 25, 26, 165
 prognosis. *See* outcome
 provisional, 179, 183, 186, 239
 psychosis, 61, 62, 162, 166, 173, 174, 235
 psychosocial, 77, 114, 162, 163, 178
 purpose of diagnosis, 183

Q

quality of life, 74, 161

R

rapport, 94, 108, 111, 113, 124
 rating scales, 4, 8, 75, 78, 81, 82, 84, 85–86, 88,
 90, 91, 93–96, 110–111, 116, 125, 126,
 128–133, 134–135, 140, 141, 147, 148,
 156, 158, 160, 161, 162, 164, 169, 181,
 186, 197–199, 200, 221–222, 230–232,
 237, 254–256, 258–259, 261
 commercially available, 134–135
 comprehensive vs focused, 75, 131, 133
 reading level, 130, 131, 132, 134–135
 selecting teacher(s), 90
 validity, 132–133
 reactive attachment disorder, 62, 176
 record review, 75, 82, 110–111, 111–113, 116,
 124, 125, 158, 159–160, 161, 162,
 167, 169, 172, 181, 182–183, 194,
 200, 237
 IEP, 112
 prior evaluations, 112–113
 report cards, 112
 Section 504 plan, 112
 reevaluation, 133, 192, 265, 274

remission, 6, 29, 49, 57, 58, 59, 88, 155, 166,
 173, 178, 186, 239

reports, 184, 191–274

background, 192, 195–196, 226–228,
 246–248

diagnostic impressions, 192, 205–208,
 235–239, 263–266

identifying information, 192, 194, 223,
 245

observations, clinical, 192, 196–197, 228,
 256–262

procedures, 192, 194, 228, 249–256

recommendations, 192, 208–216, 239–245,
 266–274

referral, 192, 194–195, 223, 246

results, 192, 197–205, 216–222, 229–235,
 249–263

understanding, 192, 197, 216–222, 249,
 257

validity statement, 192, 197, 228, 248

resilience, 29, 97

response to intervention (RTI), 111, 167–168,
 169, 176, 179

S

schizophrenia, 61, 62

self-report, 80, 81, 90, 110, 117, 118–119,
 129–130, 131, 181, 191, 229–230, 232,
 233–234, 261

sequence, assessment, 109–111

setting, 60, 156, 160, 178, 182

severity, 5–7, 10, 61, 65, 74, 88, 114, 128, 129,
 130, 159, 161

sleep, 19, 76, 119–120, 171, 174, 178, 186,
 261

sluggish cognitive tempo, 9, 146

social, 13, 17–18, 73–74, 79, 80, 81, 91, 121,
 171, 226

stereotypic movement disorder, 62, 172

strengths and skills, 87, 96–97, 116, 118, 119,
 124, 136, 185, 192, 196, 208, 226,
 238–239, 248, 262, 266

stress, 23, 77, 80, 87, 91, 126, 127, 166, 175–176,
 186

substance use abuse, 18–19, 23, 27, 29, 61, 62, 63,
 65, 76, 78, 116, 124, 162, 167, 177, 178,
 235, 273

subtypes, 5, 6, 65. *See also* DSM-5 presentations
 symptom expression, 58, 60

T

television, 25
tic disorder, 19–20, 63, 124, 173
Tourette's, 173
toxins, 3, 23–24
trauma, 77, 78, 91, 121, 166, 175–176. *See also*
 abuse or neglect
treatment of ADHD, 7–8, 115, 183–186,
 208–216, 239–245, 266–274

U

uncertain diagnosis, 178–179
underachievement, 16, 29, 98
unspecified, 48, 57, 179

V

validity, 27, 94, 95, 109, 132–133, 180–181, 197,
 228, 248. *See also* reports, validity statement;
 validity of report
validity of report, 90, 109, 129–130, 169
variability, 8–11, 82, 84, 87, 115–116, 119,
 125, 126, 127, 133, 140, 142, 147, 160,
 166, 174, 178, 180, 182
video games, 10

W

World Health Organization (WHO), 45

Z

zebra, 165