Nurse Practitioner Healthcare Foundation and The Clinical Advisor Fact Pack®

Primary Care Clinicians' Guide to Diagnosis and Management of Adult Attention-Deficit/ Hyperactivity Disorder

FACULTY

Ted Ritter, ARNP, MS, MN, CFNP, CAPMHNP
Lancaster, Pennsylvania

Stephen M. Setter, PharmD, DVM, CGP, CDE, FASCP
Associate Professor of Pharmacotherapy
College of Pharmacy
Washington State University
Spokane, Washington

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Primary Care Clinicians' Guide to Diagnosis and Management of Adult Attention-Deficit/ Hyperactivity Disorder

Table of Contents

CARD 1: OVERVIEW

An introduction to understanding adult attention-deficit/hyperactivity disorder (ADHD) in the primary care practice

CARD 2: MAKING THE DIAGNOSIS

Review of diagnostic tools, including the clinical interview and rating/severity criteria, as well as challenges in making the diagnosis of adult ADHD

CARD 3: ESTABLISHING TREATMENT GOALS

Designing individualized goals of treatment for each patient after the diagnosis of adult ADHD has been made

CARD 4: IMPLEMENTING TREATMENT STRATEGIES

Evaluation and selection of treatment regimens, incorporating pharmacologic and nonpharmacologic therapies; importance of regular re-evaluation and follow-up

CARD 5: RESOURCES & TOOLS

CARD 6: REFERENCES

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Please go to http://www.surveymonkey.com/s/9HZ25TM to complete a short survey about what you learned regarding Adult Attention-Deficit/ Hyperactivity Disorder. *Your feedback will help us continue to improve our educational programs. Thank you*.

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1. OVERVIEW

UNDERSTANDING ADULT ADHD

Attention-deficit/hyperactivity disorder (ADHD) has mistakenly been thought of as a children's disorder. In fact, childhood and adolescent symptoms of ADHD persist into adulthood for many and continue to have negative effects on different aspects of daily living. Symptoms may differ from those of children, complicating diagnosis and preventing affected adults from receiving appropriate non-pharmacologic and pharmacologic treatment.

EPIDEMIOLOGY

- ADHD affects an estimated 4.4% of adults in the US[1]; most of these individuals have moderate (35%) or severe (41%) symptoms.[2]
- ADHD symptoms and associated impairments persist into adulthood for approximately 40% to 60% of children.[3,4] The apparent waning of childhood symptoms over time may reflect the insensitivity of diagnostic criteria to the way in which symptoms evolve as children mature.[4]
- Several predictors of ADHD persistence from childhood into adulthood have been identified (**Box**).[3]
- ADHD has 3 major subtypes: predominantly inattentive, predominantly hyperactive-impulsive, and combined inattentive/hyperactive-impulsive.[5,6]
  - The combined subtype is the most common in adults and children.[5,6]

PREDICTORS OF ADHD PERSISTENCE INTO ADULTHOOD

- Severity of childhood symptoms
- Childhood ADHD of combined inattentive/hyperactive-impulsive subtype
- Comorbid major depressive disorder
- High number of comorbid psychiatric disorders
- Paternal (but not maternal) anxiety-mood disorder
- Parental antisocial personality disorder

NEUROBIOLOGICAL AND GENETIC CHARACTERISTICS OF ADHD

- Both dopamine and norepinephrine (NE) play roles in ADHD. Dopamine improves attention in domains of focus, vigilance, acquisition, and on-task behavior.[7] NE increases inhibition (behavioral, cognitive, and motor) and dampens noise (distractibility, shifting attention); it also plays a role in executive functions.[7]
- Genetics plays an important role in ADHD, which is a highly heritable disease. From 15% to 25% of first-degree relatives of children with ADHD have the disorder, and up to 50% of children whose parents have ADHD also have ADHD.[8]
- Although several genes have been associated with increased risk for ADHD,[9-11] it is important to remember that genes are not the only factor in the development of ADHD.[9]

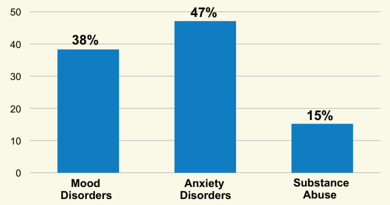
SYMPTOMS OF ADHD IN ADULTS

- Symptoms of inattention are prominent in adults with ADHD.[6]
- The presenting symptoms of adults with ADHD tend to differ from those traditionally associated with ADHD in children; differences in symptoms between children and adults may result in missed diagnoses.[12]
- 62% of adults have combined subtype ADHD, 31% have inattentive-only subtype, and 7% have hyperactive/impulsive-only subtype.[6]

COMMON COMORBIDITIES

- Psychiatric comorbidities are quite common in adults with ADHD, ranging from 15% to 47% (**Figure**).[1] Rates of psychiatric comorbidities are even higher among those who have 2 or more children with ADHD: 59% have major depression, 47% have substance abuse disorders, and 21% have anxiety disorders.[13]
- Impulse and explosive disorders may occur in almost 20% of adults with ADHD.[1,13]

PREVALENCE OF PSYCHIATRIC COMORBIDITY AMONG ADULTS WITH ADHD



Source: Kessler.[1]

- A small percentage of adults (about 5%) may also have neurologic tic disorders, such as Tourette's syndrome.[13]

CONSEQUENCES OF UNTREATED ADHD IN ADULTS

- Only a fraction of adults with ADHD (11%) receive appropriate treatment.[1]
- Adults with ADHD report a variety of functional impairments that negatively affect their lives at school, home, and work, such as[14]:
  - Overall less likely than adults without ADHD to complete high school or hold advanced degrees[15]; nearly 16% do not complete high school.[1]
  - More likely than adults without ADHD to be divorced.[1]
  - Less likely to report very good or excellent health.[15]
  - At high risk for traffic accidents, traffic citations, and license suspensions; more likely to involve themselves in risky sexual behaviors.[8,15]
  - Lower rates of full-time employment[15]; more days absent from work, and more days of reduced work quality/quantity while at work[16]; more likely to be fired or to quit impulsively.[17]

COMMON MYTHS AND MISCONCEPTIONS ABOUT ADHD IN ADULTS

- ***Myth:*** Adults cannot be diagnosed with ADHD unless first diagnosed as children.
  - ***Fact:*** Only 25% of adults with ADHD receive a diagnosis in childhood[18]; although the diagnosis is often missed in childhood, a careful history should reveal preexisting symptoms.[19]
- ***Myth:*** Absence of hyperactive-impulsive symptoms means that a patient does not have ADHD.
  - ***Fact:*** Adults (and women/girls of all ages) are more likely to have inattentive symptoms than hyperactive symptoms.[6,20]
- ***Myth:*** Psychostimulants are not useful for treatment of ADHD in adults.
  - ***Fact:*** Most adults are treated with stimulants and respond well, consistent with the evidence and current treatment recommendations.[17,18]
- ***Myth:*** ADHD is more common in men and rarely affects women.
  - ***Fact:*** ADHD is more common in males than females during childhood (by a ratio of about 3 to 1), but the gender ratio in adults is lower (1.6 to 1).[1] This suggests that bias or failure to recognize different symptoms in girls may prevent them from receiving a diagnosis and clinical care in childhood.[14, 21]

REFERENCES: *See Reference Card*

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2. MAKING THE DIAGNOSIS

Recognizing and diagnosing ADHD in adult patients requires attention to their current symptoms and careful exploration of their past history. There are several key areas to probe for symptoms, and simple tools are available that are helpful in assessing their presence and severity.

THE COMPREHENSIVE CLINICAL INTERVIEW

- A comprehensive clinical interview is the basis for proper evaluation of adults presenting with symptoms suggestive of ADHD.[1]
  - The interview should integrate assessment of current symptoms, medical history (including childhood symptoms), family history (including family members diagnosed with ADHD), and social functioning; current problems related to ADHD and associated symptoms, plus any previous diagnosis; ADHD-related problems before age 7 and during the first years at school; frequent job changes; marital status, frequency of changing partners; use of tobacco, alcohol, or illegal substances; physical illnesses or other psychiatric disorders.[1,2]
- Interviewing family members or reviewing old school records can provide insight into childhood symptoms.[1,2]

ADDITIONAL DIAGNOSTIC TOOLS: RATING AND SEVERITY SCALES

- A number of helpful instruments have been developed to assess the presence and severity of ADHD symptoms (**Table 1**). These may be administered by clinicians (Conners') or self-reported by patients (Adult ADHD Self-Report Scale [ASRS]).[3]

TABLE 1. EXAMPLES OF DIAGNOSTIC AND ASSESSMENT SCALES USED IN ADULT ADHD

Diagnostic	Symptom Assessment
ASRS-V1.1 Screener (6-item)*	ASRS-V1.1 Symptoms Checklist (18-item)
Brown ADD Scale (BADDS)	Brown ADD Scale
Conners' Adult ADHD Diagnostic Interview	Conners' Adult ADHD Rating Scales

*See Card 5.
Source: Weisler.[3]

- Although the Conners' and BADDS are considered useful assessment tools, the 18-item ASRS Symptoms Checklist provides the closest agreement with diagnostic criteria and clinical diagnosis.[4]
- A shortened version of the ASRS, known as the ASRS-V1.1 Screener, is useful for screening in primary care settings (**See Card 5**). It is a 6-question subset taken directly from the complete 18-item ASRS rating scale.[3,5]
  - The screener includes 4 questions about inattention and 2 questions about hyperactivity-impulsivity. It usually takes less than 2 minutes to complete.[5]
- Results must be interpreted within the context of full diagnostic criteria set forth in the *Diagnostic and Statistical Manual of Mental Disorders*, *Fourth Edition, Text Revision* (*DSM-IV-TR*) (**See Card 5**).[2]

CHALLENGES IN THE DIAGNOSIS OF ADULT ADHD

- Primary care clinicians often feel they have less knowledge about ADHD in adults than they have about depression or anxiety disorders; only about half express confidence in making the diagnosis.[6]
- It is critical to recognize that symptoms evolve over time and manifest differently in adults than in children.[2,7,8] For example, hyperactivity in childhood may appear in an adult as difficulty sitting through meetings at work; childhood impulsivity may present in an adult as difficulty maintaining personal relationships.

- Adult symptoms may be masked by coping mechanisms developed by patients to mitigate impairment.[3]
- Patients may not recognize symptoms or bring them to clinicians' attention because they lack insight and believe symptoms are personality "quirks."[9]
- Diagnosis requires the presence of symptoms since childhood, but adults may have difficulty accurately recalling early childhood symptoms.[1] Questions during the clinical interview about childhood play, temper, and school performance can help to elicit symptoms.[10]
- ADHD has high rates of overlapping symptoms with comorbid psychiatric disorders.[2]
  – ADHD symptoms may be masked by or mistaken for symptoms of comorbid psychiatric conditions[3,9]; conversely, symptoms of other disorders may mistakenly be attributed to ADHD[2] (**Table 2**). The clinical interview can help differentiate underlying symptom etiology.

TABLE 2. THE DIFFERENTIAL DIAGNOSIS OF ADHD

Psychiatric disorders	Medical disorders
• Bipolar disorder II • Major depressive disorder • Anxiety disorders • Obsessive-compulsive disorder • Impulse control disorders • Personality disorders (borderline) • Alcohol and substance abuse	• Endocrine/metabolic/thyroid disorders • Neurologic disorders, including traumatic brain injury • Sleep disorders • Side effects of drug treatment

Source: Haavik.[1]

- Although ADHD occurs across ethnic groups and nationalities, the perceived importance of symptoms and extent of impairment may vary according to different cultural norms.[3]
  – These different perceptions influence whether families or individuals report symptoms to their clinician.[3]
- In adults, ADHD prevalence is similar between men and women (about 1.6 to 1).[11] However, because girls are more likely to exhibit inattentive symptoms and perhaps go undiagnosed in childhood, diagnosing adult women with ADHD may pose a special challenge.[3]

SHORTCOMINGS OF *DSM-IV-TR*

- Although *DSM-IV* diagnostic criteria are the cornerstone of ADHD diagnosis, shortcomings in the criteria contribute to challenges in making the diagnosis. Criteria were developed based on ADHD symptoms in childhood and have never been validated in adults[3]; criteria specify that symptoms must have been present before age 7, but issues of recall may limit the ability to identify early childhood symptoms[3]; and evidence suggests that symptoms that develop later in childhood or early adolescence are equally relevant but are currently not accounted for in *DSM-IV-TR*.[2,3,12] (For more on *DSM-IV-TR* criteria, see **Card 5**.)

REFERENCES: *See Reference Card*

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3. ESTABLISHING TREATMENT GOALS

When a diagnosis of ADHD has been established for an adult patient, the question of treatment arises. Individuals seek treatment for unique reasons, and several options for treatment are available. Combining information gathered from the patient's history and clinical interview, along with patient risk factors and preferences, is essential to establishing a successful plan for treatment.

FACTORS IN ESTABLISHING TREATMENT GOALS

- Adults with ADHD usually seek treatment for problems that affect their own well-being.[1]
- Successful treatment goals will address the patient's reasons for seeking treatment based on:
  - Evaluation of the degree of impairment due to symptoms.
  - The life areas most negatively affected by symptoms.
  - The degree to which symptoms increase other health risks (due to impulsivity or risky behaviors).[2]
  - Understanding and addressing the patient's self-doubt or self-destructive behaviors.
- Failure to treat significant symptoms can have detrimental effects on patients' lives, families, and work.[2]

DEVELOPING A TREATMENT PLAN

- Patient involvement is a key component of success in managing adult ADHD.[3]
  - With adults, the person consenting to treatment is the person receiving treatment; as such, the adult patient is more likely to stop or refuse treatment that is disruptive or has uncomfortable side effects.[1]
- It is important to educate patients (and their significant others) about ADHD and the goals of treatment:
  - Explain the features of ADHD, including the role of genetics, how the diagnosis is made, presenting symptoms, and how comorbid conditions can affect their symptoms and how they will be addressed in the treatment plan.[1,3]
  - Emphasize that ADHD is a treatable condition rather than an intrinsic aspect of character.[3]
  - Help to manage patients' expectations regarding treatment to minimize disappointment and/or nonadherence.
    - Explain the expected time course for symptom improvement, especially important for those who are impatient/impulsive, and any potential adverse effects of prescribed medications.[1,3]
    - Reinforce that the use of medications on a consistent basis is important because it can improve and maintain the patient's quality of life.[3]
- Medications and other treatment options should be reviewed and priorities established; treatment of significant psychiatric comorbidities may take precedence over treatment of ADHD.[3]
  - Establish a timeline for evaluating treatment effect.
  - Discuss patients' expectations and any reservations they may have about treatment.
  - Assure them of long-term support in planned follow-up sessions.

ISSUES AND CHALLENGES IN CARING FOR ADULT PATIENTS WITH ADHD

- Both inattentive (prevalent in adults) and hyperactive-impulsive symptoms are associated with negative life events, independent of current comorbidities.[4]
  - The presence of ADHD symptoms makes it less likely that adults will achieve higher education or stable employment due to difficulties in structured environments and issues with concentration.[5]
  - Adults with ADHD may be more successful in "nontraditional" work environments, such as creative or active jobs.[5]
- Adults with ADHD may also have difficulties at home or in social relationships,[5] such as strained or unstable relationships with their significant others or poor perceptions of their ability to provide emotional support.[5]
  - These difficulties are exacerbated when more than 1 family member has ADHD.[5]
- The presence of common medical comorbidities, such as hypertension, may contraindicate use of stimulant treatments.[3]
- Potential risk for stimulant abuse and diversion must be addressed.[3]

INDIVIDUALIZING TREATMENT GOALS

- Design reasonable goals for each patient.
- Define primary targets and areas of impairment.[6]
  - Establish which symptoms the patient feels are most problematic in daily living and ways to measure improvement.[1]
- Establish an evaluation strategy.
  - Prioritize target behaviors.
  - Specify outcome measures/indicators of improvement (**See Box below**).
  - Delineate strategy for sequencing or revising treatments.[6]

SAMPLE INDICATORS OF IMPROVEMENT IN ADULT ADHD SYMPTOMS

- More efficient work/study habits
- Workspace is better organized at office/home
- Able to enjoy social activities
- Able to contain aggressive impulses (wisecracks, faults in sports, abuse in parenting)
- Marriage more stable, spouse happier
- Improved parenting
- Improvements in financial responsibility
- No longer speeding or getting tickets while driving
- Decrease in marijuana or other substance dependence

Source: Weiss.[1]

- Know when involving other health care professionals may be helpful[7]:
  - Uncertain diagnosis;
  - Psychiatric or substance abuse comorbidities;
  - Crisis requiring specialist intervention;
  - Consultation regarding treatment decisions;
  - Need for additional patient or family education;
  - Psychologic evaluation and non-drug modalities.

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4. IMPLEMENTING TREATMENT STRATEGIES

A growing body of research has led to the creation of practice guidelines for management of adult ADHD.[1] ADHD in adults is as responsive to treatment as it is in children, and the options for treatment are similar to those for children.[1] When choosing a medication, clinicians must take into account the patient's preferred method of treatment and expectations of treatment.[2] A comprehensive physical examination, with special attention to cardiovascular status, should take place prior to initiating any therapy.[1]

SELECTION OF TREATMENT REGIMEN

- Stimulants, which are considered first-line treatment of ADHD in adults as they are in children, come in 2 classes, methylphenidate and amphetamine.[3]
- Patients who cannot tolerate or do not respond to stimulants can be treated with the nonstimulant atomoxetine, a selective norepinephrine reuptake inhibitor.[3-5]
- Stimulant medications come in a variety of forms, including short-acting (multiple-daily doses) and long-acting (single-daily dose) formulations[3]; those with specific FDA approval for adults are long-acting forms with once-daily dosing:

MEDICATIONS APPROVED FOR TREATMENT OF ADHD IN ADULTS

Medication	Trade Name	Dose Forms (mg)	Recommended starting dose
Stimulants			
Amphetamine-dextroamphetamine extended release[7]	Adderall XR	5, 10, 15, 20, 25, 30 Capsules	20 mg once daily (morning)
Dexmethylphenidate extended release[10]	Focalin XR	5, 10, 15, 20, 25, 30, 35, 40 Capsules	10 mg once daily (morning)
Lisdexamfetamine dimesylate[8]	Vyvanse	20, 30, 40, 50, 60, 70 Capsules	30 mg once daily (morning)
Methylphenidate extended release[9]	Concerta	18, 27, 36, 54 Tablets	18 or 36 mg once daily (morning)
Nonstimulant			
Atomoxetine[5]	Strattera	10, 18, 25, 40, 60, 80, 100 Capsules	Total daily dose 40 mg (single or evenly-split)

Sources: Dopheide.[3] Gagne.[6]

- Each of the approved medications has been shown in at least one double-blind clinical trial to effectively relieve symptoms of ADHD in adults.[5,7,10-12]
- Clinicians must carefully weigh the risks and benefits of each medication and discuss its possible side effects with the patient.
  - Potential side effects of stimulants include insomnia, decreased appetite, weight loss, headaches, increases in pulse and blood pressure.[6]
  - Therapy should be initiated at a low dose and sequentially titrated upward to minimize side effects.[3]

- Cardiovascular side effects may be a concern in adults with existing or borderline hypertension or other cardiovascular disease.[2]
- It is important to closely monitor cardiovascular status while adult patients are taking stimulants.[4]

– Potential side effects of atomoxetine include sleep disturbances, gastrointestinal distress, nausea, headache, and mild increases in pulse and blood pressure.[6]

– Clinicians should be prepared to address patient concerns that stimulants are "addictive."[2]

- Risk of abuse is higher with immediate-release stimulants.[4]
- Use caution if prescribing stimulants to patients with psychiatric comorbidities or history of substance abuse.[6] For high-risk patients, atomoxetine has no abuse potential.[3]

■ Starting medication with a "trial" of some predetermined length can help to alleviate patient concerns and allow them to observe the benefits of symptom reduction on their everyday lives.[2]

■ The final choice of medication should be based on its duration of action, the patient's comorbidities, symptom targets, patient preference, family history, past medication history, and risk of abuse.[2]

NONPHARMACOLOGIC THERAPIES

■ Educational and behavioral interventions should be used in conjunction with medication.[6]

■ Cognitive behavioral therapy effectively decreases the social impacts of ADHD.[6]

■ Other behavioral interventions include family therapy, organizational skills training, social skills training, and individual psychotherapy.[6]

■ Combining pharmacologic and behavioral therapy is a recommended approach.[1]

– Practice recommendations from several countries, including the US, suggest combination treatment incorporating psychoeducation (knowledge about illness, managing expectations, skill building), initial medication trial followed by titration to determine optimal dosing, assessment of residual symptoms, and long-term community follow-up.

RE-EVALUATION AND FOLLOW-UP

■ Depending on the starting dose that a patient can tolerate, symptoms may improve within days, but functional improvements may take months to manifest.[2]

■ Medical follow-up, important for the management of safety considerations and potential side effects associated with pharmacotherapy for ADHD, should include heart rate/blood pressure monitoring, electrocardiogram for high-risk patients, weight/appetite monitoring, and weekly monitoring for suicidal ideation when initiating atomoxetine treatment.[3]

THE IMPORTANCE OF A LONG-TERM PLAN

■ ADHD is a chronic, persistent condition, and ongoing support is needed.[1]

■ Progress made in short-term treatment can be reinforced through long-term support and follow-up, which provide opportunities to teach new coping skills and allow both clinician and patient to reinforce gains and focus on residual symptoms if necessary.[2]

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5. RESOURCES & TOOLS

For clinicians interested in learning more about the diagnosis and treatment of adult ADHD, numerous resources are available on the Web and elsewhere. Below is a list of Web sites that offer medically sound information.

American Psychiatric Association, *DSM-IV* information page.
http://www.psych.org/MainMenu/Research/DSMIV.aspx

Centers for Disease Control and Prevention, ADHD page.
http://www.cdc.gov/ncbddd/adhd/index.html

Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD). Adult ADHD page includes information on the disorder, its signs and symptoms, diagnosis, and treatment.
http://www.chadd.org/AM/Template.cfm?Section=Especially_For_Adults

National Institute of Mental Health. ADHD booklet, including information for adults. Appropriate for patients or clinicians.
http://www.nimh.nih.gov/health/publications/attention-deficit-hyperactivity-disorder/index.shtml

National Resource Center on ADHD. A collection of resources for patients and clinicians, including symptoms, medications, and a live chat area.
http://www.help4adhd.org/

ADULT ADHD SELF-REPORT SCALE VERSION 1.1

- The 6-question Adult ADHD Self-Report Scale Version 1.1 (ASRS-V1.1) Screener below, a subset of the World Health Organization's full 18-question ASRS, can be used to screen for adult ADHD in the primary care practice setting.[1,2]
- The patient is asked to mark an X in the box that most closely represents the frequency of occurrence of each of the symptoms. If 4 or more marks appear in the shaded boxes, then the patient has symptoms highly consistent with ADHD in adults and further investigation is warranted.

ASRS-V1.1 SCREENER

Check the box that best describes how you have felt and conducted yourself over the past 6 months. Please give the completed questionnaire to your healthcare professional during your next appointment to discuss the results.

	Never	Rarely	Sometimes	Often	Very often
1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?					
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?					
3. How often do you have problems remembering appointments or obligations?					
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?					
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?					
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?					

Source: Weisler.[2]

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DSM-IV-TR DIAGNOSTIC CRITERIA FOR ADHD

Based on the criteria below, 3 types of ADHD are identified:

- **ADHD, combined type:** if both criteria A1 and A2 are met for the previous 6 months;
- **ADHD, predominantly inattentive type:** if criterion A1 is met but criterion A2 is not met for the previous 6 months;
- **ADHD, predominantly hyperactive-impulsive type:** if criterion A2 is met but criterion A1 is not met for the previous 6 months.

DSM-IV-TR DIAGNOSTIC CRITERIA* FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

A. Either (1) or (2):

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

Inattention

(a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
(b) Often has difficulty sustaining attention in tasks or play activities
(c) Often does not seem to listen when spoken to directly
(d) Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
(e) Often has difficulty organizing tasks and activities
(f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
(g) Often loses things necessary for tasks or activities (eg, toys, school assignments, pencils, books, or tools)
(h) Is often easily distracted by extraneous stimuli
(i) Is often forgetful in daily activities

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

Hyperactivity

(a) Often fidgets with hands or feet or squirms in seat
(b) Often leaves seat in classroom or in other situations in which remaining seated is expected
(c) Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
(d) Often has difficulty playing or engaging in leisure activities quietly
(e) Is often "on the go" or often acts as if "driven by a motor"
(f) Often talks excessively

Impulsivity

(g) Often blurts out answers before questions have been completed
(h) Often has difficulty awaiting turn
(i) Often interrupts or intrudes on others (eg, butts into conversations or games)

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

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

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

E. The symptoms do not occur exclusively during the course of a pervasive developmental disorder, schizophrenia, or other psychotic disorder and are not better accounted for by another mental disorder (eg, mood disorder, anxiety disorder, dissociative disorder, or a personality disorder).

*These criteria are utilized for both children and adults.

Source: Weisler.[2]

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6. REFERENCES

CARD 1

1. Kessler RC, Adler LA, Barkley R, et al. The prevalence and correlates of adult ADHD in the United States: Results from the National Comorbidity Survey Replication. *Am J Psychiatry*. 2006;163(4):716-723.
2. Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, severity, and comorbidity of 12-month *DSM-IV* disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62(6):617-627.
3. Lara C, Fayyad J, de Graaf R, et al. Childhood predictors of adult ADHD: results from the WHO World Mental Health (WMH) Survey Initiative. *Biol Psychiatry*. 2009;65(1):46-54.
4. Faraone SV, Biederman J, Mick E. The age-dependent decline of attention deficit hyperactivity disorder: a meta-analysis of follow-up studies. *Psychol Med*. 2006;36(2):159-165.
5. National Institute of Mental Health. Attention Deficit Hyperactivity Disorder. NIH Publication No. 08-3572. 2008;1-21. http://www.nimh.nih.gov/health/publications/attention-deficit-hyperactivity-disorder/complete-index.shtml. Accessed August 21, 2011.
6. Wilens TE, Biederman J, Faraone SV, et al. Presenting ADHD symptoms, subtypes, and comorbidities in clinically referred adults with ADHD. *J Clin Psychiatry*. 2009;70(11):1557-1562.
7. Manos MJ, Tom-Revzon C, Bukstein OG, Crismon ML. Changes and challenges: managing ADHD in a fast-paced world. *J Manag Care Pharm*. 2007;13(suppl S-b):S2-S13.
8. Wilens TE, Dodson W. A clinical perspective of attention-deficit/hyperactivity disorder into adulthood. *J Clin Psychiatry*. 2004;65(10):1301-1313.
9. Cortese S, Faraone SV, Sergeant J. Misunderstandings of the genetics and neurobiology of ADHD: moving beyond anachronisms. *Am J Med Genet B Neuropsychiatr Genet*. 2011;156(5):513-516.
10. Faraone SV, Perlis RH, Doyle AE, et al. Molecular genetics of attention-deficit/hyperactivity disorder. *Biol Psychiatry*. 2005;57(11):1313-1323.
11. Franke B, Vasquez AA, Johansson S, et al. Multicenter analysis of the SLC6A3/DAT1 VNTR haplotype in persistent ADHD suggests differential involvement of the gene in childhood and persistent ADHD. *Neuropsychopharmacol*. 2010;35(3):656-664.
12. Barkley RA, Brown TE. Unrecognized attention-deficit/hyperactivity disorder in adults presenting with other psychiatric disorders. *CNS Spectr*. 2008;13(11):977-984.
13. McGough JJ, Smalley SL, McCracken JT, et al. Psychiatric comorbidity in adult attention-deficit/ hyperactivity disorders: findings from multiplex families. *Am J Psychiatry*. 2005;162(9):1621-1627.
14. Faraone SV, Antshel KM. Diagnosing and treating attention-deficit/hyperactivity disorder in adults. *World Psychiatry*. 2008;7(3):131-136.
15. Able SL, Johnston JA, Adler LA, Swindle RW. Functional and psychosocial impairment in adults with undiagnosed ADHD. *Psychol Med*. 2007;37(1):97-107.
16. De Graaf R, Kessler RC, Fayyad J, et al. The prevalence and effects of adult attention-deficit/hyperactivity disorder on the performance of workers: results of the World Mental Health Survey Initiative. *Occup Environ Med*. 2008;65(12):835-842.
17. Weisler RH, Goodman DW. Assessment and diagnosis of adult ADHD: clinical challenges and opportunities for improving clinical care. *Primary Psychiatr*. 2008;15(11):53-64.
18. Faraone SV, Spencer TJ, Montano C, Biederman J. Attention-deficit/hyperactivity disorder in adults. A survey of current practice in psychiatry and primary care. *Arch Intern Med*. 2004;164(11):1221-1226.
19. Adler LA. Clinical presentations of adult patients with ADHD. *J Clin Psychiatry*. 2004;65(suppl 3):8-11.
20. Rucklidge JJ. Gender differences in attention-deficit/hyperactivity disorder. *Psychiatr Clin North Am*. 2010;33(2):357-373.
21. Haavik J, Halmoy A, Lundervold AJ, Fasmer OB. Clinical assessment and diagnosis of adults with attention-deficit/hyperactivity disorder. *Expert Rev Neurother*. 2010;10(10):1569-1580.

CARD 2

1. Haavik J, Halmoy A, Lundervold AJ, Fasmer OB. Clinical assessment and diagnosis of adults with attention-deficit/hyperactivity disorder. *Expert Rev Neurother*. 2010;10(10):1569-1580.
2. Montano CB, Weisler R. Distinguishing symptoms of ADHD from psychiatric disorders in the adult setting. *Postgrad Med*. 2011;123(3):88-98.
3. Weisler RH, Goodman DW. Assessment and diagnosis of adult ADHD: clinical challenges and opportunities for improving clinical care. *Primary Psychiatry*. 2008;15(11):53-64.
4. Sandra Kooij JJ, Marije Boonstra A, Swinkels SH, et al. Reliability, validity, and utility of instruments for self-report and informant report concerning symptoms of ADHD in adult patients. *J Atten Disord*. 2008;11(4):445-458.
5. Kessler RC, Adler L, Ames M, et al. The World Health Organization adult ADHD self-report scale (ASRS): a short screening scale for use in the general population. *Psychol Med*. 2005;35(2):245-256.
6. Adler L, Shaw D, Sitt D, et al. Issues in the diagnosis and treatment of adult ADHD by primary care physicians. *Primary Psychiatry*. 2009;16(5):57-63.

7. Goodman DW. The consequences of attention-deficit/hyperactivity disorder in adults. *J Psychiatr Pract*. 2007;13(5):318-327.
8. Wilens TE, Dodson W. A clinical perspective of attention-deficit/hyperactivity disorder into adulthood. *J Clin Psychiatry*. 2004;65(10):1301-1313.
9. Barkley RA, Brown TE. Unrecognized attention-deficit/hyperactivity disorder in adults presenting with other psychiatric disorders. *CNS Spectr*. 2008;13(11):977-984.
10. Culpepper L, Mattingly G. Challenges in identifying and managing attention-deficit/hyperactivity disorder in adults in the primary care setting: a review of the literature. *Prim Care Companion J Clin Psychiatry*. 2010;12:PCC.10r00951.
11. Kessler RC, Adler LA, Barkley R, et al. The prevalence and correlates of adult ADHD in the United States: Results from the National Comorbidity Survey Replication. *Am J Psychiatry*. 2006;163(4):716-723.
12. Faraone SV, Antshel KM. Diagnosing and treating attention-deficit/hyperactivity disorder in adults. *World Psychiatry*. 2008;7(3):131-136.

CARD 3

1. Weiss MD, Weiss JR. A guide to the treatment of adults with ADHD. *J Clin Psychiatry*. 2004;65 (suppl 3):27-37.
2. Braun DL, Dulit RA, Adler DA, et al. Attention-deficit/hyperactivity disorder in adults: clinical information for primary care physicians. *Primary Psychiatry*. 2004;11(9):56-65.
3. Weisler RH, Goodman DW. Assessment and diagnosis of adult ADHD: clinical challenges and opportunities for improving clinical care. *Primary Psychiatry*. 2008;15(11):53-64.
4. Garcia CR, Bau CH, Silva KL, et al. The burdened life of adults with ADHD: impairment beyond comorbidity. *Eur Psychiatry*. 2010;doi:10.1016/j.eurpsy.2010.08.002.
5. Goodman DW. The consequences of attention-deficit/hyperactivity disorder in adults. *J Psychiatr Pract*. 2007;13(5):318-327.
6. Stein MA. Therapeutic management. In: Newcorn JH, Weiss M, Stein MA. The complexity of ADHD: diagnosis and treatment of the adult with comorbidities. *CNS Spectrum*. 2007;12(suppl 12):1-16.
7. Culpepper L, Mattingly G. Challenges in identifying and managing attention-deficit/hyperactivity disorder in adults in the primary care setting: a review of the literature. *Prim Care Companion J Clin Psychiatry*. 2010;12:PCC.10r00951.

CARD 4

1. Gibbins C, Weiss M. Clinical recommendations in current practice guidelines for diagnosis and treatment of ADHD in adults. *Curr Psychiatry Rep*. 2007;9(5):420-426.
2. Weiss MD, Weiss JR. A guide to the treatment of adults with ADHD. *J Clin Psychiatry*. 2004;65(suppl 3):27-37.
3. Dopheide JA. The role of pharmacotherapy and managed care pharmacy interventions in the treatment of ADHD. *J Manag Care Pharm*. 2009;15(5 suppl):S141-S150.
4. Weisler RH, Goodman DW. Assessment and diagnosis of adult ADHD: clinical challenges and opportunities for improving clinical care. *Primary Psychiatry*. 2008;15(11):53-64.
5. Strattera® (atomoxetine hydrochloride) capsules. Prescribing information. Indianapolis, IN: Eli Lilly & Co.; March 2011.
6. Gagne JJ, Singh M, Talati AR. Manifestation of adult attention-deficit/hyperactivity disorder and available treatment options. *P & T*. 2006;31(12):736-744.
7. Adderall XR® (mixed salts of a single-entity amphetamine product) dextroamphetamine sulfate, dextroamphetamine saccharate, amphetamine aspartate monohydrate, amphetamine sulfate capsules, CII. Prescribing information. Wayne, PA: Shire US Inc.; August 2011.
8. Vyvanse® (lisdexamfetamine dimesylate) capsules. Prescribing information. Wayne, PA: Shire US Inc.; August 2011.
9. Concerta® (methylphenidate HCl) extended-release tablets. Prescribing information. Titusville, NJ: McNeil Pediatrics; November 2010.
10. Focalin XR (dexmethylphenidate hydrochloride) extended release capsules. Prescribing information. East Hanover, NJ: Novartis Pharmaceuticals Corporation; April 2011.
11. Wigal T, Brams M, Gasior M, et al. Randomized, double-blind, placebo-controlled crossover study of the efficacy and safety of lisdexamfetamine dimesylate in adults with attention-deficit/hyperactivity disorder: novel findings using a simulated adult workplace environment design. *Behav Brain Funct*. 2011;6:34.
12. Spencer T, Biederman J, Wilens T, et al. A large, double-blind, randomized clinical trial of methylphenidate in the treatment of adults with attention-deficit/hyperactivity disorder. *Biol Psychiatry*. 2005;57(5):456-463.

CARD 5

1. Kessler RC, Adler L, Ames M, et al. The World Health Organization adult ADHD self-report scale (ASRS): a short screening scale for use in the general population. *Psychol Med*. 2005;35(2):245-256.
2. Weisler RH, Goodman DW. Assessment and diagnosis of adult ADHD: clinical challenges and opportunities for improving clinical care. *Primary Psychiatry*. 2008;15(11):53-64.