

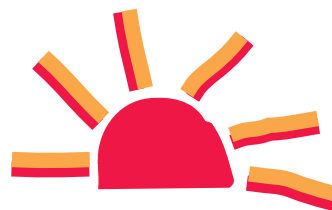
ATTENTION DEFICIT HYPERACTIVITY DISORDER

KEY FACTS

- Attention deficit hyperactivity disorder (ADHD) is one of the most commonly diagnosed mental disorders in U.S. children and adolescents, affecting up to 3 to 5 percent of school-age children (Cantwell, 1996; Wolraich et al., 1996).
- There is no single diagnostic tool for ADHD. To diagnose the disorder, a health professional considers a child's or adolescent's history and symptoms and rules out other potential causes of inattention, hyperactivity, and impulsivity.
- The exact cause of ADHD is not known. Children and adolescents with ADHD may have low levels of certain neurotransmitters in brain regions controlling attention and impulsivity.
- Many children and adolescents with ADHD improve as they grow up. One-third have no symptoms by the time they reach adulthood (Cantwell, 1996; Dulcan, 1997).
- Children and adolescents with ADHD are at risk for school underperformance, social isolation, and low self-esteem.

Children and adolescents of different temperaments differ widely in their levels of physical activity, attentiveness, and self-control. High energy levels and impulsivity are a normal part of childhood and adolescence, and children and adolescents often react to acute stress with temporary inattention and overactivity. But when a child's or adolescent's levels of overactivity, inattention, and/or impulsivity are severe and persistent and interfere with his learning, fun, or relationships, he should be evaluated for attention deficit hyperactivity disorder (ADHD) and related problems.

Children and adolescents with ADHD can exhibit a range of problems. Some are mainly inattentive and may underperform in school and appear to be daydreamers, while others are hyperactive and impulsive. Many exhibit all three sets of ADHD symptoms: inattention, hyperactivity, and impulsivity. These different sets of symptoms are reflected in the subtypes of ADHD: inattentive type, hyperactive and impulsive type, and combined type. Children who are hyperactive may come to clinical attention at an early age because of unsafe or hard-to-control behaviors, while children and adolescents who are mainly inattentive are often not identified.



DESCRIPTION OF SYMPTOMS

Inattention, hyperactivity, and impulsivity problems fall along a continuum. For some children and adolescents such symptoms do not impair functioning enough to warrant a diagnosis of ADHD, but the symptoms nevertheless cause frustration in the child or adolescent or those near her, or impede her learning to some degree. DSM-PC describes these inattention and hyperactivity/impulsivity problems as follows.

Inattention Problem

(Diagnostic code: V40.3)

Adapted from DSM-PC. Selected additional information from DSM-PC is available in the appendix. Refer to DSM-PC for further description.

Infancy

- Infant may have a brief gaze, difficulty finishing tasks (e.g., crawling to an object), and marked distractibility while eating.

Early Childhood

- Child's distractibility and brief attention span cause some family problems and difficulty playing with same-age peers.

Middle Childhood and Adolescence

- Child or adolescent tends to miss instructions in school, give up on tasks easily, and miss subtle social cues.

Hyperactive Impulsive Behavior Problem

(Diagnostic code: V40.3)

Adapted from DSM-PC. Selected additional information from DSM-PC is available in the appendix. Refer to DSM-PC for further description.

Infancy

- Infant may exhibit early motor development with squirming and increased climbing.

Early Childhood

- Child runs into people and things, cannot sit still, and often has minor injuries.

Middle Childhood

- Child is intrusive, interrupts others often, and has trouble completing chores.

Adolescence

- Adolescent's "fooling around" behavior annoys others; adolescent fidgets when sitting.

When a child's or adolescent's inattention and/or hyperactivity and impulsivity occur in many different settings over a long period and impair his functioning, this indicates that he may have a disorder rather than a problem. In order to meet the criteria for ADHD, these symptoms need to have been present before age 7.

Further information on the diagnosis of ADHD is available in the American Academy of Pediatrics' clinical practice guidelines, "Diagnosis and Evaluation of the Child with Attention-Deficit/Hyperactivity Disorder" (American Academy of Pediatrics, 2000); *Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment* (Barkley, 1998); *Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder (ADHD): NIH Consensus Statement* (1998); and "Practice Parameters for the Assessment and Treatment of Children, Adolescents, and Adults with Attention-Deficit/Hyperactivity Disorder" (Dulcan, 1997).

Attention Deficit Hyperactivity Disorder

(Diagnostic codes: 314.00, predominantly inattentive type; 314.01, predominantly hyperactive/impulsive type; 314.01, combined type)

Adapted from DSM-PC and DSM-IV-TR. Selected additional information from DSM-IV-TR is available in the appendix. Refer to DSM-PC and DSM-IV/DSM-IV-TR for full psychiatric criteria and further description.

ADHD presents differently in children and adolescents of different ages. To meet diagnostic criteria for ADHD, the symptoms of ADHD need to have been present before age 7.

Infancy

- While rarely diagnosed in infancy, a child who is later diagnosed with ADHD often has a history of a brief gaze, difficulty finishing tasks (e.g., crawling to an object), marked distractibility while eating, and/or early motor development with increased squirming and climbing.

Early Childhood

- Compared with other children his age, child seems immature, is easily distracted, cannot complete activities, and often misses important information (e.g., rules of a game), and/or
- Child runs, jumps, and climbs excessively indoors, cannot sit still for meals and stories, and is often “into things.”

Middle Childhood and Adolescence

- Child or adolescent works below his potential in school, is messy and careless about his work, gives up easily, has trouble organizing tasks, and seems not to listen, and/or
- Child or adolescent talks and interrupts others excessively, cannot sit still for meals, and fidgets; younger child disrupts others with noise, whereas adolescent interrupts, annoys, and is often in trouble.

COMMONLY ASSOCIATED DISORDERS

Mood and Anxiety Disorders

Studies indicate that 13–27 percent of children and adolescents with ADHD have associated mood symptoms, and 23–50 percent have an associated anxiety disorder (Jensen et al., 1997). Children or adolescents with ADHD who also present with irritability, frequent tantrums, poor self-esteem, and social withdrawal may have mood problems or disorders (includes depressive and bipolar disorders) or anxiety problems or disorders.

In addition, the symptoms of mood and anxiety disorders may be similar to those of ADHD. To meet the diagnostic criteria for ADHD, a child’s or adolescent’s symptoms must have been present before age 7. Behavior or attention problems that arise later can be

the result of other problems or disorders and should be investigated for other possible origins, including mood and anxiety disorders.

Learning Disabilities

Learning disabilities are found in up to 40 percent of children and adolescents with ADHD (Kaplan and Sadock, 1995).

Oppositionality and Conduct Problems

Children and adolescents with ADHD are at high risk for oppositional defiant disorder and conduct disorder (43–93 percent) (Jensen et al., 1997).

INTERVENTIONS

These general interventions may help primary care health professionals to identify children and adolescents with ADHD and related problems and to manage their symptoms. (See *Bright Futures Case Studies for Primary Care Clinicians: Attention-Deficit/Hyperactivity Disorder: The Restless Pupil* [Frazer and Knight, 2001] at <http://www.pedicases.org>.)

Child or Adolescent

1. If the school or family expresses concern about a child's or adolescent's disruptive behavior or inattention, or if screening questions reveal concerns in these areas, further information should be gathered. Scales for assessing ADHD include the Vanderbilt ADHD Diagnostic Teacher Rating Scale (Wolraich, 1998), SNAP-IV (Swanson, 1991), ADHD Rating Scale-IV (DuPaul, 1998), and Conners' Rating Scales (Conners, 1997). For a child or adolescent to meet the criteria for ADHD, his symptoms need to be present in several different settings, including home and school. Therefore, obtaining information from the school as well as the child or adolescent and family is critical. Rating scales, report cards, and written and/or verbal comments from school personnel about a child's or adolescent's presentation and performance provide a fuller picture of his academic and behavioral functioning. Psychoeducational testing should also be considered to identify any learning disabilities that may be affecting academic performance. Obtain a careful social history from the family to identify any ongoing or recent stressors that may also be affecting the child's or adolescent's functioning (American Academy of Pediatrics, 2000). (See Tool for Health Professionals: Vanderbilt ADHD Diagnostic Teacher Rating Scale, *Mental Health Took Kit*, p. 54.)
2. Assess for the following other possible underlying or associated medical or psychosocial concerns:
 - Low birthweight
 - Mental retardation
 - Drug or alcohol exposure in utero
 - Neurotoxin exposure (e.g., lead poisoning)
 - Central nervous system infections
 - Head injury
 - Thyroid dysfunction
 - Child abuse and neglect
 - Foster home placements
3. Assess for mood problems and disorders by asking the child or adolescent about his mood, ability to have fun, and sleep. Assess for anxiety problems and disorders by asking about worries, separation problems, and somatic complaints. Children and adolescents with symptoms of ADHD and depression or anxiety present particular diagnostic and treatment challenges. A mental health professional such as a child psychiatrist, child psychologist, or clinical social worker who engages with a child or adolescent in individual consultation and therapy may be able to help clarify diagnoses, develop a treatment plan, and stabilize symptoms. Medication interventions for a child or adolescent with ADHD and anxiety or mood symptoms can be complicated. Referral to or consultation with a child psychiatrist or developmental-behavioral pediatrician is recommended. (See Pharmacological Interventions, p. 210.)



4. Children and adolescents with ADHD may also benefit from individual or group therapy that focuses on
 - Learning impulse control
 - Building self-esteem
 - Acquiring coping skills
 - Building social skills
5. Children with ADHD may feel that they are “bad” because of their social and academic difficulties. Adolescents may experience feelings of failure and low self-esteem. Talk with the child or adolescent in developmentally appropriate language about ADHD and its treatment, explaining that you know he does not mean to cause problems but needs help to control his behavior and to focus.
6. Encourage the child or adolescent to break difficult tasks up into manageable parts, take short breaks, and write homework assignments in a special notebook.
7. Encourage the child or adolescent to pursue his talents and interests (e.g., drawing, learning to play the drums, taking karate classes). Successes

will boost his self-esteem and promote positive interactions with adults and peers.

Family

1. Parents may feel they are to blame for their child’s or adolescent’s behavior problems. Highlight the child’s strengths and specific needs, and point out the parents’ skills in supervising and caring for the child or adolescent, even during challenging periods.
2. Discuss with parents any concerns they have about ADHD and about handling their child’s or adolescent’s behavior. Help parents give their child or adolescent positive feedback, communicate realistic and clear expectations, and set consistent and appropriate limits. For children and adolescents with significant behavior problems, consider referring parents to a developmental-behavioral pediatrician or a mental health professional (e.g., child psychiatrist, child psychologist, clinical social worker), who can assist the family in developing a behavior plan for their child or adolescent.
3. Encourage parents to establish routines for their child or adolescent to help her learn organizational skills. It may be useful for parents to draw or write the routine and display it at home (e.g., for a younger child, create a chart that shows brushing teeth, washing face, getting pajamas; for an older child or adolescent, create a chart illustrating the child’s or adolescent’s and family’s daily and weekly schedule).
4. Ask about a family history of ADHD, learning disorders, depression, and anxiety. Explain that the family needs to help the child or adolescent compensate for ADHD (e.g., by finding activities that

build on her interests and strengths) and that ADHD can improve over time.

5. Talk with parents about the role of medication in treating ADHD. Explain that it is often helpful but is not a cure. Children and adolescents with ADHD benefit most from a combination of efforts by their family, their school, and health professionals.
6. Help family members identify the child's or adolescent's talents, stressing the importance of building self-esteem. Physical activities (e.g., organized sports, biking, dancing, in-line skating, jumping rope, bowling) can help channel high energy levels in children and adolescents with hyperactivity or impulsivity, and structured group activities can promote social skills. Remind families that safety gear is especially important for children and adolescents with ADHD.
7. Assess the quality of the relationship between each parent and the child or adolescent, and encourage parents to spend regular time with their child or adolescent. For many male children and adolescents with ADHD, time spent playing or engaging in other activities with their father or another positive male role model is especially important.
8. Educate family members about ADHD, and connect them with supportive resources, such as Children and Adults with Attention Deficit/Hyperactivity Disorder (CHADD). Information about CHADD can be found on the organization's Web site at <http://www.chadd.org>.
9. Refer parents or siblings experiencing high levels of stress, difficulty coping, or psychiatric symptoms to a mental health professional such as a clinical social worker, psychologist, or psychiatrist.

Community and School

1. After obtaining appropriate permission, involve teachers, guidance counselors, and school-based health and mental health professionals in assessing the child's or adolescent's functioning and in implementing a treatment plan.
2. Assess for any possible learning disabilities or special education needs (DuPaul and Stoner, 1994). Public schools are obligated to assess children whose school performance may be impaired by ADHD or a learning disability. For example, a child or adolescent suspected of having ADHD should receive a functional behavioral assessment conducted by a qualified school professional (e.g., school psychologist) to help design a



- behavior modification program for the classroom. Be aware that children and adolescents with ADHD may be eligible for special education services under the “other health impaired” disability category. These services include the development of an Individualized Education Program (IEP). (See Tool for Families: Individualized Education Program [IEP] Meeting Checklist, *Mental Health Tool Kit*, p. 120.) Some parents may appreciate assistance from the primary care health professional in contacting the school. Consider participating in school conferences or IEP planning meetings for the child or adolescent. Ensure that parents know that their child or adolescent may also qualify for services under Section 504 of the Rehabilitation Act. For further information about eligibility and services, families can consult the school’s special education coordinator, the local school district, the state department of education’s special education division, the U.S. Department of Education’s Office of Special Education Programs (<http://www.ed.gov/offices/OSERS/OSEP>), the Individuals with Disabilities Education Act (IDEA) ’97 Web site (<http://www.ed.gov/offices/OSERS/IDEA>), or the U.S. Justice Department’s Civil Rights Division (<http://www.usdoj.gov/crt/edo>).
3. Work with the school to develop a plan to reduce distracting stimuli for the child or adolescent as much as possible and to ensure that expectations are reinforced clearly and consistently. Suggest that classroom seating be arranged to address the child’s or adolescent’s needs. Talk with the school about providing children or adolescents with ADHD with extra support at transition times during the school day.
 4. Encourage teacher-parent communication, and suggest that the child or adolescent work on improving organizational skills by keeping a “homework notebook” in which she records assignments and in which parents and teachers record ideas, observations, and praise pertaining to her successes. Suggest that homework time be broken up into 10- to 30-minute chunks with short breaks in between for play or rest.
 5. For a child or adolescent who is taking medication for ADHD symptoms, contact should be maintained with teachers and/or other school personnel (e.g., the school nurse), to obtain information about possible changes in the child’s or adolescent’s classroom behavior and academic performance. Because the time course of some stimulant medications (e.g., methylphenidate) is relatively brief, teachers’ input about the medication’s effectiveness is important. Behavior rating scales like the Conners’ Rating Scales (Conners, 1997) can assist teachers in providing information about behavior change. In addition, possible changes in the child’s or adolescent’s academic performance (e.g., the amount of work completed correctly) should be assessed, as academic performance could be improved or deleteriously affected by stimulant medication.
 6. For children under age 5, intervention services may be available through IDEA. The local school district or the state department of education can provide specific information about available resources. (See #2, above.)
 7. ADHD self-help groups such as CHADD can provide information, referrals, and support services.

PHARMACOLOGICAL INTERVENTIONS

Children and adolescents with ADHD usually require multiple interventions to address their difficulties. It has been shown that pharmacological interventions can be effective in improving functioning in children and adolescents with ADHD. Guidelines for considering a medication trial are offered below.

- Given the prevalence of ADHD and its responsiveness to stimulant medication, primary care health professionals may consider a medication trial. For further information on the use of medications and the treatment of ADHD, see American Academy of Pediatrics (2001), Dulcan (1997), Morgan (1999), Spencer et al. (2000), and Wilens (1999). Ongoing communication with the child's or adolescent's family and school (following guidelines for confidentiality) via mechanisms such as rating scales is essential in monitoring a child's or adolescent's response to medications.
- Children and adolescents who do not respond to a stimulant trial, who experience adverse effects, or who show evidence of mood or anxiety symptoms, substance abuse, developmental delays, tic disorders, or significant family stress may be complicated to treat. Some primary care health professionals feel comfortable treating children and adolescents with ADHD complicated by other associated problems. For those who do not, referral to a developmental-behavioral pediatrician, child neurologist, or child psychiatrist is recommended.

Resources for Families

Children and Adults with Attention Deficit/
Hyperactivity Disorder (CHADD)
8181 Professional Place, Suite 201
Landover, MD 20785
Phone: (800) 233-4050, (301) 306-7070
Web site: <http://www.chadd.org>

LD OnLine

Web site: <http://www.ldonline.org>
(LD OnLine is a service of the Learning Project at WETA, Washington, DC, in association with the Coordinated Campaign for Learning Disabilities.)

National Attention Deficit Disorder Association (NADDA)

1788 Second Street, Suite 200
Highland Park, IL 60035
Phone: (847) 432-ADDA (2332)
Web site: <http://www.add.org>

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