

# Attention Deficit Hyperactivity Disorder Fact Sheet

## WHAT IS ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)?

- Attention Deficit Hyperactivity Disorder (ADHD) is a neurobiological behavioral disorder that manifests as a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development.<sup>1</sup>
- To be properly diagnosed with ADHD, the person needs to demonstrate:
  - At least six of nine symptoms of inattention, or at least six of nine symptoms of hyperactivity/impulsivity;
  - That symptoms were present before 7 years of age; and
  - That some impairment from the symptoms is present in two or more settings (e.g., at school or work and at home)
- For more information about diagnostic criteria, see the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision (DSM-IV-TR<sup>®</sup>), a publication of the American Psychiatric Association.\*

## WHO IS MOST LIKELY TO BE AFFECTED BY ADHD?

- ADHD affects approximately 7.8 percent of all school-age children, or about 4.4 million U.S. children aged 4 to 17 years, according to the U.S. Centers for Disease Control and Prevention (CDC).<sup>2</sup>
- ADHD is the most prevalent behavioral disorder in children and represents a costly major public health problem.<sup>3,4</sup>
- ADHD is the most diagnosed psychiatric disorder in children and adolescents.<sup>5</sup> The CDC reports:<sup>6</sup>
  - ADHD diagnosis is about 2.5 times more frequent among males than females.
  - ADHD reports increase with age and are significantly lower among children aged 4 to 8 years compared with children older than 9 years.
  - The greatest ADHD prevalence of children aged 4 to 17 years is among males aged 16 years (14.9 percent) and females aged 11 years (6.1 percent).
  - Reported ADHD varied substantially by state, from a low of 5.0 percent in Colorado to a high of 11.1 percent in Alabama.
- Although many people tend to think of ADHD as a childhood problem, up to 80 percent of adolescents with ADHD and up to 65 percent of children with ADHD may still exhibit symptoms into adulthood.<sup>7</sup> According to results from the National Comorbidity Survey Replication Study, lifetime prevalence of ADHD in adults is 8.1 percent.<sup>8</sup>
- Although inattention and impulsivity often remain as the patient ages, hyperactivity is seen less frequently. The lack of hyperactivity leads many people to believe, incorrectly, that ADHD is only a childhood disorder that patients will outgrow.

## WHAT ARE THE CAUSES OF ADHD?

- The exact origin of ADHD is unknown, but scientists speculate that the disorder may be caused by one or more of the following factors:
  - Genetics – Research strongly suggests that ADHD tends to run in families.<sup>9</sup> In fact, studies of twins reveal that 80 percent of the influence of ADHD is due to genetic factors.<sup>10</sup> However, this does not mean that all children in a family will have the disorder.<sup>11</sup>
  - Abnormal neurotransmitter function – ADHD is thought to be caused by an imbalance of two neurotransmitters, dopamine (DA) and norepinephrine (NE), which are believed to play an important role in the ability to focus and pay attention to tasks. Many scientists think that when the neurotransmitters are not balanced, the symptoms of ADHD result. Traditionally, the most effective medications to treat ADHD have a direct action on both dopamine and norepinephrine.
  - Environment – Certain external factors, such as alcohol and drug abuse during pregnancy, poor maternal nutrition, and chemical poison ingestion during pregnancy may contribute to ADHD.<sup>12</sup>

## WHAT ARE THE SYMPTOMS OF ADHD?

- The most common behaviors exhibited by those who have ADHD are inattention, hyperactivity, and impulsivity. People with ADHD often have difficulty focusing, are easily distracted, have trouble staying still, and frequently are unable to control their impulsive behavior.
- Because everyone shows signs of these behaviors at times, the DSM-IV-TR specifies that the behaviors must appear early in life (before age 7) and continue for at least six months.<sup>13</sup>
- In children, these behaviors must be more frequent or severe than in other children the same age. In addition, the behaviors must interfere with at least two areas of a person's life, such as paying attention in school, completing homework, or making friends.
- ADHD in adults looks much as it does in children, except that much less hyperactivity is present. Still, inattention and impulsivity can have a major effect on functioning at work and in social relationships.<sup>14</sup> People often have difficulty focusing, are easily distracted, have trouble staying still, and frequently are unable to control their impulsive behavior.

## HOW IS ADHD DIAGNOSED?

- There is no single objective test to determine if someone has ADHD. A comprehensive evaluation is conducted which can include, among other things, a physical examination, parent-rated behavior scales, teacher-rated behavior scales, parent and child interviews, psychological testing, and a review of school and medical records.
- At the core of any evaluation are the diagnostic criteria set forth in the DSM-IV-TR. These symptoms encompass three general areas: inattention, hyperactivity, and impulsivity.

- A diagnosis usually is made by a specialist, such as a psychiatrist, psychologist, developmental pediatrician, or neurologist, and is based in large part on a history obtained from the patient, parent, family members, and/or teacher.

## WHAT ARE THE CONSEQUENCES OF UNTREATED ADHD?

- Follow-up studies have followed children with ADHD to see how they perform as adults. These studies have found about 50 percent function well as adults, while the other half continue to live with some degree of impairment in attention, self-esteem, and work record.<sup>15</sup>
- Without effective treatments, difficulties experienced by children with ADHD may continue or even increase into adulthood, resulting in possible justice system contacts and substance abuse troubles<sup>16</sup> as well as effects on ultimate rates of child abuse, crime, adult mental illness, and accidents with injuries.<sup>17, 18, 19</sup>
- Adults with ADHD have greater risks for lower educational and occupational achievement, as well as high rates of lifetime depression, anxiety, disruptive behaviors, and substance abuse disorders.<sup>17</sup>

## HOW IS ADHD TREATED?

- Although there is no “cure” for ADHD, there are accepted treatments that specifically target its symptoms. The most common standard treatments include educational approaches, psychological or behavioral modification, and medication.<sup>20</sup>
  - Educational approaches – Some children with ADHD are too hyperactive or inattentive to function in a regular classroom, and may benefit from special education classes. Most children with ADHD, however, are able to stay in the regular classroom, but may need some special accommodations to help them learn.<sup>21</sup> Educating adults, as well as family members, about ADHD is important in helping the patient put difficulties in perspective and better understand the reasons for many lifelong symptoms.
  - Psychological and behavioral therapies – Depending on a person’s needs, a number of psychological and behavioral therapies are available to help manage ADHD, including psychotherapy, cognitive-behavioral therapy, social skills training, support groups, and parenting skills training.<sup>22</sup>
  - Medication
    - Psychostimulant medications are thought to affect two key neurotransmitters in the brain that control attention, impulses, and self-regulation of behavior, and remain among the most successful treatments for people with ADHD. Psychostimulants have been shown to reduce hyperactivity, decrease impulsivity, and improve ability to focus, work, and learn. Approximately 70

percent of children with ADHD respond positively to psychostimulants.<sup>23</sup> While these medications are generally well-tolerated, common side effects may include decreased appetite, weight loss, headache, and insomnia.

- Selective norepinephrine reuptake inhibitors (SNRIs) are approved for the treatment of ADHD and should be taken once or twice a day to provide full-day relief from ADHD symptoms.

\* The *Diagnostic and Statistical Manual of Mental Disorders* is a registered trademark of the American Psychiatric Association.

## References

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