



**FIRST COAST ADVANTAGE
COMPLETE ARTICLES
ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)**

What is Attention Deficit Hyperactivity Disorder?

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurobehavioral disorders of childhood. It is sometimes referred to as Attention Deficit Disorder (ADD). It is usually first diagnosed in childhood and often lasts into adulthood. Children with ADHD have trouble paying attention, controlling impulsive behaviors (may act without thinking about what the result will be), and, in some cases, are overly active.

ADHD has Three Subtypes:

Predominantly Hyperactive-Impulsive – Most symptoms (six or more) are in the hyperactivity-impulsivity categories. Fewer than six symptoms of inattention are present, although inattention may still be present to some degree.

Predominantly Inattentive – The majority of symptoms (six or more) are in the inattention category and fewer than six symptoms of hyperactivity-impulsivity are present, although hyperactivity-impulsivity may still be present to some degree. Children with this subtype are less likely to act out or have difficulties getting along with other children. They may sit quietly, but they are not paying attention to what they are doing. Therefore, the child may be overlooked, and parents and teachers may not notice that he or she has ADHD.

Combined Hyperactive-Impulsive and Inattentive– Six or more symptoms of inattention and six or more symptoms of hyperactivity-impulsivity are present. Most children have the combined type of ADHD. Treatments can relieve many of the disorder's symptoms, but there is no cure. With treatment, most people with ADHD can be successful in school and lead productive lives. Researchers are developing more effective treatments and interventions, and using new tools such as brain imaging, to better understand ADHD and to find more effective ways to treat and prevent it.

What causes ADHD?

Scientists are not sure what causes ADHD, although many studies suggest that genetics play a large role. Like many other illnesses, ADHD probably results from a combination of factors. In addition to genetics, researchers are looking at possible environmental factors, and are studying how brain injuries, nutrition, and the social environment might contribute to ADHD.

Genes - Inherited from our parents, genes are the “blueprints” for who we are. Results from several international studies of twins show that ADHD often runs in families. Researchers are looking at several genes that may make people more likely to develop the disorder. Knowing the genes involved may one day help researchers prevent the disorder before symptoms develop. Learning about specific genes could also lead to better treatments

Children with ADHD who carry a particular version of a certain gene have thinner brain tissue in the areas of the brain associated with attention. This National Institute of Mental Health research showed that the difference was not permanent, however, and as children with this gene grew up, the brain developed to a normal level of thickness. Their ADHD symptoms also improved.

Environmental Factors - Studies suggest a potential link between cigarette smoking and alcohol use during pregnancy and ADHD in children. In addition, preschoolers who are exposed to high levels of lead, which can sometimes be found in plumbing fixtures or paint in old buildings, may have a higher risk of developing ADHD.

Brain Injuries - Children who have suffered a brain injury may show some behaviors similar to those of ADHD. However, only a small percentage of children with ADHD have suffered a traumatic brain injury.



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Sugar - The idea that refined sugar causes ADHD or makes symptoms worse is popular, but more research discounts this theory than supports it. In one study, researchers gave children foods containing either sugar or a sugar substitute every other day. The children who received sugar showed no different behavior or learning capabilities than those who received the sugar substitute.⁸ Another study in which children were given higher than average amounts of sugar or sugar substitutes showed similar results.

In another study, children who were considered sugar-sensitive by their mothers were given the sugar substitute aspartame, also known as NutraSweet. Although all the children got aspartame, half their mothers were told their children were given sugar, and the other half were told their children were given aspartame. The mothers who thought their children had gotten sugar rated them as more hyperactive than the other children and were more critical of their behavior, compared to mothers who thought their children received aspartame.

Food Additives - Recent British research indicates a possible link between consumption of certain food additives like artificial colors or preservatives, and an increase in activity. Research is under way to confirm the findings and to learn more about how food additives may affect hyperactivity.

How is ADHD Diagnosed?

Children mature at different rates and have different personalities, temperaments, and energy levels. Most children get distracted, act impulsively, and struggle to concentrate at one time or another. Sometimes, these normal factors may be mistaken for ADHD. ADHD symptoms usually appear early in life, often between the ages of 3 and 6, and because symptoms vary from person to person, the disorder can be hard to diagnose. Parents may first notice that their child loses interest in things sooner than other children, or seems constantly “out of control.” Often, teachers notice the symptoms first, when a child has trouble following rules, or frequently “spaces out” in the classroom or on the playground.

No single test can diagnose a child as having ADHD. Instead, a licensed health professional needs to gather information about the child, and his or her behavior and environment. A family may want to first talk with the child’s pediatrician. Some pediatricians can assess the child themselves, but many will refer the family to a mental health specialist with experience in childhood mental disorders such as ADHD. The pediatrician or mental health specialist will first try to rule out other possibilities for the symptoms. For example, certain situations, events, or health conditions may cause temporary behaviors in a child that seem like ADHD.

Between them, the referring pediatrician and specialist will determine if a child:

- Is experiencing undetected seizures that could be associated with other medical conditions
- Has a middle ear infection that is causing hearing problems
- Has any undetected hearing or vision problems
- Has any medical problems that affect thinking and behavior
- Has any learning disabilities
- Has anxiety or depression, or other psychiatric problems that might cause ADHD-like symptoms
- Has been affected by a significant and sudden change, such as the death of a family member, a divorce, or parent’s job loss



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A specialist will also check school and medical records for clues, to see if the child's home or school settings appear unusually stressful or disrupted, and gather information from the child's parents and teachers. Coaches, babysitters, and other adults who know the child well also may be consulted.

The specialist also will ask:

- Are the behaviors excessive and long-term, and do they affect all aspects of the child's life?
- Do they happen more often in this child compared with the child's peers?
- Are the behaviors a continuous problem or a response to a temporary situation?
- Do the behaviors occur in several settings or only in one place, such as the playground, classroom, or home?

The specialist pays close attention to the child's behavior during different situations. Some situations are highly structured, some have less structure. Others would require the child to keep paying attention. Most children with ADHD are better able to control their behaviors in situations where they are getting individual attention and when they are free to focus on enjoyable activities. These types of situations are less important in the assessment. A child also may be evaluated to see how he or she acts in social situations, and may be given tests of intellectual ability and academic achievement to see if he or she has a learning disability. The use of standardized behavior rating scales for ADHD is recommended to fully assess reported symptoms from parents and teachers. While computerized performance tests have been used in research to study ADHD symptoms, their use in clinical diagnosis has not been established and is not routine practice. Finally, if after gathering all this information the child meets the criteria for ADHD, he or she will be diagnosed with the disorder.

What are the symptoms of ADHD in Children?

Inattention, hyperactivity, and impulsivity are the key behaviors of ADHD. It is normal for all children to be inattentive, hyperactive, or impulsive sometimes, but for children with ADHD, these behaviors are more severe and occur more often. To be diagnosed with the disorder, a child must have symptoms for 6 or more months and to a degree that is greater than other children of the same age.

Children who have symptoms of **Inattention** may:

- Be easily distracted, miss details, forget things, and frequently switch from one activity to another
- Have difficulty focusing on one thing
- Become bored with a task after only a few minutes, unless they are doing something enjoyable
- Have difficulty focusing attention on organizing and completing a task or learning something new
- Have trouble completing or turning in homework assignments, often losing things (e.g., pencils, toys, assignments) needed to complete tasks or activities
- Not seem to listen when spoken to
- Daydream, become easily confused, and move slowly
- Have difficulty processing information as quickly and accurately as others
- Struggle to follow instructions

Children who have symptoms of **Hyperactivity** may:

- Fidget and squirm in their seats
- Talk nonstop
- Dash around, touching or playing with anything and everything in sight
- Have trouble sitting still during dinner, school, and story time



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- Be constantly in motion
- Have difficulty doing quiet tasks or activities.

Children who have symptoms of **Impulsivity** may:

- Be very impatient
- Blurt out inappropriate comments, show their emotions without restraint, and act without regard for consequences
- Have difficulty waiting for things they want or waiting their turns in games
- Often interrupt conversations or others' activities

Treatment of ADHD

Currently available treatments focus on reducing the symptoms of ADHD and improving functioning. Treatments include medication, various types of psychotherapy, education or training, or a combination of treatments.

Medications

The most common type of medication used for treating ADHD is called a "stimulant." Although it may seem unusual to treat ADHD with a medication considered a stimulant, it actually has a calming effect on children with ADHD. Many types of stimulant medications are available. A few other ADHD medications are non-stimulants and work differently than stimulants. Atomoxetine is the only non-stimulant medication approved by the Food and Drug Administration for ADHD, but the effect sizes (a measure of the amount of improvement in ADHD symptoms) are smaller for atomoxetine than for stimulants. Stimulants are typically used first unless there is a contra-indication such as congenital heart problem, abuse of the stimulant medication or side effects preventing use of stimulants. Immediate release preparations can be abused more easily than extended release stimulants.

For many children, ADHD medications reduce hyperactivity and impulsivity and improve their ability to focus, work, and learn. Medication also may improve physical coordination. However, a one-size-fits-all approach does not apply for all children with ADHD. What works for one child might not work for another. One child might have side effects with a certain medication, while another child may not. Sometimes several different medications or dosages must be tried before finding one that works for a particular child. Any child taking medications must be monitored closely and carefully by caregivers and doctors.

Stimulant medications come in different forms, such as a pill, capsule, liquid, or skin patch.

Some medications also come in short-acting, long-acting, or extended release varieties. In each of these varieties, the active ingredient is the same, but it is released differently in the body. Long-acting or extended release forms often allow a child to take the medication just once a day before school, so they don't have to make a daily trip to the school nurse for another dose. Parents and doctors should decide together which medication is best for the child and whether the child needs medication only for school hours or for evenings and weekends, too. ADHD can be diagnosed and medications prescribed by M.D.s (usually a psychiatrist) and in some states also by clinical psychologists, psychiatric nurse practitioners, and advanced psychiatric nurse specialists.

Psychotherapy

Different types of psychotherapy are used for ADHD. Behavioral therapy aims to help a child change his or her behavior. It might involve practical assistance, such as help organizing tasks or completing schoolwork, or working through emotionally difficult events. Behavioral therapy also teaches a child how to monitor his or her own behavior.



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Learning to give oneself praise or rewards for acting in a desired way, such as controlling anger or thinking before acting, is another goal of behavioral therapy. Parents and teachers also can give positive or negative feedback for certain behaviors. In addition, clear rules, chore lists, and other structured routines can help a child control his or her behavior.

Therapists may teach children social skills, such as how to wait their turn, share toys, ask for help, or respond to teasing. Learning to read facial expressions and the tone of voice in others, and how to respond appropriately can also be part of social skills training. A major non-medication treatment is Parent Training in behavioral management of their child, which focuses on positive reinforcement to shape behavior.

HEDIS Measure for ADHD (Follow-Up Care for Children Prescribed ADHD Medication)

First Coast Advantage (FCA) would like to make our providers aware of the national standards for Follow-Up Care for Children Prescribed ADHD Medication. FCA follows the guidelines of the Healthcare Effectiveness and Data Information Sets (HEDIS). These are the most widely used sets of health care performance measures in the United States.

HEDIS measures are developed and maintained using the National Committee for Quality Assurance (NCQA) standards. In accordance with those guidelines, we are measuring the percentage of children newly prescribed attention-deficit/hyperactivity disorder (ADHD) medication who have at least three follow-up care visits within a 10-month period, one of which is within 30 days of when the first ADHD medication was dispensed. The member must have a 120-day (4-month) Negative Medication History on or before the IPSD.

The two following rates are reported:

- **Initiation Phase.** The percentage of members 6-12 years of age as of the Index Prescription Start Date (IPSD) with an ambulatory prescription dispensed for ADHD medication, who had one follow-up visit with practitioner with prescribing authority during the 30-day Initiation Phase.
- **Continuation and Maintenance (C&M) Phase.** The percentage of members 6-12 years of age as of the IPSD with an ambulatory prescription dispensed for ADHD medication, who remained on the medication for at least 210 days and who, in addition to the visit in the Initiation Phase, had at least two follow-up visits with a practitioner within 270 days (9 months) after the Initiation Phase ended.

Initiation Phase:

Step 1 - Identify all children in the specified age range who were dispensed an ADHD medication during the 12-month Intake Period (ADHD Medications Table below).

ADHD Medications Table

Description	Prescription	
CNS stimulants	<ul style="list-style-type: none"> • amphetamine-dextroamphetamine • atomoxetine • dexmethylphenidate 	<ul style="list-style-type: none"> • dextroamphetamine • lisdexamfetamine • methamphetamine

Note: NCQA has posted a comprehensive list of medications and NDC codes to www.ncqa.org



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Step 2 - Test for Negative Medication History. For each member identified in step 1, test each ADHD prescription for a Negative Medication History. The IPSD is the dispensing date of the earliest ADHD prescription in the Intake period with a Negative Medication History.

Step 3 - Calculate continuous enrollment. Members must be continuously enrolled for 120 days prior to the IPSD through 30 days after the IPSD.

Step 4 - Exclude members who had an acute inpatient claim/encounter with a principal diagnosis of mental health (Tables MPT-A, MPT-B) or substance abuse (Table ADD-B) during the 30 days after the IPSD.

Continuation and Maintenance Phase:

Step 1 - Identify all members who meet the eligible population criteria for Rate 1-Initiation Phase.

Step 2 - Calculate continuous enrollment. Members must be continuously enrolled from 31 days (1 month) through 300 days (10 months) after the IPSD.

Step 3 - Calculate the continuous medication treatment. Using the members in step 2, determine if the member filled a sufficient number of prescriptions to provide continuous treatment for at least 210 days out of the 300-day period. The "continuous medication treatment" definition allows gaps in medication treatment, up to a total of 90 days during the 300-day (10-month) period. (This period spans the Initiation Phase [1 month] and the C&M Phase [9 months]).

Allowable medication changes or gaps include the following:

- Washout period gaps to change medication
- Treatment gaps to refill the same medication
- "Drug holidays" from stimulant medication

Regardless of the number of gaps, the total gap days may be no more than 90. The organization may count any combination of gaps (e.g., one washout gap of 14 days and numerous weekend drug holidays).

Step 4 - Exclude members who had an acute inpatient claim/encounter with a principal diagnosis of mental health (Tables MPT-A, MPT-B) or substance abuse (Table ADD-B) during the 300 days after the IPSD.

Suggestions for Improving Follow-Up:

- Counsel the family about their initial response to the condition
- Identify patient and family concerns and goals and help families set specific goals in areas related to the child's condition and its effects on daily activities
- Availability to answer family questions between visits
- Educate about potential side effects of stimulants e.g. decreased appetite, alteration of weight, etc.
- Monitor and update family knowledge and understanding on a periodic basis
- At the refill request, ask the family about the child's functioning in school and interpersonal relationships, as well as updates on communications from the school.
- Ensure coordination of health and other services

For more information on ADHD, please visit the National Institute of Mental Health's Web site: <http://www.nimh.nih.gov>