Clinical Policy Title: Attention deficit hyperactivity disorder (ADHD) — diagnosis and treatment

Clinical Policy Number: 17.02.00

Effective Date: December 1, 2013
Initial Review Date: June 16, 2013
Most Recent Review Date: May 18, 2016
Next Review Date: May 2017

Policy contains:
- Guidelines of diagnosis and medication.
- Quotient ADHD testing.
- Continuous performance testing.

Related policies:
None.

ABOUT THIS POLICY: Keystone First has developed clinical policies to assist with making coverage determinations. Keystone First’s clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of “medically necessary,” and the specific facts of the particular situation are considered by Keystone First when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Keystone First’s clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Keystone First’s clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Keystone First will update its clinical policies as necessary. Keystone First’s clinical policies are not guarantees of payment.

Coverage policy

Keystone First considers the evaluation of children and adults for possible attention deficit hyperactivity disorder (ADHD) by appropriately trained mental health professionals and primary care providers and its treatment with behavioral therapy, including family and classroom therapies and prescription medication management, to be clinically proven and, therefore, medically necessary.

Limitations:

Keystone First considers the use of the Quotient ADHD System test and the employment of continuous performance testing (CPT) by non-mental health professionals to be investigational, as the effectiveness of their use has not been established in peer-reviewed professional literature and, therefore, it is prohibited from coverage by state and/or federal laws and/or regulatory requirements.
Note: The following CPT/HCPCS code is not listed in the Pennsylvania Medicaid fee schedule:

96120 - Neuropsychological testing (eg, Wisconsin Card Sorting Test administered by a computer, with qualified health care professional interpretation and report.
Keystone First considers the use of neuropsychological testing and neuroimaging in the absence of other comorbid indications to be investigational, as the effectiveness of their use has not been established in peer-reviewed professional literature and, therefore, it is prohibited from coverage by state and/or federal laws and/or regulatory requirements.

Alternative covered services:

A primary care physician or a network mental health professional can make the diagnosis of ADHD. Typically these same providers are able to effectively manage the child or adult with ADHD.

Background

The American Academy of Pediatrics (AAP) indicates that ADHD is the most common neurodevelopmental disorder of childhood. In the United States as of 2011-2012, according to parental reports about 11 % of children ages 4-17 years or 6.4 million have a diagnosis of ADHD (Visser 2012).

There is no known cause of ADHD. Studies of twins suggest a genetic basis for at least some cases of ADHD. Other cases appear to have associations with brain injuries and fetal intra-uterine exposures (i.e., lead, tobacco or alcohol).

Diagnosis

ADHD is characterized by both a persistence pattern of inattention and/or hyperactivity-impulsivity that interferes with development or functioning that impacts academic, occupational, and social activities.

Hyperactivity (or hyperkinesis) is commonly a part of the condition; but is not a necessary finding for the diagnosis. Diagnostic criteria for ADHD from the DMS-5 (American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, 2013) are included in Table 1. (Appendix A)

ADHD is generally diagnosed in childhood and may persist into adulthood. An estimated 50 percent of cases occur post-adolescence.

The diagnosis of ADHD is most commonly made by primary care physicians using diagnostic criteria from the DSM-5.

Children are evaluated at the request of parents, teachers or counselors who suspect the diagnosis and observe externalizing behaviors such as impulsivity and disruptiveness or hyperactivity.
In the evaluation of a child for ADHD, the primary care clinician should include assessment for other conditions that might coexist with ADHD, including emotional or behavioral (e.g., anxiety, depressive, oppositional defiant, and conduct disorders), developmental (e.g., learning and language disorders or other neurodevelopmental disorders), and physical (e.g., tics, sleep apnea) conditions (AAP.org, 2011).

There is no evidence that neuropsychological testing is superior to careful history-taking by the treating physician, psychologist or other mental health network provider in the investigation and management of ADHD.

These tests include the Controlled Oral Word Association Test (COWAT), Rey-Osterreith Complex Task (ROCT), Stroop Color and Word Test, Tail Making Test, Wisconsin Card Sort Test (WCST), Freedom from Distractibility Index (FFDI), Wide Range Assessment of Memory and Learning (WRAML), Test of Variables of Attention (TOVA), Conners’ Continuous Performance Test (CPT), and Gordon Diagnostic System (GDS).

A more recent test, the Quotient ADHD System, has been marketed to primary care physicians for diagnosis and ongoing clinical assessment for both children and adults.

Studies in the 1990s suggested that performance of psychological inventories could be used as a gauge of effectiveness of therapy. Subsequent experience and studies have not demonstrated superiority of use of psychological testing or of tests such as the Quotient Rx or continuous performance test over clinical assessment alone in final outcomes.

As such, the role of these tests in final outcomes is not clear. Neither the AAP nor the AACAP guidelines recommend the use of such psychological inventories for diagnosis or management of ADHD.

**Treatment**

The cornerstones of treatment for ADHD are behavioral therapy and FDA-approved prescription medications. The CDC recommends that parents of young children ages 2-5 years with ADHD be referred for behavior training before prescribing medication. (http://www.cdc.gov/media/releases/2016/p0503-children-adhd.html).

Guidelines published by both the AACAP and the AAP emphasize this bi-therapeutic approach. Evidence-based studies have demonstrated improvement in ADHD-associated behavior with behavioral parent training (BPT) that help the child regulate his or her own behavior. Behavioral therapy techniques used in the classroom have also been helpful in managing the child’s behavior in a classroom setting.

Drug management relies on the use of stimulant medications that may have the effect of reducing the hyperactivity component, allowing the child to better focus. The list of medications suggested by the National Institute of Mental Health is included in Table 2. (Appendix A). Recommendations for medication treatment include first line use of stimulants, consideration of extended release alpha 2 adrenergic agonists concurrently, and atomoxetine as alternative for patients who cannot tolerate stimulants.
There are two extended release alpha 2 agonists that are FDA approved for treatment of ADHD in children 6-17 years.

**Reassessment**

The AACAP recommends reevaluation of patients being treated for ADHD several times a year to individualize medication management and behavioral therapy. The frequency of such visits must be tailored to the needs of the individual patient.

The AAP recommends development of a communication system between the treating provider, patient, family, and school or social systems to maximize the effectiveness of treatment.

**Searches:**

Keystone First searched PubMed and the databases of:

- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality’s National Guideline Clearinghouse and other evidence-based practice centers.
- The Centers for Medicare & Medicaid Services (CMS).

We conducted searches on April 22, 2016. Search terms were: “attention deficit,” “ADHD” and “hyperactivity.”

We included:

- **Systematic reviews**, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- **Guidelines based on systematic reviews**.
- **Economic analyses**, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

**Findings**

**Policy updates:**

In February 2016, recommendations about dietary advice were updated. See Appendix B:

**Summary of clinical evidence:**

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epstein (2014)</td>
<td>Key points:</td>
</tr>
<tr>
<td></td>
<td>Methylphenidate efficacious for ADHD (Level A):</td>
</tr>
</tbody>
</table>
- Systematic review (SR) or 11 randomized controlled trials (474 participants) found immediate-release methylphenidate is efficacious for treating adults with ADHD with symptoms of hyperactivity, impulsivity and inattentiveness, and for improving their overall clinical condition.
- Trial data suggest that adverse effects from immediate-release methylphenidate for adults with ADHD are not of serious clinical significance.

**Otasowie (2014)**

**Key points:**

Tricyclic antidepressant (TCA) as alternative therapy in ADHD (Level A):
- SR of six RCTs inclusive of 216 participants found TCAs, particularly desipramine, appear efficacious for treating ADHD in children and adolescents in the short term, but there are newer and safer alternative medications.
- First-line stimulants (methylphenidate and amphetamine derivatives) and non-stimulants (atomoxetine and alpha agonists) are alternative medications.
- TCAs may be considered as third-line medication for ADHD treatment.

**AAP Clinical Practice Guideline (2011)**

**Key points:**

APP Practice Guidelines (Level C):
- The primary care provider (PCP) should initiate evaluation for children and adolescents (4 – 18 years of age) if academic or behavioral problems of inattention, hyperactivity or impulsivity exist.
- Diagnosis is based on DSM criteria, not psychological testing.
- PCP should also test neurodevelopmental disorders.
- Chronic nature of condition requires supportive home environment.

**NICE (2008) (Currently under review)**

**Key points:**

NICE Guidelines (Level C):
- Diagnosis should be made by qualified health care professionals with training in ADHD.
- A diagnosis of ADHD should not be made solely on the basis of a rating scale or observational data.
- Rating scales (e.g., Conners’ rating scales and Strengths and Difficulties questionnaire) are valuable adjuncts.
- Observations (e.g., teachers at school) are useful when there is doubt about symptoms.
- Diagnosis must meet DSM criteria.

**AACAP (2007)**

**Key points:**

AACAP Guidelines (Level C):
- Screening for ADHD should be part of child and adolescent mental health assessment.
- Evaluation for ADHD should consist of clinical interview with parent and patient.
- If patient’s medical history is unremarkable, laboratory or neurological testing is not indicated.
- If ADHD is present, a comprehensive treatment plan should be developed, including behavioral and pharmaceutical management.
- Observation for medication side effects with FDA-approved drugs physician should be part of the follow-up plan.
- There is no evidence to support psychological testing to monitor ADHD treatment.
Rushton (2004)  

Key points:

Professional survey of providers (Level C):

- Survey of 1,374 PCPs in Michigan with 60 percent returned the questionnaire.
- 77.4 percent of PCPs were familiar with AAP guidelines on ADHD.
- Only 25.8 percent of PCPs reported routine use of all four diagnostic criteria for ADHD.
- PCPs continue to employ continuous performance testing, neuroimaging and laboratory results as diagnostic tools.
- Approximately 50 percent of clinicians see ADHD patients on stimulant meds three to four times a year.

Glossary

Attention deficit hyperactivity disorder — A disorder initially diagnosed in childhood but also seen in adults, with persistent patterns of inattention and/or hyperactivity.

Continuous performance test — A neuropsychological test to determine if the response is normal or is suggestive of ADHD.

Medically necessary — A service or benefit is medically necessary if it is compensable under the Medical Assistance program and if it meets any one of the following standards:

- The service or benefit will, or is reasonably expected to, prevent the onset of an illness, condition or disability.
- The service or benefit will, or is reasonably expected to, reduce or ameliorate the physical, mental or developmental effects of an illness, condition, injury or disability.
- The service or benefit will assist the member to achieve or maintain maximum functional capacity in performing daily activities, taking into account both the functional capacity of the member and those functional capacities that are appropriate for members of the same age.

Mental health professional — Professionals duly trained, licensed and credentialed in the fields of psychiatry and psychology (master’s or Ph.D. level) and licensed clinical social workers.

Neuropsychological — This involves the relationship between the brain and central nervous system and behavioral or psychological disorders.

Stimulant medications — This class of drugs typically causes excitement and alertness in the normal individual but is calming in the person with ADHD.

References

Professional society guidelines/others:


Peer-reviewed references:


Gualtieri CT, Johnson LG. ADHD: Is objective diagnosis possible? Psychiatry 2005


Clinical trials:

Searched clinicaltrials.gov on April 16 2016 using terms attention deficit,” “ADHD” and “hyperactivity.” | Open Studies. 152 studies found, 152 relevant.

Available at ClinicalTrials.gov web site:

CMS National Coverage Determinations (NCDs):

No NCDs identified as of the writing of this policy.

Local Coverage Determinations (LCDs):

No LCDs identified as of the writing of this policy.

Commonly submitted codes

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill in accordance with those manuals.

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>96118</td>
<td>Neuropsychological testing (e.g., Halstead-Reitan Neuropsychological Battery, Wechsler Memory Scales and Wisconsin Card Sorting Test) per hour of physician’s or psychologist’s time, both face-to-face time administering tests to the patient and time interpreting these test results and preparing the results.</td>
<td></td>
</tr>
<tr>
<td>96119</td>
<td>Neuropsychological testing (e.g, Halstead-Reitan Neuropsychological Battery, Wechsler Memory Scales and Wisconsin Card Sorting Test) with qualified health care professional interpretation and report, administered by technician, Per hour of technician time, face-to-face.</td>
<td></td>
</tr>
<tr>
<td>96120</td>
<td>Neuropsychological testing (e.g, Wisconsin Card Sorting Test administered by a computer, with qualified health care professional interpretation and report.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICD-10 Code</th>
<th>Description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>F90.0</td>
<td>Attention-deficit hyperactivity disorder, predominantly inattentive type</td>
<td></td>
</tr>
<tr>
<td>F90.1</td>
<td>Attention-deficit hyperactivity disorder, predominantly hyperactive type</td>
<td></td>
</tr>
<tr>
<td>F90.2</td>
<td>Attention-deficit hyperactivity disorder, combined type</td>
<td></td>
</tr>
<tr>
<td>F90.8</td>
<td>Attention-deficit hyperactivity disorder, other type</td>
<td></td>
</tr>
<tr>
<td>F90.9</td>
<td>Attention-deficit hyperactivity disorder, unspecified type</td>
<td></td>
</tr>
</tbody>
</table>
Appendix A

Table 1

ADHD consists of a pattern of behavior present in multiple settings where it gives rise to social, educational or work performance difficulties.

A. Either (A1) or (A2):

A1. Inattention

Six or more of the following symptoms of inattention have been present for at least six months to a degree that is inconsistent with developmental level and that impact directly on social and academic/occupational activities.

a. Often does not give close attention to details or makes careless mistakes in schoolwork, work or other activities (e.g., overlooks or misses details, work is inaccurate).

b. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations or reading lengthy writings).

c. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).

d. Often does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked; fails to finish schoolwork, household chores or tasks in the workplace).

e. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; poor time management; tends to fail to meet deadlines).

f. Often avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms or reviewing lengthy papers).

g. Often loses things needed for tasks and activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses or mobile telephones).

h. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).

i. Is often forgetful in daily activities (e.g., chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

A2. Hyperactivity and impulsivity:

Six or more of the following symptoms of hyperactivity and impulsivity have been present for at least six months to a degree that is inconsistent with developmental level and that impact directly on social and academic/occupational activities.

Hyperactivity:

a. Often fidgets with hands or feet or squirms in seat.

b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, office or other workplace, or in other situations that require remaining seated).

c. Often runs about or climbs in situations where it is inappropriate. (In adolescents or adults, may be limited to feeling restless.)

d. Often unable to play or engage in leisure activities quietly.

e. Is often "on the go" or often acts as if "driven by a motor" (e.g., is unable or
uncomfortable being still for an extended time, as in restaurants, meetings, etc.; may be experienced by others as being restless and difficult to keep up with).

f. Often talks excessively.

g. Often blurts out answers before questions have been completed (e.g., completes people’s sentences and “jumps the gun” in conversations, cannot wait for next turn in conversation).

h. Often has trouble waiting his or her turn (e.g., while waiting in line).

i. Often interrupts or intrudes on others (e.g., butts into conversations or games or activities; may start using other people’s things without asking or receiving permission; adolescents or adults may intrude into or take over what others are doing).

B. Some symptoms that cause impairment were present prior to age 12.

C. Criteria for the disorder are met in two or more settings (e.g., at home, school or work, with friends or relatives, or in other activities).

D. There must be clear evidence that the symptoms interfere with or reduce the quality of social, academic or occupational functioning.

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

Specify based on current presentation:
Combined presentation: If both Criterion A1 (inattention) and Criterion A2 (hyperactivity-impulsivity) are met for the past six months.

Predominantly inattentive presentation: If Criterion A1 (inattention) is met but Criterion A2 (hyperactivity-impulsivity) is not met and three or more symptoms from Criterion A2 have been present for the past six months.

Inattentive presentation (restrictive): If Criterion A1 (inattention) is met but no more than two symptoms from Criterion A2 (hyperactivity-impulsivity) have been present for the past six months.

Predominantly hyperactive/impulsive presentation: If Criterion A2 (hyperactivity-impulsivity) is met and Criterion A1 (inattention) is not met for the past six months.

Coding note: For individuals (especially adolescents and adults) who currently have symptoms that no longer meet full criteria, “in partial remission” should be specified.

**ADHD not elsewhere classified** may be coded in cases in which the individuals are below threshold for ADHD or for whom there is insufficient opportunity to verify all criteria. However, ADHD-related symptoms should be associated with impairment, and they are not better explained by any other mental disorder.

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Table 2
Stimulant and non-stimulant medications approved for use in the treatment of ADHD

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Generic name</th>
<th>Approved age (years)</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Medicine</th>
<th>Active Substance</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adderall</td>
<td>amphetamine</td>
<td>3 and older</td>
</tr>
<tr>
<td>Adderall XR</td>
<td>amphetamine (extended release)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Catapres, Kapvay Duraclon, Jenloga, Kapvay, Nexiclon XR</td>
<td>Clonidine (extended release)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Concerta</td>
<td>methylphenidate (long acting)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Daytrana</td>
<td>methylphenidate patch</td>
<td>6 and older</td>
</tr>
<tr>
<td>Desoxyn</td>
<td>methamphetamine hydrochloride</td>
<td>6 and older</td>
</tr>
<tr>
<td>Dextedrine</td>
<td>dextroamphetamine</td>
<td>3 and older</td>
</tr>
<tr>
<td>Dextrostat</td>
<td>dextroamphetamine</td>
<td>3 and older</td>
</tr>
<tr>
<td>Focalin</td>
<td>dextromethylphenidate</td>
<td>6 and older</td>
</tr>
<tr>
<td>Focalin XR</td>
<td>dextromethylphenidate (extended release)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Intuniv</td>
<td>guanfacine</td>
<td>6 and older</td>
</tr>
<tr>
<td>Metadate ER</td>
<td>methylphenidate (extended release)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Metadate CD</td>
<td>methylphenidate (extended release)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Methylin</td>
<td>methylphenidate (oral solution and chewable tablets)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Ritalin</td>
<td>methylphenidate</td>
<td>6 and older</td>
</tr>
<tr>
<td>Ritalin SR</td>
<td>methylphenidate (extended release)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Ritalin LA</td>
<td>methylphenidate (long acting)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Strattera (non-stimulant)</td>
<td>Atomoxetine</td>
<td>6 and older</td>
</tr>
<tr>
<td>Vyvanse</td>
<td>lisdexamfetamine dimesylate</td>
<td>6 and older</td>
</tr>
</tbody>
</table>


Appendix B


1.4.2 Dietary advice

1.4.2.1 Health care professionals should stress the value of a balanced diet, good nutrition and regular exercise for children, young people and adults with ADHD. [2008]

1.4.2.2 Do not advise elimination of artificial colouring and additives from the diet as a generally applicable treatment for children and young people with ADHD. [2016]

1.4.2.3 Ask about foods or drinks that appear to influence hyperactive behavior as part of the clinical assessment of ADHD in children and young people, and:

- If there is a clear link, advise parents or carers to keep a diary of food and drinks taken and ADHD behavior.
- If the diary supports a relationship between specific foods and drinks and behavior, offer referral to a dietician.
- Ensure that further management (for example, specific dietary elimination) is jointly undertaken by the dietician, mental health specialist or pediatrician, and the parent or carer and child or young person. [2016]
1.4.2.4 Do not advise or offer dietary fatty acid supplementation for treating ADHD in children and young people. [2016]

1.4.2.5 Advise the family members or carers of children with ADHD that there is no evidence about the long-term effectiveness or potential harms of a “few food” diet for children with ADHD, and only limited evidence of short-term benefits. [new 2016]