Pediatric Attention-Deficit/Hyperactivity Disorder Guideline

These clinical guidelines are designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients. They are not intended to replace a clinician's judgment or to establish a protocol for all patients with a particular condition. A guideline will rarely establish the only approach to a problem.

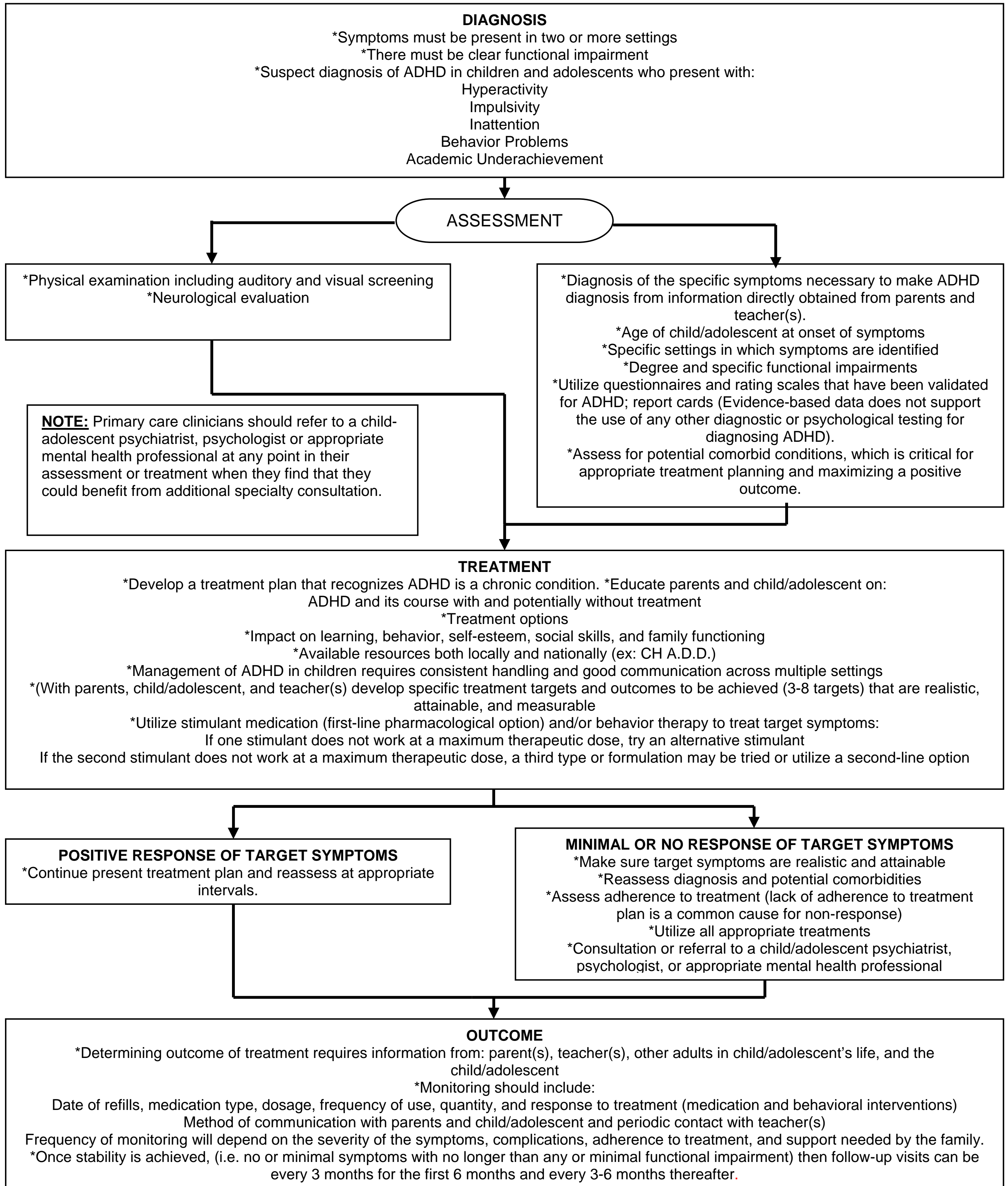
GUIDELINE HISTORY and APPROVAL

ACTION	SEED GUIDELINE and/or MAIN INFORMATION & SOURCE(S)	DATE	ORGANIZATION
Guideline Reviewed, Revised, And Approved	1. American Academy of Pediatrics: Clinical Practice Guideline Diagnosis and Evaluation of the Child with ADHD 2. National Institute of Mental Heath (NIMH) Consensus Statement Diagnosis and Treatment of ADHD Volume 16, Number 2, November 16-18, 1998. 3. Review of 2004 Cigna Behavioral Health(CBH) Pediatric ADHD algorithm	March 11, 2004	Geisinger Health Plan Pediatric Attention Deficit Hyperactivity Disorder (Peds ADHD) Guideline Team
Guideline Reviewed and Approved	Same as above.	April 1, 2004	Geisinger Health Plan Guideline Committee
Guideline Reviewed, Revised, and Approved	Same as above.	April 28, 2004	Geisinger Health Plan Quality Improvement Committee
Guideline Reviewed and Approved	Same as above.	March 5 - April 3, 2004	Geisinger Health Plan Pharmacy
Guideline Reviewed and Approved	Same as above.	May 5, 2004	Geisinger Health Plan Medical Management Committee (MMC)
Guideline Reviewed and Approved	Same as above.	May 6-26, 2004	Geisinger Health Plan Medical Directors
Guideline Reviewed and Approved	Same as above.	July 1, 2004	Geisinger Health Plan Guideline Committee
Guideline reviewed and approved	Same as above	Aug. 31, 2005	Geisinger Health Plan/(Peds ADHD) Guideline Team
Guideline reviewed and approved	Same as above	Sept. 12, 2005	Geisinger Health Plan Guideline Committee
Guideline reviewed and approved	Same as above	Sept. 13, 2005	Geisinger Health Plan Pharmacy
Guideline reviewed and approved	Same as above	Sept 19-30, 2005	Geisinger Health Plan/Medical Directors
Guideline reviewed and approved	Same as above	Nov. 9, 2005	Geisinger Health Plan Guideline Committee

Guideline reviewed and approved	Same as above	Dec. 5,2005	Geisinger Health Plan Medical Management Committee (MMC)
Guideline reviewed and approved	Same as above	Jan. 25, 2006	Geisinger Health Plan Quality Improvement Committee
Guideline reviewed	1. American Academy of Pediatrics: Clinical Practice Guideline Diagnosis and Evaluation of the Child with ADHD. 2001 2. American Academy of Child and Adolescent Psychiatry. Practice Parameter for the Assessment and Treatment of Children and Adolescents with Attention – Deficit/Hyperactivity Disorder. 2007	July 16, 2007	Geisinger Health Plan Guideline Committee
Guideline reviewed	Same as above	July 19, 2007	Geisinger Health Plan Pharmacy
Guideline reviewed	Same as above	June 25 – Oct.25, 2007	Specialty physician review
Guideline reviewed	Same as above	Dec. 5-14, 2007	Geisinger Health Plan/Medical Directors
Guideline reviewed	Same as above	Dec. 17, 2007	Geisinger Health Plan Medical Management Committee (MMC)
Guideline reviewed	Same as above	Jan. 23, 2008	Geisinger Health Plan Quality Improvement Committee
Guideline reviewed	Same as above	July 1, - , 2009	Geisinger Health Plan Guideline Committee
Guideline reviewed	Same as above	Aug 10 – Sept 9 , 2009	Specialty physician review
Guideline reviewed	Same as above	Dec. 15-21, 2009	Geisinger Health Plan/Medical Directors
Guideline reviewed	Same as above	Dec 21, 2009	Geisinger Health Plan Medical Management Committee (MMC)
Guideline reviewed	Same as above	Jan. 27, 2010	Geisinger Health Plan Quality Improvement Committee

Vice President, Chief Medical Officer
Geisinger Health Plan

This guideline is intended for use by primary care clinicians for the management of children between the ages of 6 and 12 years of age with ADHD. ADHD has 3 forms: a) Combined type (both inattention and hyperactivity). b) Predominantly inattentive type (little or no hyperactivity). c) Predominantly hyperactive-impulsive type (little or no inattention). Combined type is diagnosed when both inattention and hyperactivity/impulsivity criteria are met for a period of 6 months. Inattentive type is diagnosed when only inattention criteria are met for a period of 6 months. Hyperactive-impulsive type is diagnosed when only hyperactivity/impulsivity criteria are met for a period of 6 months.



DSM-IV 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 six 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 (e.g. 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 six months to a degree that is maladaptive and inconsistent with developmental level:

   Hyperactivity

   a. Often fidgets with hands or feet and 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 (e.g. butts into conversations or games)
   j. Some hyperactive/impulsive or inattentive symptoms that caused impairment were present before age seven.

B. Some hyperactive/impulsive or inattentive symptoms that caused impairment were present before age seven.

C. Some Impairment from the symptoms is present in two or more settings (e.g. 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 (e.g. mood disorder, anxiety disorder, dissociative disorder or a personality disorder).

ASSESSMENT

• Physical and Neurological Exam: o Vital Signs including height and weight o Hearing and Vision o General Appearance o Mental Status	• Home/Family Interactions: o Disorganization of personal space o Anger/rage reactions o Homework organization and completion
• Comorbid Conditions: o Oppositional defiant disorder o Conduct disorder o Anxiety o Depression o Learning/Language Disorders	• School Performance o Teacher(s) Report o Report Cards o Reprimands or notes sent home from school o Extracurricular activities and performance
• Substance Use History o Type and Amount (Any amount is relevant)	• Social Skills o Friendships o Group Cohesion o Strengths and Interests
• Problems with the legal system o Arrests o Traffic Tickets o Motor Vehicle Accidents	

EVIDENCE BASED ADHD INFORMATION

- Prevalence of ADHD (in school age population)
  - Community Based Population 10% (5.8% - 13.6% males, 1.9% - 4.5% female)
  - School Based Population – 7%
  - Hyperactive type more males; Inattentive type more females
- At least 50% of children/adolescents with ADHD exhibit significant residual symptoms in adulthood.
- Stimulant medication is the standard of care for pharmacological treatment and evidence based demonstrates it is also more efficacious than psychosocial interventions.
  - 80% of patients with ADHD will respond to one of the stimulants if they are used in a systematic manner.
  - Documented effects of ADHD stimulant responders includes: Reduced motor activity to the level of their peer group, decreased excessive talking, noise and disruption in the classroom, improved handwriting, improved fine motor control, reduced anger, reduced bossiness with peers, reduced verbal and physical aggression with peers, reduced impulsive stealing and property destruction, reduced defiance and oppositional behavior with adults, decreased intensity of behavior, improved peer social status, improved ability to play and work independently, improved mother-child and family interactions, improved sustained attention, improved short-term memory, reduced distractibility, reduced impulsivity, increased the amount of academic work completed, increase in the accuracy of academic work
- Currently, genetic loading appears to be the primary cause of ADHD; however, many environmental correlations have been found in studies that may prove to represent etiologic connection as research progresses.

PSYCHOSOCIAL TREATMENT OPTIONS

- ***Behavioral Techniques:***
- Positive reinforcement – providing rewards/privileges contingent on the child's/adolescent's performance.
- Time-out – removing access to positive reinforcement contingent on performance of unwanted/problem behavior.
- Token economy – combining positive reinforcement and response cost. The child earns rewards/privileges contingent on performing desired behaviors and loses the rewards/privileges based on undesirable behavior.
- Self-mediated strategies – children/adolescents self-monitor and self-reinforce rewards for meeting determined goals.
- Modeling – helps children/adolescents develop social skills and use role playing to teach appropriate behavior.
- Cognitive-behavioral strategies problem solving and anger management skills are taught so they can be used in particular situations.
- Peer mediated interventions – peers monitor behavior and distribute tokens when earned. This must be monitored in order to avoid a negative impact on peer relations.
- Social skills treatment
- Educational therapy

ADHD and Comorbidities

Condition	Rate
Conduct disorder	35%
Oppositional defiant disorder	26%
Anxiety disorders	26%
Depressive disorders	18%
Substance abuse/use disorders	27% - 47% (in untreated ADHD individuals)
Learning disabilities	20%
Tourette's Syndrome (TS)	40% to 60% of TS Clinic populations suffer from some form of ADHD, but the opposite is not true for ADHD diagnosed patients

Internet Sites

American Academy of Family Physicians (AAFP)
http://www.aafp.org
American Academy of Pediatrics (AAP)
http://www.aap.org
American Medical Association (AMA)
http://www.ama-assn.org
Attention-Deficit Disorder Association (ADDA)
http://www.add.org
Center for Mental Health Services Knowledge Exchange Network
http://www.mentalhealth.org
Children and Adults With Attention-Deficit Disorder (CH.A.D.D.)
http://wwwchadd.org
Comprehensive Treatment for Attention-Deficit Disorder (CTADD)
http://www.ctadd.com
eMedicine
http://www.emedicine.com
National Institute of Mental Health (NIMH)
http://www.nimh.nih.gov/publicat/adhmenu.cfm
Vanderbilt Child Development Center
http://www.peds.mc.vanderbilt.ed/cdc/rating~1.html
Learning Disabilities Association of America
http://www.ldanatl.org
US Department of Education
http://www.ed.gov

ADHD QUESTIONAIRES AND RATING SCALES

*Conners
- Patient
- Teacher

*Barkley's School situations Questionaire
- Number of Problem Setting Scale
- Mean Severity Scale

MEDICATIONS USED IN THE TREATMENT OF ADHD

GENERIC/BRAND NAME		DURATION OF EFFECT
Stimulants: First-line Treatment		
Short acting – Methylphenidate Ritalin, Metadate, Methlyn,dexmethylphenidate		3-5 hours
Intermediate-acting – Methylphenidate Ritalin SR, Metadate ER, Methylin ER		4-8 Hours
Extended/Prolonged-acting – Methylphenidate Concerta* Metadate CD, Ritalin LA** Daytrana Focalin XR**		8-12 Hours
Short-acting - Amphetamine Dexadrine, Dextrostat dextroamphetamine		4-5 Hours
Intermediate Acting – Amphetamine/dextroamphetamine Adderall		4-6 Hours
Extended/Prolonged-acting Amphetamine/dextroamphetamine Adderall XR		8-12 Hours
Pemoline/Cylert***		4 Hours
Non-Stimulants: Second Line Treatment		
Atomoxetine (SNRI) (Strattera)		24 Hours
Unlabeld use Bupropion (NDRI) (mhs) Wellbutrin (mhs) Wellbutrin SR (mhs)		24 Hours
Unlabeled use TCAs (mhs) Imipramine/Tofranil (mhs) Desipramine/Norpramin (mhs)		24 Hours
Alpha-adrenergic agonist**** Unlabled use Clonidine/Catapres (mhs) Guanfacine/Tenex (mhs)		May require more than once a day dosing
*Do not cut, crush or chew **Can be sprinkled ***Hepatotoxicity including fatal liver failure has occurred; caution is suggested in prescribing ****Generally used for aggressive behavior, hyperarousal or night time sedation as an adjunctive medication to one of the stimulants. Has been associated with (rare) death when co-administered with methylphenidate. (mhs): If prescribing this medication is warranted, physicians are encouraged to seek participation of a mental health specialist (mhs) in the treatment plan.	FOR ALL MEDICATIONS LISTED ABOVE SEE PDR FOR COMPLETE PRESCRIBING, MONITORING, SIDE-EFFECT, and DRUG INTERACTION INFORMATION **Consider pre-treatment EKG if patient has a history of or risk factors for cardiac problems.** **Consider pre-treatment ALT is patient has a history of or risk factors for liver dysfunction.**	**Note: Pharmaceutical coverage is dependent upon individual pharmacy benefit design and certain drugs may require prior authorization. Providers are encouraged to review the GHP Formulary at http://www.thehealthplan.com, or contact the GHP Pharmacy Department at 1-800-988-4861.**

References

References APA: Diagnostic & Statistical Manal of Mental Disorders. 4th ed text rev (DSM-IV-TR). Washington, DC; APA : 2000. AAP: Clinical Practice Guideline-Diagnosis & Evaluation of the Child With ADHD. Pediatrics May 2000;105:1158-1170. AAP: Clinical Practice Guideline-Treatment of the School-Aged Child With ADHD. Pediatrics Oct 2001;108:1033-1044. Bezchlibnyk-Butler K & Jefries J (ed). Clinical Handbook of Psychotropic Drugs 10th edition 2000. Hogrefe & Huber Publisher eMedicine: www.eMedicine.com. Chang KD: Attention-Deficit/Hyperactivity Disorder. Greenhill L (ed). Process of Care: An Evidence-Based Approach to Treating and Managing ADHD: Updating the Standard of Care. CME Certified Monograph. University of Medicine & Dentistry; Newark, NJ & Millennium Medical Communications; Hampton, NH March 2003; APA Working Group on Psychoactive Medications for Children and Adolescents 2006. Psychopharmacological, psychosocial, and combined interventions for childhood disorders: Evidence base, contextual factors, and future directions. Washington DC: American Psychological Association. Sept. 2006 http://www.apa.org/pi/cyf/childmeds.pdf.; Center for Children and Families at University of Buffalo http://ccf.buffalo.edu/pdf/PsychosocialFactSheet.pdf.

The ultimate judgement regarding any specific clinical procedure is the responsibility of the treating physician, based on a current knowledge of psychotherapeutic technique and Psychpharmacology, dosages, drug interactions, side-effects and the presenting Circumstances of the patient.

Measures

Measure 1: Initiation Phase: The percentage of members 6-12 years of age as of the Index Prescription Episode Start Date (IPSD) with an ambulatory prescription dispensed for ADHD medication and who had one follow-up visit with a practitioner with prescribing authority during the 30-day Initiation Phase.

- **Numerator:** All children ages 6-12 years of age who were dispensed an ADHD medication during the Intake Period and who had one outpatient, intensive outpatient or partial hospitalization follow-up visit with a practitioner with prescribing authority within 30 days after the Index Prescription Episode Start Date; this visit must be face-to-face with the practitioner.
  - Do not count the Index Prescription Start Date as the Initiation follow-up visit.
  - Emergency room visits do not count toward the numerator.)
- **Denominator:** All children ages 6-12 years of age who were dispensed an ADHD medication during the Intake Period.
  - ***Subtract Exclusions:***
    - Members without a Negative Medication History for 120 days prior to the Index Prescription Start Date.
    - Members not continuously enrolled for 120 days prior to the IPSD through 30 days after the IPSD.
    - Members who had an acute inpatient claim/encounter with a principal diagnosis of mental health or substance abuse during the 30 days after the IPSD.
    - Members diagnosed with narcolepsy at any point in their medical history.

Rationale: Guidelines state that treatment should "utilize medication (first-line pharmacological option) and/or behavior therapy to treat target symptoms."

Measure 2: Continuation and Maintenance (C&M) Phase: The percentage of members 6-12 years of age as of the Index Prescription Start Date with an ambulatory prescription dispensed for ADHD medication who remained on the medication for at least 210 days and had at least two follow-up visits with a practitioner within 9 months after the Initiation Phase ends. (The C&M Phase spans from 31 days to 300 days [a total of 9 months] after the Index Prescription Start Date.

- **Numerator:** All children ages 6-12 years of age who were dispensed an ADHD medication during the Intake Period and who had one ambulatory follow-up visit with a practitioner with prescribing authority within 30 days after the Index Prescription Start Date, as defined in the Measure 1 Numerator, ***and***
  - Who also had at least two follow-up visits with a practitioner within 30 days after the Index Prescription Start date through 300 days after the Index Prescription Start Date. One of these visits may be conducted on the telephone with practitioner.
- **Denominator:** The percentage of members 6-12 years of age as of the Index Prescription Start Date with an ambulatory prescription dispensed for ADHD medication who remained on the medication for at least 210 days and had at least two follow-up visits with a practitioner within 9 months after the Initiation Phase ends.
  - ***Subtract Exclusions:***

- Members without a Negative Medication History for 120 days prior to the Index Prescription Start Date.
- Members not continuously enrolled for 30 days after the IPSD through 300 days after the IPSD.
- Members with gaps in treatment exceeding a total of 90- days in a 300 day period to include “washout gaps” to change medications, “treatment gaps” to refill same medications, and “drug holidays.”
- Members who had an acute inpatient claim/encounter with a principal diagnosis of mental health or substance abuse during the 300 days after the IPSD.
- Members diagnosed with narcolepsy at any point in their medical history.

Rationale: Guidelines indicate a need for continued treatment.