**ADHD CLINICAL PATHWAY – Gardner Packard Children’s Health Center**

Original version 8/17/15. Updated 8/26/17

*Diagnosis*

1. IDENTIFY signs and symptoms of ADHD in children 4-18 years old.

* Typical presentation: concerns about behavior or school performance.
* Use [DSM V criteria](http://www.cdc.gov/ncbddd/adhd/diagnosis.html) from May 2013 – key points:
* Symptoms of inattention and/or hyperactivity/impulsivity present for at least 6 months
* Symptoms present in two or more settings and interfere with daily function
* Symptoms were present before 12 years of age

2. Perform a DIAGNOSTIC EVALUATION:

* History of the problem including age of onset, behavioral issues, school problems and tics
* Family history including ADHD, psychiatric illness, drug abuse and addiction
* Social history including living situation, child care, and psychosocial stress
* Physical examination: look for obesity, tonsillar hypertrophy, allergic rhinitis (see item 3)
* Give parents a diagnostic instrument (available at [heardalliance.org](http://www.heardalliance.org/professionals-tools/) English/Spanish combined):
  + - [Vanderbilt Parent Questionnaire Initial](http://www.heardalliance.org/wp-content/uploads/2011/04/ADHD-Vanderbilt-Parent-Initial-Screen.pdf)
    - [Vanderbilt Teacher Questionnaire Initial](http://www.heardalliance.org/wp-content/uploads/2011/04/ADHD-Vanderbilt-Teacher-Initial-Screen.pdf)

3. Assess for CONFOUNDING ENVIRONMENTAL FACTORS and rule out UNDERLYING MEDICAL OR PSYCHIATRIC ILLNESS:

* Diet – excess caffeine intake (coffee, tea, energy drinks), inadequate [omega 3 fatty acids](http://www.fammed.wisc.edu/sites/default/files/webfm-uploads/documents/outreach/im/handout_omega3_fats_patient.pdf)
* Environmental toxins (including pesticides), lack of exposure to nature
* Sleep apnea or restless legs: send for a sleep consult
* Hyperthyroidism: check fT4 and TSH if indicated
* Iron deficiency: consider a ferritin level
* Psychosocial stress, depression, anxiety, psychosis: send for a mental health evaluation

4. Schedule a FOLLOW-UP VISIT to review Vanderbilt questionnaires and initiate treatment.

[Score Vanderbilt questionnaires](http://www.heardalliance.org/wp-content/uploads/2011/04/ADHD-Vanderbilt-Scoring-Instructions.pdf)

If ADHD is confirmed discuss the 4 modes of treatment:

* Behavioral therapy (counseling)
* Educational program
* Lifestyle (diet, sleep, exposure to nature)
* Medication

*Management*

AGE BASED TREATMENT (per AAP 2011 [Clinical Practice Guideline For The Diagnosis, Evaluation, And Treatment Of Attention-Deficit/Hyperactivity Disorder In Children And Adolescents](http://pediatrics.aappublications.org/content/128/5/1007.full.pdf+html?sid=a302f808-d6bf-4737-9f90-46431f889de4)):

* Start with behavioral therapy for 4-5 years old
* Prescribe a stimulant and/or behavioral therapy for 6-11 years old
* Prescribe medication +/- behavioral therapy for 12-18 years old

Provide resources for COUNSELING at Gardner or elsewhere:

* [Santa Clara County Behavioral Health Services Call Center,](https://www.sccgov.org/sites/bhd/Services/CallCenter/Pages/default.aspx) 800-704-0900
* [San Mateo County Access Call Center](http://smchealth.org/mentalhealth), 800-686-0101
* Refer to DEVELOPMENT & BEHAVIOR or PSYCHIATRY for complicated ADHD or suspected mental illness.

Assist parents in requesting a multidisciplinary team evaluation and individualized education plan (IEP) at the local public elementary school.

[IEP request letters](http://med.stanford.edu/ppc/resources/DBP.html)

Be familiar with PUBLIC LAWS applicable to ADHD:

* Section 504 of the Rehabilitation Act of 1973: civil rights statute prohibiting discrimination against individuals with disabilities. Requires appropriate education services to meet the needs of students with disabilities (example: classroom accommodation).
* IDEA (Individuals with Disabilities Act) of 1990. Last reauthorized in 2004. Entitles all children with disabilities to a free and appropriate public education, including special education.

Start MEDICATION for children ≥ 6 years old if agreeable to the parent.

* Ask about *family history of sudden cardiac death, Wolf Parkinson White, hypertrophic cardiomyopathy and prolonged QT interval* and if positive send for an EKG or cardiology consult before starting medication.
* Note the California requirement for schedule II drugs: secure prescriptions (paper or electronic)
* Note the FDA rule of 2007 for controlled substances – allows advance supply of 90 days

CATEGORIES OF DRUGS:

1. Stimulants: methylphenidate, dexmethylphenidate, amphetamine, dextroamphetamine, lisdexamfetamine

2. Non-stimulant norepinephrine reuptake inhibitor: atomoxetine

3. Alpha 2 adrenergic agonists: extended release guanfacine and clonidine

See [Supplemental Table 3 on page S113](http://pediatrics.aappublications.org/content/suppl/2011/10/11/peds.2011-2654.DC1/zpe611117822p.pdf) from the AAP implementation guide, 2011

Initial drug: METHYLPHENIDATE

* Short acting (duration 3 to 5 hours) – Ritalin 5, 10 and 20 mg tablets
  + Start with 2.5 or 5 mg once or twice daily
  + Increase by 2.5 to 5 mg per dose up to a maximum of 2 mg/kg or 60 mg per day total ÷ Bid-Tid
* Long acting (duration 12 hours) – Concerta 18, 27, 36, 54 and 72 mg capsules
  + Start with 18 mg daily in the morning
  + Increase by interval doses up to a maximum of 54 mg/day < 13 years and 72 mg/day ≥ 13 years

Dose adjustment:

* Titrate dose every 1-2 weeks to provide maximum benefit with minimal side effects.
* Schedule a follow-up visit within 2 to 4 weeks to review response and follow at least monthly until dose is stabilized. Consider switching from a short-acting to a long-acting drug for convenience.
* Use Vanderbilt Follow-Up forms for [Parent](http://www.heardalliance.org/wp-content/uploads/2011/04/ADHD-Vanderbilt-Parent-Follow-Up-Screen.pdf) and [Teacher](http://www.heardalliance.org/wp-content/uploads/2011/04/ADHD-Vanderbilt-Teacher-Follow-Up-Screen.pdf) informants if desired.
* After reaching a stable dose schedule follow up every 3 months in the first year of treatment and every 3 to 6 months thereafter. Allow phone requests for refills in the interim.

LONG TERM FOLLOW-UP:

* Monitor heart rate, blood pressure, sleep, appetite and weight.
* Consider drug holidays on weekends and vacations.
* Consider a trial off medication after 2-3 years.

PARENT HANDOUTS:

1. [Diagnosing ADHD in Children: Guidelines & Information for Parents](https://www.healthychildren.org/English/health-issues/conditions/adhd/Pages/Diagnosing-ADHD-in-Children-Guidelines-Information-for-Parents.aspx) from healthychildren.org (updated June 2016, English and Spanish)

2. [Behavior Therapy for Children with ADHD](http://www.healthychildren.org/English/health-issues/conditions/adhd/Pages/Behavior-Therapy-Parent-Training.aspx) from healthychildren.org (pdated June 2016, English and Spanish)

3. [Understanding ADHD: Information for Parents About Attention-Deficit/Hyperactivity](http://patiented.solutions.aap.org.laneproxy.stanford.edu/handouts.aspx" \l "a)

[Disorder](http://patiented.solutions.aap.org.laneproxy.stanford.edu/handouts.aspx" \l "a) (AAP 2007, English and Spanish)\*

4. [ADHD Parents Medication Guide](https://www.psychiatry.org/patients-families/adhd/what-is-adhd) from the American Psychiatric Association and the American Academy of Child and Adolescent Psychiatry (2013 revision, English and Spanish)

5. [Managing Medication for Children and Adolescents with ADHD](http://www.chadd.org/Portals/0/Content/CHADD/NRC/Factsheets/medication.pdf) from the National Resource Center on ADHD – A Program of CHADD: Children and Adults with Attention-Deficit Hyperactivity Disorder (2015, English)

6. [Homework Help! A System That Works for ADHD Children](http://www.additudemag.com/adhd/article/1034.html) from ADDitude Magazine, August/September 2006 (English)

REFERENCE ARTICLES FOR PHYSICIANS (newest to oldest):

1. Tandon M, Pergjika A. [Attention Deficit Hyperactivity Disorder in Preschool-Age Children.](https://www-ncbi-nlm-nih-gov.laneproxy.stanford.edu/pubmed/28577607) Child Adolesc Psychiatr Clin N Am. 2017 Jul;26(3):523-538.\*

2. Briars L, Todd T. [A Review of Pharmacological Management of Attention-Deficit/Hyperactivity Disorder.](https://www.ncbi.nlm.nih.gov/pubmed/27453697) J Pediatr Pharmacol Ther. 2016 May-Jun;21(3):192-206.

3. Southammakosane C, Schmitz K. [Pediatric Psychopharmacology for Treatment of](http://pediatrics.aappublications.org.laneproxy.stanford.edu/content/136/2/351.full.pdf+html)

[ADHD, Depression, and Anxiety](http://pediatrics.aappublications.org.laneproxy.stanford.edu/content/136/2/351.full.pdf+html). Pediatrics. 2015 Aug;136(2):351-9.\*

4. Harstad E, Levy S; Committee on Substance Abuse. [Attention-deficit/hyperactivity disorder and substance abuse](http://pediatrics.aappublications.org/content/134/1/e293.full.pdf+html?sid=398f09ea-5883-4253-989a-82dd21c46c2c). Pediatrics. 2014 Jul;134(1):e293-301.

5. Feldman HM, Reiff MI. [Clinical practice. Attention deficit-hyperactivity disorder in children and adolescents](http://www-ncbi-nlm-nih-gov.laneproxy.stanford.edu/pubmed/24571756). N Engl J Med. 2014 Feb 27;370(9):838-46.\*

6. Bader A, Adesman A. [Complementary and alternative therapies for children and](https://www-ncbi-nlm-nih-gov.laneproxy.stanford.edu/pubmed/23111680)

[adolescents with ADHD](https://www-ncbi-nlm-nih-gov.laneproxy.stanford.edu/pubmed/23111680). Curr Opin Pediatr. 2012 Dec;24(6):760-9.\*

7. Millichap JG, Yee MM. [The diet factor in attention-deficit/hyperactivity disorder](https://www-ncbi-nlm-nih-gov.laneproxy.stanford.edu/pubmed/22232312). Pediatrics. 2012 Feb;129(2):330-7.\*

8. Perrin JM, Friedman RA, Knilans TK; Black Box Working Group; Section on

Cardiology and Cardiac Surgery. [Cardiovascular monitoring and stimulant drugs for](http://pediatrics.aappublications.org/content/122/2/451.full.pdf+html?sid=9a0c8cf2-7e17-470c-8498-1cfa4fad6c16)

[attention-deficit/hyperactivity disorder](http://pediatrics.aappublications.org/content/122/2/451.full.pdf+html?sid=9a0c8cf2-7e17-470c-8498-1cfa4fad6c16). Pediatrics. 2008 Aug;122(2):451-3.

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