

AD/HD IN CHILDREN AND ADOLESCENTS

Purpose

This guideline is intended for use by clinicians for the diagnosis and management of children and adolescents with ADHD.

KEY MESSAGES

- In a child who presents with inattention, hyperactivity, impulsivity, academic underachievement, or behavior problems, clinicians should initiate an evaluation for AD/HD.
- The diagnosis of AD/HD requires that a child meet DSM-IV criteria.
- It is important to obtain information directly from parents or caregivers and school professionals.
- Coordination between child, parent, school and health care professionals is essential to achieve the best outcomes for the child.

Disparities

All practitioners need to be aware that there are racial and ethnic disparities in the diagnosis and treatment of AD/HD (even though prevalence likely does not differ).

In a national survey, reported rates of identified AD/HD and the use of any prescription medication were lower in Hispanic and African-American children, compared to white children. In another study, prevalence did not differ in different groups, but medication use was lower in non-Whites, likely due to differences in access to mental health services between children in different racial groups.

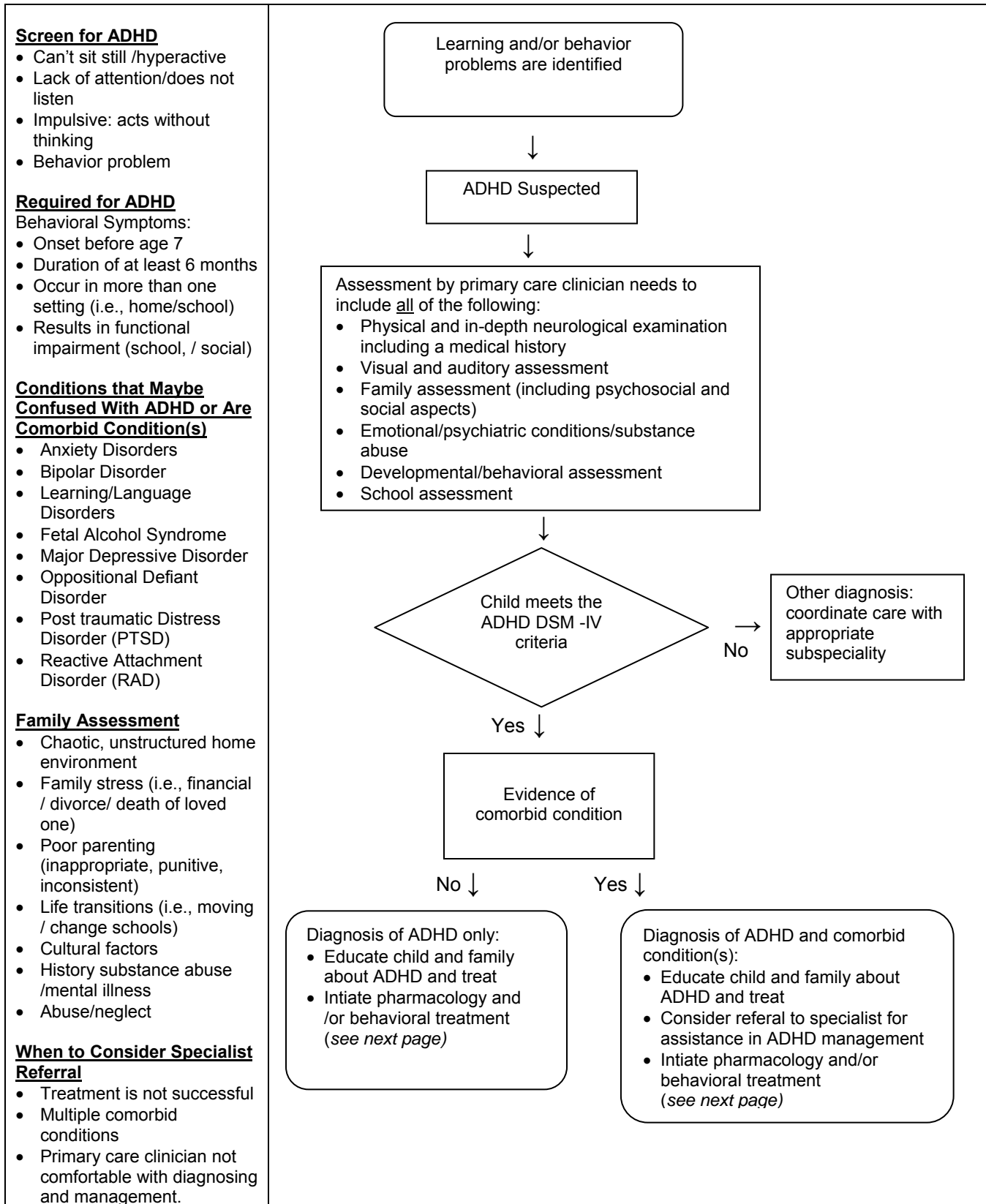
Measure

NYSDOH and HEDIS (Healthcare Effectiveness Data and Information Set) measure for ADHD:

The percentage of children 6 -12 years of age 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.

Guidelines are intended to be flexible. They serve as reference points or recommendations, not rigid criteria. Guidelines should be followed in most cases, but there is an understanding that, depending on the patient, the setting, the circumstances, or other factors, care can and should be tailored to fit individual needs.

Diagnosis Flowchart of AD/HD in Children and Adolescents



Treatment of AD/HD in Children and Adolescents

Parent/Family Strategies

(improvement of family functioning)

- Support groups for ADHD
- Parental skill training
- Advocacy groups

Child

(behavioral interventions)

- Training for social skills
- Strategies for effective problem solving
- Training in study skills and organizational management
- Referral to specialist if needed to assist with comorbid conditions

School

(academic interventions)

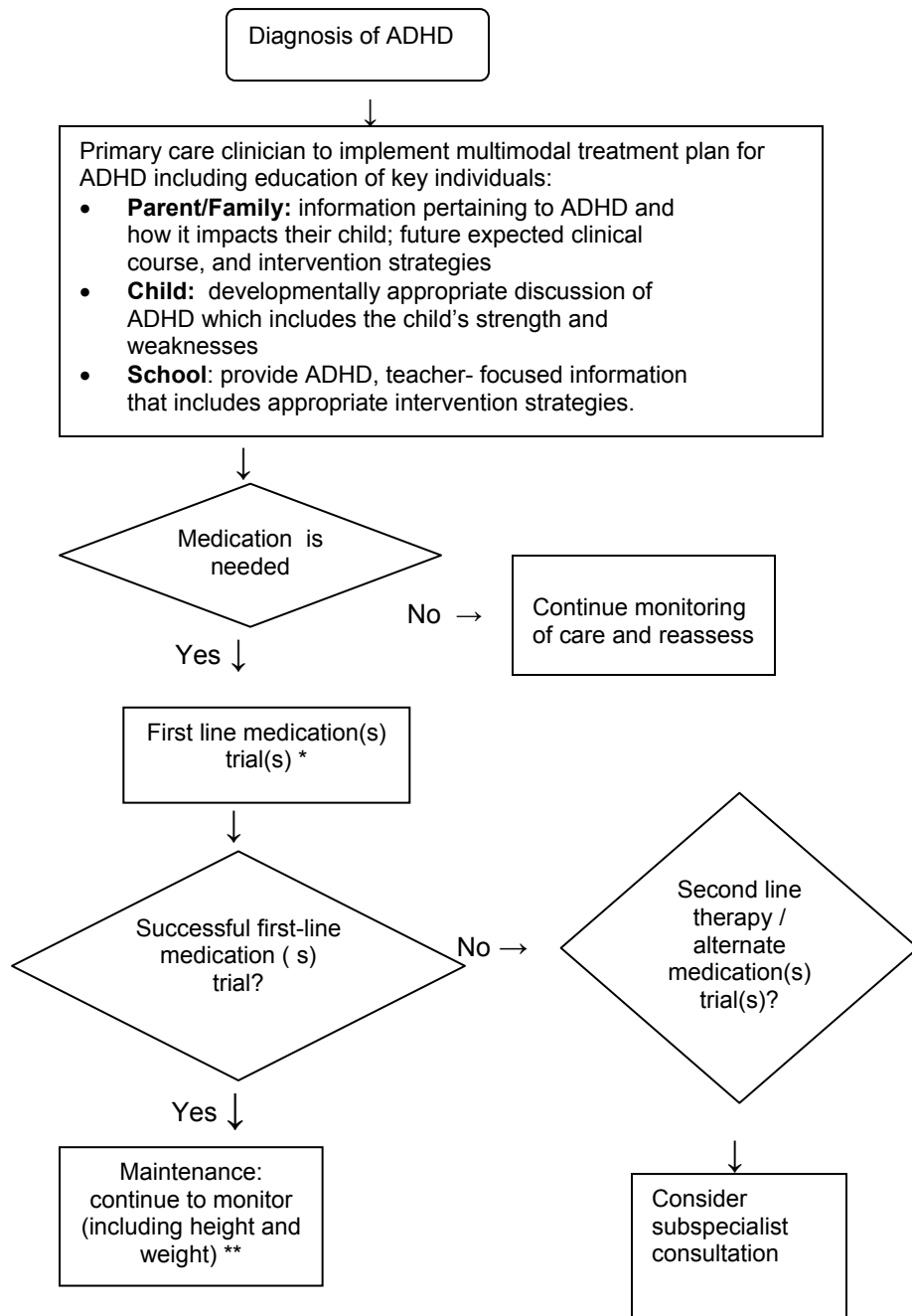
- Behavior modification
- Classroom modifications
- Structured learning environment
- Additional support as needed (tutor, resource room, equipment)

First Line Medication

- Stimulants are first line of treatment and have proven to benefit most people
- Contradictions: psychosis, certain cardiovascular conditions
- Safe and effective in managing ADHD for those with mild to moderate tics (frequency and severity of tics need to be monitored)

Second Line Therapy / Alternate Medication Trial(s)

- Consider when stimulant trial is unsuccessful or if associated comorbidity
- Second line therapy commonly include tricyclic antidepressants (TCA)
- Consider consulting a specialist due to potential for increase side effects and more intense monitoring



* NYSDOH requires 1 face to face follow up visit with a physician within 30 days after starting a child on a medication for ADHD.

** NYSDOH requires 2 additional follow up visits within the time period of 31-300 days after medication initiation for children remaining on medication for ADHD for at least 7 months.

AD/HD Medications

Drug Name	Brand / Generic	Strengths / Formulation	Dosing	Notes
Methylphenidate type products (Schedule II drugs)				
Concerta	Brand	18mg, 27mg, 36mg, 54mg Extended release tablet	Taken once a day	<ul style="list-style-type: none"> - Mimics three times a day dosing of methylphenidate with duration of action of approximately 12 hours. - 22% released immediately, 78% released as extended release. - Peak at eight hours post dose. - Must swallow whole. Do not chew or crush.
Daytrana	Brand	10mg, 15mg, 20mg, 30mg Transdermal patch	Apply one patch once daily for up to 9 hours	<ul style="list-style-type: none"> - Apply to hip 2h before desired effect. - Drug effects may persist 5h after patch removal. - Rotate sites. - Do not alter/cut patch.
Metadate CD	Brand	10mg, 20mg, 30mg, 40mg, 50mg, 60 mg Extended release capsule	Taken once a day	<ul style="list-style-type: none"> - Mimics twice daily dosing of methylphenidate - 30% released immediately, 70% released as extended release - Capsules can be opened and sprinkled on applesauce immediately before administering the medication.
Methylin , Methylphenidate	Generic	5mg, 10mg, 20mg tablets	Usually dosed two or three times a day (at least 4 hours between doses)	<ul style="list-style-type: none"> - Give before breakfast and lunch. - Some patients may benefit from a third dose given in the afternoon. - Can sometimes be used to supplement a long acting product.
Ritalin	Brand	2.5mg, 5mg, 10mg chew tablets 5mg/5ml, 10mg/5ml solution		
Methylin ER, methylphenidate ER	Generic	10mg, 20mg Sustained release tablet	Usually taken twice a day	<ul style="list-style-type: none"> - Slow continual release of the drug. - Peak concentration about 4 hours post dose. - May use Methylin ER when the 8 hour dosage corresponds to total prescribed immediate release dosage. Will eliminate need for midday dose.
Ritalin SR	Brand			
Ritalin LA	Brand	10mg, 20mg, 30mg, 40 mg Extended release capsule	Taken once a day	<ul style="list-style-type: none"> - Mimics twice daily dosing of methylphenidate - 50% released immediately, 50% released as extended release - Peaks at about 6 hours post dose - Capsules can be opened and sprinkled on applesauce immediately before administering the medication.
Dexmethylphenidate Tablet	Generic	2.5mg, 5mg, 10mg Tablet	Usually 2 divided doses	<ul style="list-style-type: none"> - Give in the AM and then again no sooner than 4 hours later.
Focalin Tablet	Brand			
Focalin XR	Brand	5mg, 10mg, 15mg, 20 mg Extended release capsule	Taken once a day	<ul style="list-style-type: none"> - Mimics twice daily dosing of dexmethylphenidate. - 50% released immediately, 50% released as extended release. - Peaks at about 6 hours post dose. - Capsules can be opened and sprinkled on applesauce immediately before administering the medication.

AD/HD Medications

Amphetamine type products (Schedule II drugs)				
Amphetamine salts Adderall	Generic Brand	5mg, 7.5mg, 10mg, 12.5mg, 15mg, 20mg, 30mg Tablet	Usually given in 1, 2 or 3 doses during the day	<ul style="list-style-type: none"> - Give first dose on awakening; if needed, may give 1 or 2 additional doses at 4-6 hour intervals. - Avoid late evening dose due to possibility of insomnia. - Sometime used to supplement long acting medication
Adderall XR, Amphetamine salts ER	Brand	5mg, 10mg, 15mg, 20mg, 25mg, 30 mg Extended release capsule	Usually taken once daily	<ul style="list-style-type: none"> - Mimics twice daily dosing of immediate release product with approximately 12 hour duration of action - 50% released immediately, 50% released approximately 4 -6 hours after ingestion - Peaks at about 6 hours post dose - Capsules can be opened and sprinkled on applesauce immediately before administering the medication.
Dextroamphetamine Dexedrine	Generic Brand	5mg, 10mg Tablet	Usually taken 2 or 3 times per day	<ul style="list-style-type: none"> - Give once in the AM and then every 4-6 hours. - May switch patients to once-daily dose of Dexedrine Spansules once titrated. - Avoid late evening doses due to the possibility of insomnia.
Dextroamphetamine Extended-Release Dexedrine Spansule	Generic Brand	5mg, 10mg 15mg Extended release capsule	Usually taken once daily	<ul style="list-style-type: none"> - May be used for once daily dosage whenever appropriate. - Patients who are titrated to a maintenance dose of immediate-release dextroamphetamine may be switched to a once-daily dose of Dexedrine Spansules. - Avoid late evening doses due to the possibility of insomnia. - Do not chew or crush capsule, must swallow whole
Vyvanse (lisdexamfetamine)	Brand	20mg, 30mg, 40mg, 50mg, 60mg, 70mg Capsule	Usually taken once daily	<ul style="list-style-type: none"> - This product has a delivery release that prevents euphoric effects if a person tries to snort or inject the medication. The drug has to go through the GI tract to be active - Given once daily in the AM. - Can be swallowed whole or contents dissolved in a glass of water.
The most common side effects of stimulant medications are headache, stomach pain, sleeplessness, irritability, and decreased appetite				
Parents/Caregivers should be educated about the abuse of these medications. Children should be told not to share the medication with their friends or take more doses than what is prescribed by the physician.				
Medication should not be stopped abruptly. The dose should gradually be reduced to prevent withdrawal symptoms.				
Slower growth (weight gain and/or height) has been reported with long-term use of stimulants in children.				
Every time a pharmacist dispenses a stimulant medication, they are required to give the patient a Medication Guide. The Medication Guide talks about the risks involved with drug therapy. These risks include sudden death in patients with heart problems, stroke or heart attack, increased blood pressure and heart rate. The guide also warns about increased risk of mental problems, such as worse or new aggressive behavior or hostility, bipolar illness, or changes in thought.				
New York State law prohibits refills on prescriptions written for stimulant medications (Schedule II drugs). Patients are limited to a 30 day supply at a time in most instances. If appropriate, a physician can indicate a special code on the face of a prescription (Code B). This allows for a pharmacist to dispense up to a 90 day supply of the medication.				
Non-stimulant products (Non-controlled drugs)				
Strattera (atomoxetine)	Brand	10mg, 18mg, 25mg, 40mg, 60mg, 80mg, 100mg Capsule	Usually taken once or twice a day	<ul style="list-style-type: none"> - Do not take if also taking an MAOI. - Do not take if diagnosed with narrow angle glaucoma. - Do not break capsules. - Can cause GI effects (abdominal pain, nausea, vomiting) - Can increase heart rate and blood pressure
Intuniv (guanfacine SR)	Brand	1mg, 2mg, 3mg, 4mg Extended release tablet	Usually taken once a day	<ul style="list-style-type: none"> - Tablets should not be crushed or chewed or broken before swallowing - Do not substitute for immediate-release guanfacine tablets on a mg-per-mg basis - Start with 1mg and titrate dose up as needed - Can cause drowsiness and fatigue - Can lower heart rate and blood pressure
Not all medications are covered by all insurance plans. Please contact individual health plans for details on drug coverage.				

REFERENCES: AD/HD IN CHILDREN AND ADOLESCENTS

American Academy of Pediatrics. Clinical Practice Guideline: Diagnosis and Evaluation of the Child With Attention-Deficit/Hyperactivity Disorder. *Pediatrics*. May 2000: 1158-1170.

American Academy of Pediatrics. Clinical Practice Guideline: Treatment of School-Aged Child With Attention-Deficit/Hyperactivity Disorder. *Pediatrics*. October 2001: 1033 – 1044.

American Academy of Child and Adolescent Psychiatry. Practice Parameters for the Assessment and Treatment of Children and Adolescents With Attention –Deficit/Hyperactivity Disorder. *Journal of American Academy of Child and Adolescent Psychiatry*. July 2007: 894 – 921.

Institute for Clinical Systems Improvement (ICSI). Clinical Practice Guideline:Diagnosis and management of attention deficit hyperactivity disorder in primary care for school-age children and adolescents. Bloomington (MN): *Institute for Clinical Systems Improvement (ICSI)*; 2007 Mar. 68 p.

Miller K, Castellanos F. Attention Deficit/Hyperactivity Disorders. *Pediatrics in Review*. November 1998: 373-384.

Smucker, W. And Hedayat, M. Evaluation and Treatment of ADHD. *American Family Physician*. 2001 Vol. 64 (no.5): 817 -831.

University of Michigan Health System. Clinical Practice Guideline: Attention-deficit hyperactivity disorder. Ann Arbor (MI): University of Michigan Health System; 2005 Oct. 35 p.

RESOURCES: AD/HD FOR ADOLESCENTS AND CHILDREN

General Attention Deficit Disorder Association (ADDA)
<http://www.add.org>

Children and Adults with Attention Deficit/Hyperactivity Disorder (CHADD)
<http://www.chadd.org>

National Resource Center on ADHD
<http://www.help4adhd.org/>

National Institute of Mental Health (NIMH)- free informational brochures are available at no cost.
<http://www.nimh.nih.gov/>

NYS Office of Mental Health: free informational brochures are available at no cost.
<http://www.omh.state.ny.us/omhweb/booklets/adhd.htm>

American Academy of Pediatrics (AAP)
<http://www.aap.org>

American Academy of Family Physicians (AAFP)
<http://www.aafp.org>

Learning Disabilities Organizations:

Learning Disabilities Association of America LDA - professionals, parents and teachers
<http://www.ldaamerica.org>

Medication Resources:

US Food and Drug Administration (FDA):
<http://www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm107918.htm>

American Psychiatric Association – ParentsMedGuide: Medication Guide for treating ADHD
<http://www.psych.org/Share/Parents-Med-Guide/Medication-Guides/ParentsMedGuide-ADHD-English.aspx> (English)
<http://www.psych.org/Share/Parents-Med-Guide/Medication-Guides/ParentsMedGuide-ADHD-Espanol.aspx> (Spanish)

ADHD Tools:

National Initiative for Children’s Healthcare Quality: ADHD Tool Kit
http://www.nichq.org/adhd_tools.htm

The Center for Adoption Medicine: Tools for Assessing and Managing ADHD
<http://www.adoptmed.org/topics/tools-for-assessing-and-managing-adhd.html>

UNDERSTANDING ATTENTION DEFICIT/HYPERACTIVITY DISORDER

Does your child have trouble paying attention? Does he or she talk nonstop or have trouble staying still? Does your child have a hard time controlling his or her behavior?

For some children, these may be symptoms of **attention deficit/hyperactivity disorder**, or **ADHD**.

What is attention deficit/hyperactivity disorder, or ADHD?

ADHD is a common childhood disorder, and it may affect children differently. It makes it hard for a child to focus and pay attention. Some kids may be hyperactive or have trouble being patient. ADHD can make it hard for a child to do well in school or behave at home.

ADHD can be treated. Doctors and specialists can help.

Who can develop ADHD?

Children of all backgrounds can have ADHD. Teens and adults can have ADHD too.

What causes ADHD?

No one knows for sure. ADHD probably comes from a combination of things. Some possibilities are:

- Genes, because the disorder sometimes runs in families
- Lead in old paint in and plumbing parts
- Smoking and drinking alcohol during pregnancy
- Certain brain injuries
- Food additives like artificial coloring, which might make hyperactivity worse.

Some people think refined sugar causes ADHD. But most research does not support the idea that sugar causes ADHD.

What are the symptoms of ADHD?

ADHD has many symptoms. Some symptoms at first may look like normal behaviors for a child, but ADHD makes them much worse and occur more often. Children with ADHD have at least six symptoms that start in the first five or six years of their lives.

Children with ADHD may:

- Get distracted easily and forget things often
- Switch too quickly from one activity to the next
- Have trouble with directions
- Daydream too much
- Have trouble finishing tasks like homework or chores
- Lose toys, books, and school supplies often
- Fidget and squirm a lot
- Talk nonstop and interrupt people
- Run around a lot
- Touch and play with everything they see
- Be very impatient
- Blurt out inappropriate comments
- Have trouble controlling their emotions.

UNDERSTANDING ATTENTION DEFICIT/HYPERACTIVITY DISORDER

How do I know if my child has ADHD?

Your child's doctor may make a diagnosis. Or sometimes the doctor may refer you to a mental health specialist who is more experienced with ADHD to make a diagnosis. There is no single test that can tell if your child has ADHD.

It can take months for a doctor or specialist to know if your child has ADHD. He or she needs time to watch your child and check for other problems. The specialist may want to talk to you, your family, your child's teachers, and others.

Sometimes it can be hard to diagnose a child with ADHD because symptoms may look like other problems. For example, a child may seem quiet and well-behaved, but in fact he or she is having a hard time paying attention and is often distracted. Or, a child may act badly in school, but teachers don't realize that the child has ADHD.

If your child is having trouble at school or at home and has been for a long time, ask his or her doctor about ADHD.

How do children with ADHD get better?

Children with ADHD can get better with treatment, but there is no cure. There are three basic types of treatment:

1. **Medication.** Several medications can help. The most common types are called stimulants. Medications help children focus, learn, and stay calm.

Sometimes medications cause side effects, such as sleep problems or stomachaches. Your child may need to try a few medications to see which one works best. It's important that you and your doctor watch your child closely while he or she is taking medicine.

2. **Therapy.** There are different kinds of therapy. Behavioral therapy can help teach children to control their behavior so they can do better at school and at home.

3. **Medication and therapy combined.** Many children do well with both medication and therapy.

How can I help my child?

Give your child guidance and understanding. A specialist can show you how to help your child make positive changes. Supporting your child helps everyone in your family. Also, talk to your child's teachers. Some children with ADHD can get special education services.

How does ADHD affect teens?

Being a teenager isn't always easy. Teens with ADHD can have a tough time. School may be a struggle, and some teens take too many risks or break rules. But like children with ADHD, teens can get better with treatment.

What can I do for my teen with ADHD?

Support your teen. Set clear rules for him or her to follow. Try not to punish your teen every time he or she breaks the rules. Let your teen know you can help.

Can adults have ADHD too?

Many adults have ADHD and don't know they have it. Like ADHD in children and teens, ADHD in adults can make life challenging. ADHD can make it hard for adults to feel organized, stick with a job, or get to work on time. Adults with ADHD may have trouble in relationships. The disorder can also make adults feel restless.

UNDERSTANDING ATTENTION DEFICIT/HYPERACTIVITY DISORDER

ADHD in adults can be diagnosed and treated. For some adults, finding out they have ADHD can be a big relief. Being able to connect ADHD to longtime problems helps adults understand that they can get better. If you're an adult and think you may have ADHD symptoms, call your doctor.

To find out more about ADHD, contact:

National Institute of Mental Health
Science Writing, Press & Dissemination Branch
6001 Executive Boulevard
Room 8184, MSC 9663
Bethesda, MD 20892-9663
Toll-free: 1-866-615-NIMH (6464)
TTY Toll-free: 1-866-415-8051
E-mail: nimhinfo@nih.gov
Web site: www.nimh.nih.gov