TeachME PROFESSIONAL DEVELOPMENT

CEU's for Teachers and Educators

ADHD Update

Attention Deficit Hyperactivity Disorder in Children and Adolescents

Focus of Research for Clinicians

In response to a request from the public, a review was undertaken to evaluate the evidence regarding 1) the potential benefits and adverse effects associated with treatments for attention deficit hyperactivity disorder (ADHD) in preschoolers, 2) the long-term effectiveness of interventions for ADHD in individuals 6 years of age and older, and 3) the variability of prevalence, diagnosis, and treatment associated with potential moderating factors. The systematic review included 223 studies published from January 1980 through May 2010. The full report, listing all studies, is available at www.effectivehealthcare.ahrq.gov/adhdtreatment.cfm. This summary is provided to inform discussions with patients and caregivers of options and to assist in decisionmaking along with consideration of a patient or caregiver's values and preferences. However, reviews of evidence should not be construed to represent clinical recommendations or guidelines.

Background

ADHD affects children of all ages, and approximately 5 percent of children worldwide show impaired levels of attention and hyperactivity. There are three subtypes of ADHD: 1) predominantly inattentive, 2) predominantly hyperactive-impulsive, and 3) combined inattentive and hyperactive. Boys are classified with ADHD about twice as frequently as girls and young children about twice as frequently as adolescents. Clinically significant ADHD is often associated with concurrent defiant and disruptive behaviors, temper tantrums, anxiety, low self-esteem, and learning disabilities.

ADHD is most commonly identified and treated in elementary school (ages 7 to 9) but can begin before children enter school. There is an increasing interest in identifying children who show signs of ADHD at a very young age in order to treat them as early as possible and thereby diminish social and academic repercussions. Overall, levels of symptoms of hyperactivity and impulsiveness decrease with age; however, many children with ADHD continue to show impairment relative to same-age peers throughout adolescence and into adulthood.

Interventions for ADHD include a range of pharmacologic and nonpharmacologic options. Psychostimulants and nonstimulant medications are often prescribed. Children with ADHD and their families may also receive nonspecific psychosocial support, counseling, and advice or support through standardized programs for parents and children. Children with ADHD may receive academic tutoring and coaching, both within and outside of school settings. There is a need for a systematic evaluation, including long-term effectiveness, of both the pharmacologic and nonpharmacologic interventions.

Conclusion

The number of ADHD cases identified has increased over time. Children from lower socioeconomic status (SES) households are diagnosed with ADHD more often than children from higher SES households. However, children from higher SES households are more likely to receive treatment than those from lower SES households.

High-strength evidence shows that parental behavior training is efficacious for preschoolers; however, parents often drop out. Evidence is insufficient to know if school-based interventions are effective for preschoolers, and there are very few data on the outcomes related to the use of ADHD medications other than methylphenidate (MPH). For children 6 years of age or older, evidence is insufficient to know if nonpharmacologic treatments alone are beneficial in the long term. Evidence shows that ADHD medications are safe and effective for children ages 6 and older. For both preschoolers and children over the age of 6, long-term effectiveness and adverse effects are not well studied. Which interventions are best for which children and which behavior training programs are most suitable for parents are unknown. Limited evidence suggests that some subgroups of children may benefit more from combined medication and behavioral interventions than from medication alone. It is unclear how long treatment may be required, of what type, and for which subgroups.

More adverse effects were reported in preschoolers than in elementary school children. Moodiness and irritability often lead to discontinuation of treatment with MPH. Although children taking ADHD medications appear to have diminished growth rates, some studies found that the children may eventually catch up on their growth over time.

Clinical Bottom Line

Effectiveness of Interventions for ADHD or Disruptive Behavior Disorder in Children Under 6 Years of Age

- Parental behavior training is an efficacious treatment option for preschoolers with disruptive behavior disorders or ADHD symptoms. Benefits for children with disruptive behavior disorders are maintained at least 6 months and up to 2 years in some studies. Parents who attend more parental behavior training sessions see more improvement in their child's behavior. ●●●

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Clinical Bottom Line *(Continued)*

Effectiveness of Interventions for ADHD or Disruptive Behavior Disorder in Children Under 6 Years of Age

- MPH* is efficacious and generally safe for treating ADHD symptoms, but there has been limited long-term followup in preschoolers beyond 12 months. ●○○
- Evidence is insufficient to know if there is an additional benefit to combining different treatments. ○○○
- It should be noted that where there is socioeconomic burden, a school-based intervention appears to be the primary beneficial intervention. Benefits, however, diminished over 2 years. This appears to be related to lack of parental engagement and attendance at sessions. ○○○

Long-term (>1 Year) Effectiveness of Interventions for ADHD in Individuals 6 Years of Age or Older

Pharmacologic

- Psychostimulants provide control of ADHD symptoms and are generally well tolerated for months to years at a time. The best evidence for benefits is for MPH* in the setting of careful medication monitoring for up to 14 months. ●○○
- Atomoxetine appears to be safe and effective for treating ADHD symptoms over a period of 12 months. ●○○
- Extended-release guanfacine may reduce ADHD symptoms, but evidence is insufficient to permit an evidence-based conclusion about its long-term effectiveness. ○○○

Nonpharmacologic

- Evidence is insufficient to know if behavioral or psychosocial treatment alone is an effective long-term treatment option for children ages 6 years or older with ADHD. ○○○
- There are not enough studies to know if parental behavior training or school-based interventions are effective as long-term treatment options for children ages 6 years or older with ADHD. However, one good-quality study and its extension showed that school-based programs to enhance academic skills are effective in improving achievement scores in multiple domains. ○○○

Combined Treatments

- Both psychostimulant medication alone and a combination of medication and behavioral treatment are effective in treating ADHD plus ODD symptoms in children. Results are most applicable to elementary school-age boys of normal intelligence with the combined subtype of ADHD. ●○○

*Note: MPH is not approved by the U.S. Food and Drug Administration (FDA) for children under the age of 6.

ODD = oppositional defiant disorder

Strength of Evidence Scale

High:	●●●	There are consistent results from good-quality studies. Further research is very unlikely to change the conclusions.
Moderate:	●●○	Findings are supported, but further research could change the conclusions.
Low:	●○○	There are very few studies, or existing studies are flawed.
Insufficient:	○○○	Research is either unavailable or does not permit estimation of a treatment effect.

Adverse Effects

Although not critically evaluated within the report, general research on adverse effects associated with ADHD treatments suggests the following:

- Psychostimulants and atomoxetine may cause insomnia, appetite loss, tiredness, social withdrawal, and abdominal pain.
- Psychostimulants and atomoxetine may also cause a modest increase in average blood pressure and average heart rate in some children and adolescents.
- Children or adolescents taking atomoxetine may be more likely to think about suicide than children who do not take it.
- More adverse effects were reported in preschoolers than in elementary school children.
- Moodiness and irritability often led to discontinuation of treatment with MPH.
- ADHD medications appear to have a small but distinct dose-related impact on growth rates in children. Some studies found that although children taking ADHD medications appear to have diminished growth rates, they may eventually catch up on their growth over time.
- Extended-release guanfacine was not well tolerated, with less than 20 percent of study participants completing the treatment at 12 months. Adverse effects include somnolence or sedation, fatigue, headache, and possible weight gain. Abnormal or worsening electrocardiographic changes judged clinically significant in 1 percent of patients suggest that monitoring of cardiac status is indicated.
- Safety investigations from observational studies and administrative databases did not provide conclusive evidence for cardiovascular or cerbrovascular adverse effects.

ADHD Medications

Medication	Brand Name
Stimulants	
Mixed amphetamine salts	Adderall®, Adderall XR®
Dextroamphetamine	Dexedrine®
Lisdexamfetamine*	Vyvanse®*
Methylphenidate	Concerta®
	Daytrana®
	Focalin®,* Focalin XR®*
	Metadate ER®, Metadate CD®
	Methylin®, Methylin ER®
	Ritalin®, Ritalin LA®, Ritalin SR®
Nonstimulants	
Atomoxetine	Strattera®
Clonidine hydrochloride*	Kapvay®*
Guanfacine ER	Intuniv®

*These medications were not included in this report.

CD = continuous dose; ER = extended release; LA = long acting; SR = sustained release; XR = extended release

Variability in Prevalence, Clinical Identification, and Treatment of ADHD in Children

The table below lists conclusions on the variability in prevalence, diagnosis, and treatment of ADHD in children associated with potential moderating factors. For these conclusions, the literature was searched using the methodology of a systematic review; however, the selection of papers for inclusion was not subject to the same constraints as the rest of the report. Other relevant papers were added via peer review feedback. These findings were included to provide context, and any studies considered pertinent to the topic of variability in ADHD prevalence, diagnosis, and treatment were included.

Factor	Conclusions
Location	■ Cultural differences influence how ADHD is understood and treated in different countries. ■ After accounting for differences in research methodologies between countries, the underlying prevalence does not appear to vary much among countries. ■ Rates of diagnosis vary considerably due to cultural context, access to local health care services, and providers available in the area. ■ There are significant regional variations in clinical identification across the United States. ■ Rates of treatment vary considerably due to location and access to health care providers—internationally, regionally, and even within the same community.
Service Provider	■ Providers vary in their level of expertise in diagnosing ADHD.
Informant	■ Rates of diagnosis vary considerably due to cultural context. Some ethnicities are more likely to seek help or accept the diagnosis than others. ■ The sociocultural experience of the parent or teacher informant may influence the interpretation and reporting of behaviors, willingness and persistence in seeking professional help, and/or acceptance of treatment modalities.
Time Period	■ Since being identified as a clinical entity in 1902, the prevalence of identified ADHD cases has increased. □ This is partially due to increased knowledge about ADHD. It is also partially due to changes in the definition of who can identify a child as having ADHD (parents and teachers are becoming informants), changes in screening tests, and changes in diagnostic categories and classification systems over time. ■ The use of MPH and other drug treatments for ADHD has increased steadily since the early 1980s. ■ As an indicator of trends in treatment, the International Narcotics Control Board reported that medical use of MPH in the United States increased 77 percent from 2004 to 2008.
SES	■ Some studies found that children of lower SES have a higher prevalence of ADHD. ■ Children of lower SES are identified as having ADHD more often than children of higher SES; however, the latter are more likely to be receiving treatment. ■ Lower SES and minority ethnicity are associated with shorter duration of medication use. ■ Insurance status may influence access to specialist providers in the United States.
Sex	■ Most studies found the prevalence of ADHD is greater in boys than in girls. ■ There are few comparative data examining rates of treatment by sex in children diagnosed with ADHD.
Age	■ Children ages 5 to 10 years appear to have the highest prevalence of ADHD. ■ Elementary school children are identified as having ADHD more frequently than older children. ■ Medication treatment prevalence is higher for elementary school children than for adolescents or adults.

ADHD = attention deficit hyperactivity disorder; MPH = methylphenidate; SES = socioeconomic status

Gaps in Knowledge

- Data regarding the long-term effectiveness or possible adverse effects for all ADHD treatments are scarce. The few long-term studies that are available are mostly of medications.
- Studies are needed to compare the effectiveness of diagnosis and treatment approaches for girls, as the current evidence is based predominantly on boys.
- Other populations that need further research include ethnic minorities and families of low SES.
- Little specific information is available about outcomes for children with comorbid learning disabilities, language impairments, and reading or mathematics disorders.
- Investigations of parental preferences regarding behavior training are needed to determine if parental completion rates for training can be improved.
- Very few studies examined psychostimulant use for preschoolers.
- Very few randomized clinical trials offer information about parental training interventions designed specifically for preschoolers with ADHD.

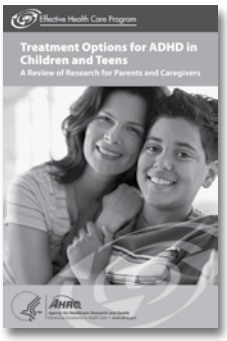
What To Discuss With Your Patients and Their Caregivers

- How ADHD affects children or adolescents and their families.
- Potential benefits associated with nonpharmacologic interventions such as parental behavior therapy programs.
- Potential benefits and adverse effects associated with psychostimulants and nonstimulants. In choosing medications, it is useful to discuss dose timing and monitoring in order to make choices most compatible with treatment goals and patient schedules and lifestyle.
- Patient and parental preferences regarding diagnosis and treatment options, including pharmacologic and nonpharmacologic interventions.
- How they can access information from the National Resource Center on ADHD about diagnosis and treatment, educational programs, public benefits, and other issues. The Center is supported with funding from the Federal Government through the Centers for Disease Control and Prevention (CDC). ADHD information can be accessed online at www.help4adhd.org or by phone at 800-233-4050.

Resource for Patients

Treatment Options for ADHD in Children and Teens, A Review of the Research for Parents and Caregivers is a free companion to this clinician research summary. It can help patients, parents, and caregivers talk with their health care professionals about the many options for diagnosis and treatment. It provides:

- A description of ADHD and its symptoms



- Descriptions of the types of treatments and potential side effects
- Simplified summaries of the research on the effectiveness of each treatment option
- Questions to guide a discussion about treatment options between parents or caregivers and their child's doctor

Ordering Information

For electronic copies of *Treatment Options for ADHD in Children and Teens, A Review of the Research for Parents and Caregivers*, this clinician research summary, and the full systematic review, visit www.effectivehealthcare.ahrq.gov/adhdtreatment.cfm. To order free print copies, call the AHRQ Publications Clearinghouse at 800-358-9295.

Source

The information in this summary is based on *Attention Deficit Hyperactivity Disorder: Effectiveness of Treatment in At-Risk Preschoolers; Long-term Effectiveness in All Ages; and Variability in Prevalence, Diagnosis, and Treatment*, Comparative Effectiveness Review No. 44, prepared by the McMaster University Evidence-based Practice Center under Contract No. MME 2202-290-02-0020 for the Agency for Healthcare Research and Quality, October 2011. Available at www.effectivehealthcare.ahrq.gov/adhdtreatment.cfm. This summary was prepared by the John M. Eisenberg Center for Clinical Decisions and Communications Science at Baylor College of Medicine, Houston, TX.

Is This Summary Right for Me?

Yes, if:

- A doctor said that your child or teen has "attention deficit hyperactivity disorder" (ADHD).
- You want to know what research says about ADHD treatments for children and teens.

What does this summary cover?

This summary discusses the different types of treatment for ADHD. It explains what research says about how each treatment improves symptoms and the risks involved with each treatment. It can help you talk with the doctor about ADHD and your child.

Where does the information in this summary come from?

Researchers funded by the Agency for Healthcare Research and Quality (AHRQ), a Federal Government research agency, reviewed 223 studies on ADHD treatments published from January 1980 through May 2010. The report was reviewed by clinicians, researchers, experts, and the public. You can read the report at www.effectivehealthcare.ahrq.gov/adhdtreatment.cfm.

Understanding Your Child's Condition

What is attention deficit hyperactivity disorder (ADHD)?

ADHD is a disorder that has three different types of symptoms:

- Difficulty paying attention or focusing on certain tasks
- Being overactive (or hyperactive)
- Acting on impulse (without thinking)

Children or teens with ADHD may:

- Get distracted easily and forget things often
- Switch too quickly from one activity to the next
- Have trouble following 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

Children may first develop ADHD symptoms at an early age (between 3 and 6 years old). However, ADHD is most often found and treated in elementary school (between 7 and 9 years old).

ADHD symptoms like hyperactivity may get better as a child gets older. However, symptoms may not disappear completely and may continue into adulthood.

How do doctors know if a child or teen has ADHD?

There is no one medical or physical test that tells if someone has ADHD. Usually, a parent, teacher, or other adult tells the doctor about the behaviors they see. Your pediatrician or family doctor may suggest you take your child to see a qualified specialist with training and expertise in childhood development and mental health disorders.

Sometimes a child may have ADHD at the same time as other problems, such as anxiety, a learning disability, oppositional defiant disorder (a condition where children or teens argue, talk back, disobey, and defy parents, teachers, and other adults), or problems with alcohol and drugs. The doctor may check for other medical problems that might explain your child's symptoms.

How common is ADHD?

ADHD is now found more often in preschool children, teens, and adults than in the past.

- About 5 percent of children worldwide show signs of inattention and hyperactivity.
- About twice as many boys have ADHD as girls.
- ADHD affects children of all races and social classes.

Understanding Your Options

How is ADHD treated?

It is common for children to have more than one learning and/or emotional problem. ADHD may be just one of these problems. It is important to get a full evaluation from your doctor before deciding on treatment.

There is no cure for ADHD, but there are treatments that can help improve symptoms. You may have heard about some treatments, such as changes in diet, use of supplements or vitamins, and others. There is not much research to say how well these treatments work, and they are not included in this summary. The two treatments below have much more research:

Non-medicine Treatments

Medicines

- Non-medicine treatments: Parental behavior training, psychosocial therapy, and school-based programs
- Medicines

Families may use both non-medicine treatments and medicines together.

Non-medicine Treatments

Several types of non-medicine treatments have been used for children with ADHD. Sometimes the whole family takes part in these treatments.

Parental Behavior Training

- Parental behavior training programs teach parents better ways to help their child or teen.
- Often, parents and their child attend behavior training sessions together.
- Usually one of the first things the programs focus on is creating a healthy bond between the parents and the child.
- Programs teach parents how to understand their child's behavior. Parents learn skills to help their child avoid behavior problems before they start.
- Parents can learn how to organize tasks in a way that makes it easier for their child or teen to complete them.
- Parental behavior training programs teach parents how to create a system of rewards and consequences.
- Program sessions usually take place in an office, and there may be weekly sessions for several weeks or months.
- These programs usually charge a fee. Some of these costs may be covered by your insurance.

Psychosocial Therapy

- A trained therapist can talk with your child and other family members about controlling behaviors and emotions and improving social skills.
- Therapy sessions usually take place in an office. The therapist may suggest weekly sessions for several weeks, months, or years, depending on the child's needs.
- Therapists usually charge a fee for each hour of therapy. Some of these costs may be covered by your insurance.

School-Based Programs

- The Individuals with Disabilities Education Act (IDEA) requires public schools to offer special education services to the children who qualify. Children with ADHD are often included.
- Education specialists at schools help students with ADHD succeed in learning and academics. They can work with the child, the parents, and teachers to make adjustments to the classroom, learning activities, or homework assignments.
- An individual education plan (IEP) is created with education specialists, teachers, and parents. The IEP outlines the actions taken at the school to help the child succeed. These plans are reviewed at the end of the year and should be passed on to the child's next teacher.
- These services may be free of charge for families living within the school district.

What does research say about non-medicine treatments?

Researchers found that:

- Helping parents acquire new skills to help improve their child's behavior (parental behavior training) reduces ADHD symptoms and disruptive behavior disorders in children under 6 with ADHD.
  - Improvements in disruptive behavior lasted as long as 2 years in some studies.
  - Parents who attend more parental behavior training sessions see more improvement in their child's behavior.

There is not enough research to know:

- If combining more than one type of non-medicine treatment helps treat preschoolers with disruptive behavior disorders or ADHD.
- If behavioral or psychosocial therapy alone works beyond 12 months to improve ADHD in children 6 and older.
- If parental behavior training or school-based programs improve ADHD symptoms for more than 12 months in children 6 and older.

Medicines

Two types of medicines treat ADHD symptoms: stimulants and nonstimulants. There are many different types and brands of these medicines. All ADHD medicines come with possible side effects. It is believed that these medicines work by changing the amount of certain chemicals in the brain.

Medicines for ADHD

Type of Medicine	Brand Name	How Taken?	Generic Available?
Stimulants			
Mixed amphetamine salts	Adderall®	Pill	Yes, for some doses
	Adderall XR®	Pill	Yes, for some doses
Dextroamphetamine	Dexedrine®	Pill	Yes
Lisdexamfetamine*	Vyvanse®*	Pill	Yes
Methylphenidate	Concerta®	Pill	Yes
	Daytrana®†	Skin patch	Yes
	Focalin®*	Pill	Yes
	Focalin XR®*	Pill	Yes, for some doses
	Metadate ER®	Pill	Yes, for some doses
	Metadate CD®	Pill	Yes, for some doses
	Methylin®	Pill	Yes
	Methylin ER®	Pill	Yes, for some doses
	Ritalin®	Pill	Yes
	Ritalin LA®	Pill	Yes, for some doses
	Ritalin SR®	Pill	Yes, for some doses
Nonstimulants			
Atomoxetine	Strattera®	Pill	No
Clonidine hydrochloride	Kapvay®*	Pill	Yes
Guanfacine ER	Intuniv®	Pill	Yes

CD, ER, LA, SR, and XR all refer to extended-release formulas of the medicine. This means that the medicine lasts longer, and your child may not need to take as many pills each day.

* Good-quality studies for this medicine were not available.

† Research on this medication in skin patch form was not available.

Stimulants

- Stimulants can be short-acting (work for 4 to 6 hours) or long-acting (work for 8 to 12 hours).
- Children and teens usually tolerate these medicines well.
- They can be taken by mouth or through a skin patch.
- There are several different types of stimulants available. Your doctor may need to try several to find one that works best for your child.
- Stimulants have been studied very little in children under 6. Your doctor should check the U.S. Food and Drug Administration (FDA) label for these medicines to see if they can be used in children under 6.

Nonstimulants

Atomoxetine (brand name Strattera®)

- Atomoxetine may work by increasing a chemical called norepinephrine in the brain.
- Atomoxetine is approved by the FDA for children 6 and older and is taken by mouth.

Guanfacine ER (brand name Intuniv®)

- Extended-release guanfacine interacts with the part of the brain that controls attention and impulse.
- It is approved by the FDA for children 6 and older. It is taken by mouth.

What does research say about how these medicines compare with one another?

A few studies found:

- All stimulants seem to improve ADHD symptoms in children 6 and older for months to years at a time with few side effects, but there is not enough research to know for certain.
- The stimulant methylphenidate (Ritalin® and Concerta®, among others) works and is generally safe for treating ADHD symptoms, but there is not enough research to know if it is safe for preschool children (under age 6) for longer than 1 year.
- Atomoxetine (Strattera®) is safe and appears to work well to treat ADHD symptoms in children 6 and older for several years, but there is not enough research to know for certain.

There is not enough research to know:

- How well extended-release guanfacine (Intuniv®) works over several years to treat ADHD symptoms in children 6 and older.

Common Side Effects of ADHD Medicines

These side effects are listed on the FDA labels of each medicine and in the medical research studied for this summary.

Medicine	Side Effects	Additional Information
All Stimulants (regular or extended-release formulas)		
Adderall® Concerta® Daytrana® Dexedrine® Focalin® Metadate® Methylin® Ritalin® Vyvance®	▪ Less appetite ▪ Worsened tic (uncontrollable movement) ▪ Difficulty falling asleep ▪ Headaches, stomach aches, and irritability ▪ Increased heart rate	Children or teens with heart problems of any kind should be followed by their doctor for side effects. Every child reacts a bit differently to stimulants, and these side effects may be mild or strong.
Nonstimulants (regular or extended-release formulas)		
Atomoxetine (Strattera®)	▪ Increased thoughts of suicide (more than in children not taking the medicine) ▪ Less appetite ▪ Increased heart rate ▪ Headaches, stomach aches, and irritability	Parents should watch for signs of suicidal thoughts. This medicine has been associated with heart problems and may not be safe in children or teens with a history of severe heart problems.
Guanfacine (Intuniv®)	▪ Drowsiness, fatigue, and sleepiness ▪ Headaches, stomach aches, and irritability ▪ Possible heart side effects include low blood pressure, slow heart rate, or other changes in heart rhythm. These side effects may need to be followed by your doctor.	This medicine should not be stopped suddenly, as doing so can increase blood pressure.

What does research say about using non-medicine treatments and medicine together?

A few studies found:

- Stimulants, whether taken alone or while in behavioral therapy, may help children 6 and older with ADHD, but there is not enough research to know for certain.

Making a Decision

What should I think about when deciding?

There are several things to consider when deciding on medicine or non-medicine treatments for your child or teen with ADHD.

- If you choose to use non-medicine treatment, you will need to think about how to schedule or participate in treatment sessions with your child.
- You will also need to consider the costs of ongoing non-medicine treatments and the commitment to stay in therapy sessions or parental behavior training for a long period of time.
- When deciding whether your child should take a medicine, only you and the doctor can decide whether the benefits of any medicine are worth the risk of having a side effect.
- Each person responds differently to different medicines, and the doctor may try several medicines and doses (amounts) before finding the right one.

You and the doctor should discuss:

- If non-medicine treatments might be helpful for your child or teen.
- What kinds of non-medicine treatments are available in your area.
- The benefits and side effects of taking a medicine.
- The ways in which the doctor can help you notice any side effects so that they can be treated or so the medicine can be changed.
- The cost of each treatment option.

What are the costs of treatment?

The cost of non-medicine treatment programs can range between $300 and $2,000, depending on the individual therapist or program and the amount of time needed. There are some services available through schools and the Federal Government.

The cost to you for ADHD medicines depends on:

- Your health insurance.
- The dose (amount) of medicine your child or teen needs to take.
- Whether the medicine is available in generic form.

Wholesale Prices of Prescription ADHD Medicines

Brand Name	Dose	Price per Month for Brand*	Generic Name	Price per Month for Generic*
Stimulants				
Adderall®	5 mg	$113	Mixed amphetamine salts	$45
	10 mg	$113		$45
	20 mg	$113		$45
	30 mg	$113		$45
Adderall XR®	10 mg	$236		$184
	20 mg	$236		$184
	30 mg	$236		$184
Concerta®	18 mg	$197	Methylphenidate hydrochloride	$186
	27 mg	$202		$191
	36 mg	$208		$197
	54 mg	$226		$214
Daytrana® Patch (9 hour per dose)	10 mg	$212 (all doses)	Methylphenidate	N/A
	15 mg			
	20 mg			
	30 mg			
Dexedrine®	5 mg	N/A	Dextroamphetamine	$206
	10 mg	N/A		$206
	20 mg	N/A		$412
	30 mg	N/A		$412
Focalin®	2.5 mg	$22	Dexmethylphenidate hydrochloride	$20
	5 mg	$32		$29
	10 mg	$46		$42
Focalin XR®	10 mg	$200		N/A
	20 mg	$206		N/A
	30 mg	$216		N/A
	40 mg	$227		N/A
Metadate CD®	10 mg	$171	Methylphenidate hydrochloride	$15
	20 mg	$171		$26
	30 mg	$171		$138
	40 mg	$234		N/A
	50 mg	$288		N/A
	60 mg	$288		N/A

Continued on next page

CD, ER, LA, SR, and XR all refer to extended-release formulas of the medicine.

N/A = Price or generic product is not available.

* Prices are the average wholesale prices listed from *RED BOOK Online®*. Generic prices are the middle value in the range of prices listed from different manufacturers. The actual price of the medicines may be higher or lower than the prices listed here, depending on the manufacturer used by your pharmacy.

Wholesale Prices of Prescription ADHD Medicines *(Continued)*

Brand Name	Dose	Price per Month for Brand*	Generic Name	Price per Month for Generic*
Stimulants				
Metadate ER®	20 mg	$53	Methylphenidate hydrochloride (continued)	N/A
Methylin®	2.5 mg	$105		N/A
	5 mg	$150		N/A
	10 mg	$214		N/A
Methylin ER®	10 mg	N/A		N/A
	20 mg	N/A		N/A
Ritalin®	5 mg	$18		N/A
	10 mg	$30		N/A
	20 mg	$53		N/A
Ritalin LA®	10 mg	$165		N/A
	20 mg	$165		N/A
	30 mg	$169		N/A
	40 mg	$173		N/A
Ritalin SR®	20 mg	$80		N/A
Vyvanse®	20–70 mg	$205 (all doses)	Lisdexamfetamine dimesylate	N/A
Nonstimulants				
Intuniv®	1 mg	$194 (all doses)	Guanfacine	$27 (1 mg) $40 (2 mg)
	2 mg			
	3 mg			
	4 mg			
Kapvay®	1 mg	$104	Clonidine hydrochloride	$8
	2 mg	N/A		$9
	3 mg	N/A		$16
Strattera®	By child's weight	$206–$241	Atomoxetine	N/A

CD, ER, LA, SR, and XR all refer to extended-release formulas of the medicine.

N/A = Price or generic product is not available.

* Prices are the average wholesale prices listed from *RED BOOK Online®*. Generic prices are the middle value in the range of prices listed from different manufacturers. The actual price of the medicines may be higher or lower than the prices listed here, depending on the manufacturer used by your pharmacy.

Ask your doctor

- In your opinion, would my child or teen benefit from non-medicine treatments, medicine, or both?
- What kind of changes can I expect? How long will they take to occur?
- What non-medicine treatment programs are available locally?
- Is there a therapist or program that you recommend? Why?
- How will I know if my child or teen is having a serious side effect and needs to change medicines?
- Are there any local support groups that might be able to help me?

"This course was developed from the public domain document:
Attention Deficit Hyperactivity Disorder in Children and Adolescents –
Agency for Healthcare Research and Quality (AHRQ)."