ConsumerReports® Health

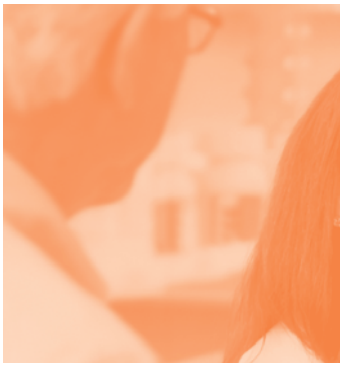
BEST BUY DRUGS™

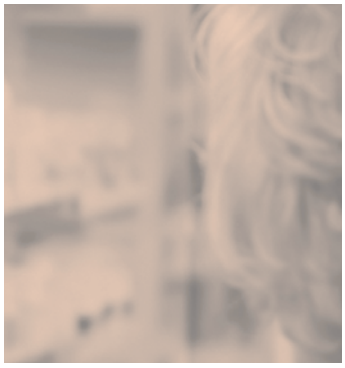
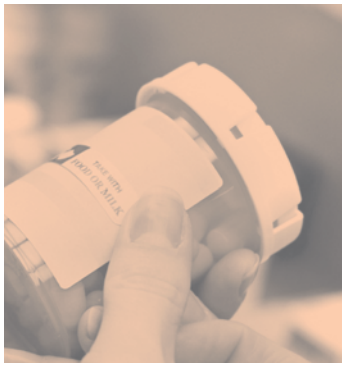
Evaluating Prescription Drugs Used to Treat:

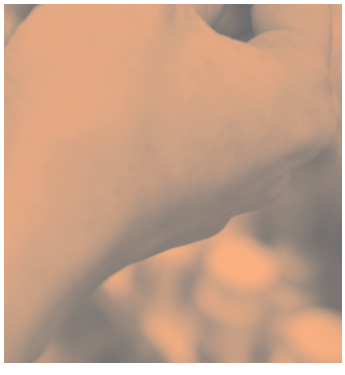
Attention Deficit Hyperactivity Disorder (ADHD)

Comparing Effectiveness, Safety, and Price



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Our Recommendations

The drugs usually prescribed to treat attention deficit hyperactivity disorder (ADHD) are generally effective and safe. Most children and teenagers, about 60 to 80 percent, who take them become less hyperactive and impulsive, are better able to focus, and are less disruptive at home and school. However, there is uncertainty about whether those benefits last for longer than two years.

Because diagnosis of ADHD can be difficult, and a variety of medical and psychiatric disorders can cause symptoms that mimic it, an accurate diagnosis is necessary to avoid prescribing medication to those patients who don't have ADHD or have an entirely different condition which may be worsened by ADHD medications. Be sure to get a careful diagnosis from a physician or mental-health professional with expertise in ADHD, and a second opinion if you have doubts.

Adults with ADHD also appear to benefit from taking medication. But far fewer studies have examined the effectiveness of the medicines in adult men and women.

Our analysis found that stimulant medications, such as methylphenidate (Ritalin), are somewhat more effective than nonstimulant medications, which include Intuniv, Kapvay, and Strattera. Our assessment indicates that none of the stimulants are clearly more effective than any other. Each raises different safety issues, however, and you should discuss them with your doctor. Dosing convenience (taking one pill a day instead of two or more; oral solutions for those who have difficulty swallowing tablets; or the use of a skin patch), and the period of time that a medicine is active in your body are critical elements of ADHD treatment.

Taking into account the evidence for effectiveness, safety, dosing convenience, duration of action, and cost, we have chosen the following as *Consumer Reports Best Buy Drugs* to treat ADHD:

- Generic methylphenidate tablets
- Generic methylphenidate sustained-release tablets or capsules

Methylphenidate has a long track record that shows it is generally safe and effective. The monthly cost ranges from $15 or less to $197, depending on strength.

As this report is being finalized, there has been an ongoing shortage of generic methylphenidate. Although the Food and Drug Administration says it is working to resolve it, if you're unable to get a prescription filled, ask your doctor or pharmacist about obtaining the drug from a different part of the country. This may be easier at a larger chain pharmacy, such as Target, Walgreens, or Walmart.

Welcome

This report on prescription drugs to treat attention deficit hyperactivity disorder (ADHD) is part of a *Consumer Reports* project to help you find safe, effective medicines that give you the most value for your health-care dollar. To learn more about the project and other drugs we've evaluated, go to www.CRBestBuyDrugs.org.

We focus in this report on the use of ADHD drugs to treat children and teenagers age 17 and under. We also provide information and guidelines about the use (and potential for abuse) of these medicines in adults.

It's normal for children to have difficulty paying attention and controlling their behavior at times. And it's certainly common for parents to think that their children are sometimes a bit wound up. Indeed, almost every child (and many adults) have bouts or periods of hyperactivity, lack of focus, and poor attention. This does not mean they have a mental or behavioral disorder.

What should lead you to suspect ADHD is a persistent pattern lasting at least six months of abnormally high levels of physical activity (hyperactivity), impulsivity, and/or lack of ability to pay attention and focus or complete tasks. (See the full list of symptoms on page 8.) The severity of symptoms and abnormal behavior patterns in children and teenagers with ADHD varies widely. Some children have only mild symptoms while others are severely affected. The range of symptoms among adults has not been well studied.

ADHD is one of the most common behavioral problems diagnosed among school-aged children in the United States. The Centers for Disease Control and Prevention estimates that about 9 percent of children ages 5 to 17 are affected. The National Comorbidity Study Replication estimated about 4.4 percent of adults in the U.S. have ADHD.

Boys are much more likely to be diagnosed with ADHD than girls. Perhaps this is because boys are prone to act out and exhibit hyperactivity, while girls with ADHD are more likely to be perceived as simply inattentive (daydreaming, forgetful, or easily distracted) without any significant hyperactivity or disruptive behavior. The pattern of abnormal behavior usually begins before age 7.

Both boys and girls with ADHD are more likely to have low self-esteem, develop emotional and social problems, and underachieve at school.

Fortunately, some children with ADHD—even when they are not treated—improve as they progress into their teenage years and early 20s. But many people will continue to have symptoms as adults. A person can even be diagnosed with ADHD for the first time when they are an

adult. Teenagers and adults are more likely to exhibit inattentive, impulsive, and acting-out behavior, rather than being hyperactive. They often struggle to cope with the demands of adult life, have a history of difficulty with school, jobs, relationships, and might also have been involved in multiple driving accidents.

This report examines the drugs most commonly used to treat ADHD—the "stimulants." They have been the mainstay of ADHD treatment for decades. Stimulants approved by the FDA for treatment of ADHD are derivatives of amphetamine or methylphenidate. You might recognize the brand names Ritalin (known generically as methylphenidate) or Adderall (known generically as amphetamine).

In addition, we evaluate three nonstimulant drugs also approved by the FDA for treatment of ADHD. These include atomoxetine (Strattera), a long-acting formulation of guanfacine (Intuniv), and a long-acting formulation of clonidine (Kapvay). The short-acting forms of guanfacine and clonidine have been used to treat hypertension for many years, but the long-acting formulations used to treat ADHD are much newer. Both were approved by the FDA for treating ADHD in children in 2009. Atomoxetine received its FDA approval in 2002. In general, we recommend avoiding new drugs until more is known about their effectiveness and safety profiles.

ADHD Medications Evaluated in This Report

Generic Name	Brand Name(s)	Available as a Prescription Generic Drug?
1. Amphetamine	Adderall	Yes
	Adderall XR*	Yes
2. Dextroamphetamine	Dexedrine	Yes
3. Dexmethylphenidate	Focalin	Yes
	Focalin XR*	No
4. Lisdexamfetamine	Vyvanse*	No
5. Methylphenidate	Concerta*	Yes
	Daytrana patch	No
	Metadate CD	No
	Metadate ER	Yes
	Methylin oral solution	Yes
	Methylin chewable tablet	No
	Methylin ER	Yes
	Ritalin	Yes
	Ritalin LA	Yes
	Ritalin SR	Yes
6. Atomoxetine	Strattera*	No
7. Clonidine	Kapvay	No
8. Guanfacine	Intuniv	No

* All of the medications in this table are approved by the FDA for use in children, but medications marked with * are also approved for use in adults.

These medicines don't cure ADHD but they can reduce symptoms, such as hyperactivity and impulsivity, which might improve a person's daily functioning. However, there is uncertainty about whether these benefits last for longer than two years, so you might want to periodically discuss with your physician whether the medications should be continued. The long-term benefits of these drugs are a controversial issue that we discuss more on page 19.

We do not include the drug modafinil (Provigil), which is used for treating certain sleep disorders. Some doctors might prescribe it as an ADHD treatment, but this medicine is not approved by the FDA to treat the condition, and it has been associated with a serious rash. We advise caution if it is used.

In the short run, the most effective strategy for treating ADHD in children is a multipronged approach that uses a combination of treatments, including medicines and behavioral therapy. Therapists might also help parents, and sometimes teachers, build the skills to cope with, and respond appropriately to, a child's ADHD behaviors. The use of drugs to treat ADHD has been more thoroughly evaluated over the years than other forms of treatment. But there is some evidence that the combination of behavioral therapy and drugs can work better than drugs alone for some children. There's mixed evidence on how well behavioral therapy works when used without drug treatment. It certainly does not work for all children, especially those who have severe symptoms.

Other nondrug treatments include dietary restrictions, such as eliminating sugar or other food items; taking nutritional supplements, such as herbals or high doses of vitamins; and using biofeedback, or vision therapy. But none of these are backed by credible evidence that they improve ADHD symptoms, and some, such as high doses of vitamins, can be dangerous.

This report is based on a comprehensive expert analysis of the medical evidence on prescription medications for ADHD. There's more information on page 23 on how we conducted our evaluation.

This report was updated in March 2012.

What Are ADHD Drugs and Who Needs Them?

It might not seem to make sense to give a stimulant to a child with ADHD symptoms, but these medications actually help them concentrate, feel more focused, and be less impulsive and more thoughtful before acting. Nonstimulant medications work differently, but their effect is similar.

Doctors don't know exactly what causes ADHD, but the environment and certain genes might play a role. Some kids might be biologically prone to the condition, and it could be triggered by factors in their home or school environment, such as exposure to lead. Some studies have suggested children whose mothers smoked and drank alcohol during pregnancy have an increased risk of ADHD.

Not all children (or adults) diagnosed with ADHD need to take a drug. But a debate has raged for years about how to accurately identify who needs the medicines and who does not. There's no easy answer, but medication is usually considered when ADHD symptoms make it difficult for the child to function at school or interfere with family relationships or interactions with peers and friends. Table 1 on page 8 presents the symptoms and generally accepted criteria for diagnosing ADHD, and considerations for whether to use medications or not. But even if your child meets these criteria, he or she might not need a drug.

Generally, once the diagnosis of ADHD has been confirmed, and the decision made to try a drug, a stimulant drug will quite likely be your doctor's recommended first step. If your child is diagnosed with mild to moderate ADHD, treatment with one stimulant might be all that is needed.

If one stimulant does not work, your doctor might try another. Children can respond differently to the stimulants as well as to the other drugs less often used to treat ADHD. The drugs are sometimes, but not often, used in combination.

While drugs to treat ADHD can improve symptoms in the short-term, you should be aware, as we have previously noted, that there's uncertainty about whether these benefits last for more than a couple of years. This is a controversial issue that we discuss more on page 19.

Diagnosis

ADHD can be difficult to diagnose. There is no simple blood test or exam. Complicating matters is the fact that as many as one-third of children and teenagers with ADHD have learning disabilities, and many also have other behavior or mood problems. These include oppositional defiant disorder, conduct or adjustment disorder, learning disorders, anxiety, depression, bipolar disorder (manic-depression), tic disorders, and Tourette's syndrome.

If you suspect your child has ADHD, an appointment with a pediatrician can be a good place to start to get a proper diagnosis. The pediatrician might refer you to the appropriate mental-health specialists. A doctor or mental-health professional (some psychologists specialize in ADHD) should always begin by ruling out other possible reasons for the behaviors.

In children, a thorough diagnosis usually involves talking to parents and the child's teachers, as well as direct observation of the child in various settings. Both parents and teachers might be asked to fill out questionnaires describing the child's behavior. And, of course, the process involves closely examining and questioning the child. You and your child might need to make several visits to a doctor's or therapist's office before a definitive diagnosis can be made.

Note: You should be skeptical if a doctor or therapist diagnoses ADHD at the first visit and immediately prescribes a drug.

In adults, ADHD is usually diagnosed based on a thorough psychiatric evaluation that considers childhood symptoms, medical history, whether the person has a history of substance or alcohol abuse, and other issues.

It is not uncommon for the parents of a newly diagnosed ADHD child to recognize that they, too, have some of the symptoms and behavioral patterns of ADHD. Since the condition can run in fam-

ilies, it's worth seeing a doctor or therapist if you notice these symptoms. ***But don't self-diagnose and take ADHD drugs without first consulting a doctor. The medicines can be dangerous and should not be taken regularly or even periodically without a diagnosis of ADHD by a doctor.***

Distinguishing Between ADHD and Other Disorders

ADHD is not always easily distinguished from other conditions, such as depression and anxiety, or, in adults, bipolar disorder, also called manic depression. As you can see from Table 2 on the next page, ADHD shares some symptoms and behavioral patterns with all three. It is critical to get an accurate diagnosis so that you get the proper treatment. Studies indicate that the misdiagnosis of people with mood and behavioral disorders is quite common. And stimulants given to a person with anxiety or bipolar disorder are not helpful. They might even be harmful.

Generally, neither children nor adults with ADHD experience the loss of energy, lethargy, and pervasive feelings of sadness often seen in people suffering from depression. However, it is not uncommon for people with ADHD to get demoralized by poor performance or frequent criticism from parents and teachers. Making the distinction between demoralization and clinical depression is an important part of treatment.

In regards to anxiety, people with ADHD often worry about their forgetfulness, poor follow through, and difficulty completing tasks on time. But this is different from people who have both ADHD and an anxiety disorder. People with both conditions might have panic attacks, social anxiety, and excessive worrying about things other than their performance. Recognizing these distinctions can be difficult and often requires a skilled doctor with experience with ADHD.

People diagnosed with ADHD and another behavioral or mood disorder can be treated with more than one type of medicine, though this must be done with extra care and caution. Psychotherapy or counseling is also highly recommended for such patients.

Table 1. Symptoms of ADHD

People experience ADHD symptoms with varying degrees of severity. But generally, a child, teenager, or adult who persistently has six or more of the following symptoms or behavioral patterns (from either list) might have ADHD and be a candidate for an ADHD medication. In children, ADHD is more likely to be diagnosed if (a) the symptoms started before age 7, (b) have been ongoing for at least six months, and (c) there is disruption at home and school.

Inattention	Hyperactivity and Impulsivity
■ Difficulty paying attention to details	■ Fidgets with hands or feet or squirms in chair
■ Frequent hasty mistakes in schoolwork, work, or other activities	■ Leaves seat in classroom or in situations in which remaining seated is expected
■ Difficulty sustaining attention in performing tasks or play activities	■ Runs around excessively in situations in which it is inappropriate
■ Difficulty listening when spoken to directly	■ Difficulty engaging in leisure activities in a quiet manner
■ Unable or slow to complete assignments and tasks	■ "On the go" or acting as if "driven by a motor" much of the time
■ Difficulty organizing tasks and activities	■ Excessive or impulsive talking
■ Difficulty with tasks that require sustained mental effort	■ Blurts out answers before questions have been completed
■ Loses things necessary for tasks or activities	■ Difficulty in waiting for his or her turn to speak
■ Easily distracted by extraneous stimuli or sights or sounds	■ Interrupts or intrudes on others
■ Easily bored	■ Hot-tempered; easily agitated or angered
■ Forgetful in daily activities	■ Low tolerance of stress
■ Tendency to daydream	

Table 2. Is it ADHD or Another Condition?

As contrast to the behavior patterns listed in Table 1, here are symptoms of three other prevalent mental-health conditions that can be confused with ADHD. Children and adults with ADHD are also at higher risk of having one of these conditions. As you see, many symptoms/behavior patterns are shared among the conditions. The symptoms listed are more applicable to adults and children ages 14 and older.

Depression

- Feelings of unhappiness, hopelessness, pessimism
- Feelings of low self-esteem, worthlessness, guilt
- Loss of interest or pleasure in hobbies, work, and activities you usually enjoy, including sex
- Decreased energy, fatigue, feeling "slowed down"
- Insomnia, early-morning awakening, or oversleeping
- Difficulty concentrating, remembering, making decisions
- Appetite changes – eating significantly less or more
- Irritability, restlessness, hostility
- Feeling anxious; low tolerance for stress
- Recurring thoughts of death or suicide; suicide attempts
- Unexplained physical symptoms or pains—such as headache, chronic indigestion, or pain—that do not respond to treatment

Anxiety

- Excessive worry; a feeling or sense of anxiety that has bothered you every day for the last three to six months
- Feelings of irritability and agitation
- Occasional feelings of panic, fear, or dread
- Not being able to relax; persistent feelings of restlessness or of being hyperalert
- Poor attention
- Tire easily; sleep poorly
- Low tolerance of stress
- Difficulty concentrating

Bipolar Disorder [1]

In the mania phase:

- Excessive elation, exuberance, and euphoria
- Hyperactivity
- Racing thoughts
- Aggressive behavior
- Increased talking
- High energy
- Grandiose notions
- Decreased need for sleep
- Inappropriate social behavior
- Easily distracted
- Poor ability to concentrate

In the depressive phase:

- Same symptoms as in first column

1 In children, bipolar disorder can be marked by a combination of elation, depression, and irritability. The symptoms that are present in both ADHD and bipolar disorder in children include a high level of energy and a reduced need for sleep. Elated mood and grandiosity are the characteristics that distinguish bipolar disorder from ADHD.

Choosing a Drug for ADHD—Our *Best Buy* Picks

Both the stimulant and nonstimulant medications used to treat ADHD are effective and generally safe when used as directed. All have been proven to reduce hyperactivity and disruptive behavior and to improve attention and concentration in 60 to 80 percent of children and teenagers with ADHD in the short-term. Our analysis indicated that stimulants are somewhat more effective in reducing ADHD symptoms than nonstimulants, in general. However, choosing a nonstimulant in some cases will be preferred (for example, a person who can't tolerate the side effects of stimulants), and the difference is typically small. Our assessment indicates that none of the stimulants are clearly more effective than any other.

Although these medicines can be helpful, getting children to take them regularly can sometimes be a struggle for parents. That's mainly because children with ADHD have difficulty remembering to take their pills or are embarrassed about having to take them at school. Further complicating matters is that many schools don't have the resources (such as nurses) to help children who need assistance. Also, there are some children with ADHD who simply have a hard time swallowing pills. For such children, a liquid solution or a patch might be a better choice; also, some capsules can be opened and the contents sprinkled on food.

Fortunately, as you can see from Table 4 on page 16, the drugs are available in several different forms and one of them might be more convenient for your child. The forms of stimulants include short-acting and long-acting pills and tablets, as well as liquids, chewable tablets, and a patch for the skin. The nonstimulant medications are all pills.

The long-acting pills and skin patch form of methylphenidate are intended to offer dosing convenience, whereas the short-acting versions are generally required to be taken multiple times a day. The extended-release, long-acting, or sustained-release versions,

Be Alert to Abuse of ADHD Drugs

The stimulants discussed in this report have the potential for abuse. Some teenagers and college students who do not have ADHD take them to pull "all-nighters" and be more alert and focused for exams. Some teenagers and college students abuse the medications just to get "high." Since stimulants also suppress appetite, they have been used by people trying to lose weight, as well.

"Hard core" abusers have been reported to crush and snort stimulant pills, or dissolve them in water and inject the mixture. This can be deadly or lead to severe complications. For example, crushing the tablets releases insoluble fillers that can block small blood vessels.

Various studies have suggested that 5 to 8 percent of children and teens misuse stimulants. Rates of misuse might be higher among college students—ranging from 5 to 35 percent in studies, with many—26 to 63 percent—saying the reason they misused the medications was to improve their academic performance.

Dextroamphetamine and amphetamine appear to have a greater potential for abuse than methylphenidate. But abuse of methylphenidate can, and does, occur. Snorting, in particular, can induce large and fast dopamine increases in the brain and might have similar effects as cocaine. A form of withdrawal can occur with intermittent use.

Lisdexamfetamine (Vyvanse) might be more difficult to abuse. Unlike the other stimulants, it is a "prodrug," which means it has to go through the digestive tract to become activated. So theoretically, snorting or injecting it would not induce a high for a person. But more studies are needed to show that it doesn't lead to abuse.

The risk of addiction among children and preteenagers taking stimulants for ADHD is very low and has not generally been reported. Still though, parents of teenagers and college students prescribed stimulants for ADHD should closely monitor use of the medicine.

Coping Strategies for Teens and Adults with ADHD

Taking medicine might ease your symptoms. But for teenagers and adults with ADHD, these tips might also help:

- If you can't remember an instruction, ask your teacher or supervisor to repeat it. Don't just guess.
- Break big jobs into smaller tasks, and reward yourself as you finish each one.
- Make a list of what you need to do each day, then put these tasks in the order you intend to do them. Cross each thing off the list as soon as you've done it.
- Work in a quiet area.
- Do one thing at a time.
- Take regular, short breaks.
- Carry a notebook to write down things you need to remember.
- Use sticky notes to remind yourself of things you need to do. Post them where you will notice them, such as on your refrigerator, car dashboard, or school locker.
- Organize similar things together. Music CDs should be in one place, videos in another. Bills should be separate from personal letters.
- Create a routine. Get up and go to bed at the same times each day.
- Exercise, eat a balanced diet, and try to get enough sleep.

usually designated by the letters ER, LA, SR, and XR, can be taken just once or twice a day. The actual length of time these various drugs are "active" in the body varies quite a bit, from drug to drug and from person to person. So you'll hear some doctors refer to short-acting, medium-acting, and long-acting versions.

The long-acting versions are often preferred by doctors and are far more widely prescribed today. However, some doctors and parents might prefer starting a child on a shorter-acting or perhaps a medium-acting stimulant. This might especially be the case with children and teenagers (and even adults) whose symptoms are mild. Be prepared to discuss these details with your doctor, who should work with you to decide what the best choice is for you or your child.

The side effects associated with ADHD medicines usually occur early in treatment and tend to be mild. The most common for stimulants include decreased appetite, difficulty falling asleep, headache, irritability, jitteriness, and stomachache.

For the nonstimulant drug atomoxetine (Strattera), the most common side effects in children include decreased appetite, dizziness, fatigue, mood swings, nausea, and upset stomach. The most common side effects with the newest nonstimulant drugs, clonidine (Kapvay) and guanfacine (Intuniv), are sleepiness, tiredness, and small changes in blood pressure or heart rate.

All of the stimulant ADHD medicines and atomoxetine have also been linked to rare cases of heart attack, stroke, and sudden death. As a result, the FDA has strengthened its cautions about these potential risks on the labeling of these drugs. Three recent studies conducted by the FDA and the Agency for Healthcare Research and Quality found that ADHD stimulant medications and Strattera posed no increased risk of sudden death, stroke, or heart attack in children or adults. However, the studies could not rule out the possibility that there is still a small risk of those adverse events. The FDA has not removed the warning from labeling of these medications and continues to recommend that stimulant medications and Strattera should generally not be used in people with serious heart problems, or for whom an increase in blood pressure or heart rate would be problematic. The FDA also recommends that people treated with ADHD medications should be periodically monitored for changes in heart rate or blood pressure.

The two other nonstimulant drugs, clonidine (Kapvay) and guanfacine (Intiuniv), have been used for many years to treat high blood pressure, and therefore can

lower blood pressure, slow heart rate, and in rare cases, cause a condition called heart block. To help avoid the risk of serious decreases in blood pressure or heart rate, people initially start on a low dose that is gradually increased. Kapvay should be gradually discontinued under a doctor's supervision because a rapid increase in blood pressure can occur if it is suddenly stopped.

The FDA advises that prior to starting an ADHD medication, children should be evaluated for underlying heart problems to look for signs of increased risk of these side effects. The drugs should not be used in adults with heart problems or abnormalities for the same reasons.

The FDA recommends that an electrocardiogram, or ECG—a noninvasive procedure used to look for heart problems —be considered if the evaluation shows an increased risk for, or the presence of, heart disease. If your child develops chest pain, shortness of breath, or fainting while on these medicines, they should be seen by a doctor immediately.

Additionally, atomoxetine (Strattera) has been linked to an increased risk of suicidal thoughts and behaviors in children and adolescents. As a result, the drug's labeling now carries a "black-box" warning about this risk. If your doctor recommends Strattera, discuss this risk with him or her, and regularly watch for signs of increased depression or suicidal thinking in your child or adolescent.

Other drugs sometimes used to treat ADHD

Other drugs are sometimes used to treat ADHD. But *there's no conclusive, systematic evidence they work, and they are not FDA-approved to treat ADHD. So we advise caution.*

These drugs include the antidepressant, bupropion (Wellbutrin); tricyclic antidepressants; the short-acting forms of high blood pressure medicines, clonidine (Catapres) and guanfacine (Tenex); along with several antipsychotics: aripiprazole (Abilify), olanzapine (Zyprexa), quetiapine (Seroquel), risperidone (Risperdal), and ziprasidone (Geodon).

While a few small studies of some of these drugs have shown that they might reduce ADHD symptoms, these results should be viewed with caution. As we noted, these medications are not FDA-approved for ADHD, and they carry their own side effect profiles. For example, antidepressants have a rare, but increased, risk of suicidal thinking and actions in children, teenagers, and adults.

We recommend that the medicines not approved to treat ADHD be used *very cautiously,* and only after a thorough discussion with your doctor. They should probably be used *only* when a child, teenager, or adult cannot take a stimulant or one of the three nonstimulants approved for ADHD due to side effects or lack of efficacy, or when the presence of another condition (such as depression or anxiety) warrants treatment with the non-approved drug.

Our *Best Buy* picks

Table 4 presents the average monthly price for drugs used to treat ADHD. The cost ranges vary widely, from low-cost generics around $15 per month or even less, to brand-name drugs that are more than $300 per month, to liquid formulations that can run over $500 per month.

Taking the evidence for effectiveness, safety, side effects, dosing convenience, duration of action, and cost into account, we have selected the following as *Consumer Reports Best Buy Drugs* to treat ADHD:

- Generic methylphenidate tablets
- Generic methylphenidate sustained-release tablets or capsules

Methylphenidate has been on the market for decades and has proven to be effective and safe for most people when used as directed. It is available as a low- or moderately-priced generic, and "branded" generics (generic drugs sold under trade names, but which are often less-expensive than branded drugs, yet slightly more costly than a regular generic). Methylphenidate is supported by a large body of comparative evidence, and it has a slightly lower incidence of mild side effects, and a lower potential for abuse than dextroamphetamine.

As mentioned, most doctors will recommend the long-acting once-, or twice-a-day versions of a stimulant as a first step. But we include short-act-

Table 3. Summary of Evidence on ADHD Drugs

Generic Name	Brand Name(s)	FDA-Approved for Age(s)	Level of Evidence of Symptom Control	Notes About Safety
Stimulant Drugs Approved to Treat ADHD				
Amphetamine	Adderall, Adderall XR	Age 3 and older	■ Strong evidence in short-term for controlling behavior, making child less restless and better able to concentrate, more likely to think before acting (but no evidence on long-term outcomes).	■ Concern about increased risk of sudden unexplained death, stroke, heart attack has not been supported by good quality studies. ■ Growth suppression might occur in first 1-2 years of use; evidence suggests growth normalizes with longer use. ■ Should not be used by people with glaucoma or those on MAOI antidepressants. ■ Should not be used in patients with high blood pressure or heart problems. ■ High abuse potential.
Dextroamphetamine (lisdexamfetamine included here because it's turned into dextroamphetamine in the body, but lisdexamfetamine has been much less studied so effectiveness and side effects could be different)	Dexedrine, Vyvanse	Age 6 and older	■ Strong evidence in short-term for controlling behavior, making child less restless and better able to concentrate, more likely to think before acting (but no evidence on long-term outcomes).	■ Concern about increased risk of sudden unexplained death, stroke, heart attack has not been supported by good quality studies. ■ Growth suppression might occur in first 1-2 years of use; evidence suggests growth normalizes with longer use. ■ Possibly causes more weight loss than methylphenidate. ■ Should not be used by people with glaucoma or those on MAOI antidepressants. ■ Should not be used in patients with high blood pressure or heart problems. ■ High abuse potential (lisdexamfetamine's formulation might make it less likely to be abused, but studies are needed to confirm this).
Dexmethylphenidate	Focalin, Focalin XR	Age 6 and older	■ Strong evidence in short-term for controlling behavior, making child less restless and better able to concentrate, more likely to think before acting (No evidence on long-term outcomes). ■ Focalin XR is the longest acting of this type of drug (12 hours).	■ Concern about increased risk of sudden unexplained death, stroke, heart attack has not been supported by good quality studies. ■ Effect on growth has not been well studied. ■ Should not be used by people with glaucoma or those on MAOI antidepressants. ■ Should not be used in patients with high blood pressure or heart problems.

Table 3. Summary of Evidence on ADHD Drugs (continued)

Generic Name	Brand Name(s)	FDA-Approved for Age(s)	Level of Evidence of Symptom Control	Notes About Safety
Stimulant Drugs Approved to Treat ADHD				
Methylphenidate	Concerta, Daytrana patch, Metadate CD, Metadate ER, Methylin, Methylin ER, Ritalin, Ritalin SR, Ritalin LA	Age 6 and older	■ Strong evidence (for immediate release formulations; less robust for extended-release and patch formulations) in short-term for controlling behavior, making child less restless and better able to concentrate, more likely to think before acting (No evidence on long-term outcomes). ■ Concerta is the longest acting of this type of drug (12 hours).	■ Concern about increased risk of sudden unexplained death, stroke, heart attack has not been supported by good quality studies. ■ Growth suppression might occur in first 1-2 years of use; evidence suggests growth normalizes with longer use. ■ Should not be used by people with glaucoma or those on MAOI antidepressants. ■ Better symptom control later in day than early in the day, but might cause trouble sleeping. ■ While risk of abuse might be lower, it is still a concern.
Nonstimulant Drugs Approved to Treat ADHD				
Atomoxetine	Strattera	Age 6 and older	■ Strong evidence in short-term for controlling behavior (No evidence on long-term outcomes).	■ Rare risk of suicidal thinking and behavior. ■ Rare risk of severe liver injury. ■ Concern about increased risk of sudden unexplained death, stroke, heart attack has not been supported by good quality studies. ■ No known risk of abuse. ■ Growth suppression might occur in first 1-2 years of use; evidence suggests growth normalizes with longer use. ■ Only on the market since 2002, so longer-term effects unknown.
Clonidine (long-acting formulation)	Kapvay	Age 6 and older	■ Moderate strength evidence for the long-acting form in controlling behavior in the short-term when used alone, and modest benefit when used in addition to a stimulant. ■ No evidence on long-term outcomes; benefit with short-acting form inconsistent.	■ Serious decrease in blood pressure or heart rate can occur; gradual dose increases recommended. ■ Should not stop taking suddenly, as rapid increase in blood pressure can occur. ■ Should not be taken with other drugs for high blood pressure. ■ Sleepiness and tiredness are most common side effects. ■ No known abuse potential. ■ Potential harms of long-term use in children is not known.

Table 3. Summary of Evidence on ADHD Drugs (continued)				
Generic Name	**Brand Name(s)**	**FDA-Approved for Age(s)**	**Level of Evidence of Symptom Control**	**Notes About Safety**
Nonstimulant Drugs Approved to Treat ADHD				
Guanfacine (long-acting formulation)	Intuniv	Age 6 and older	■ Moderate strength evidence for the long-acting form in controlling behavior in the short-term when used alone, and modest benefit when used in addition to a stimulant. ■ No evidence on long-term outcomes; benefit with short-acting form inconsistent.	■ Serious decrease in blood pressure or heart rate can occur; gradual dose increases recommended. Avoid dehydration. ■ Should not be taken with other drugs for high blood pressure. ■ Sleepiness and tiredness are most common side effects. ■ No known abuse potential. ■ Potential harms of long-term use in children is not known.

ing versions in our *Best Buys* because, for some children and teenagers, they might be preferred.

As presented in Table 4, the average monthly cost of our *Best Buy* tablets and capsules ranges from $15 to $197, depending on strength. We'd advise you, though, to shop around (including online pharmacies of well-known big-box or chain drugstores) to get the best price. Prices can vary widely even within a town or city, and some drugstore Web sites can offer discounted prices. Your local pharmacy might also have a fairly good price on these medicines, or be willing to match a very low price that you find somewhere else.

For higher strengths—30 mg and above—a capsule might be less expensive than a tablet. Check with your insurance and pharmacy to figure out which will have the lowest cost for you.

If your doctor prescribes a brand-name version of methylphenidate—such as Ritalin, Ritalin LA, or Concerta—you should ask him or her why you are not being prescribed the less expensive generic version. Even if you have insurance, you will almost certainly have to pay more for these brand medicines, which are no more effective than generics.

As this report is being finalized, there has been an ongoing shortage of generic methylphenidate. The shortage has not affected all brands, dosages, or geographic areas equally. Although the Food and Drug Administration says it is working to resolve it, if you're unable to get a prescription filled, ask your doctor or pharmacist about obtaining the drug from a different part of the country. This may be easier at a large chain pharmacy, such as Target or Walgreens.

The nonstimulant Strattera is an option if our *Best Buy* or other stimulants do not seem to work well for you or your child. But since it is a newer drug, it is less tested and significantly more expensive. If your doctor prescribes Strattera as a first step, we advise asking him or her for an explanation. You should also be aware that studies have found that the drug is associated with a rare, but higher, risk of suicidal thinking in children and teenagers.

At the beginning of drug treatment, children are usually seen every week or so to ensure that the dosage is correct. The dosage might need to be adjusted to find the most effective regimen that keeps ADHD symptoms controlled while not causing any undue side effects. People who take medicines for ADHD should see a doctor at least every three months to check on the effectiveness of their treatment, side effects, and whether the dosage is correct.

Table 4. ADHD Drugs Cost Comparison

Generic Name and Dose [1]	Brand Name	Drug is a Generic [2]	Frequency of Use per Day [3]	Average Monthly Cost [4]
Amphetamine mixture 10 mg tablet	Adderall	No	Two	$294
Amphetamine mixture 15 mg tablet	Adderall	No	Two	$285
Amphetamine mixture 20 mg tablet	Adderall	No	Two	$287
Amphetamine mixture 30 mg tablet	Adderall	No	Two	$298
Amphetamine mixture 5 mg tablet	Generic	Yes	Two	$96
Amphetamine mixture 7.5 mg tablet	Generic	Yes	Two	$95
Amphetamine mixture 10 mg tablet	Generic	Yes	Two	$84
Amphetamine mixture 12.5 mg tablet	Generic	Yes	Two	$99
Amphetamine mixture 15 mg tablet	Generic	Yes	Two	$94
Amphetamine mixture 20 mg tablet	Generic	Yes	Two	$88
Amphetamine mixture 30 mg tablet	Generic	Yes	Two	$87
Amphetamine mixture 5 mg continuous-delivery capsule	Adderall XR	No	One	$291
Amphetamine mixture 5 mg continuous-delivery capsule	Generic	Yes	One	$181
Amphetamine mixture 10 mg continuous-delivery capsule	Adderall XR	No	One	$284
Amphetamine mixture 10 mg continuous-delivery capsule	Generic	Yes	One	$184
Amphetamine mixture 15 mg continuous-delivery capsule	Adderall XR	No	One	$276
Amphetamine mixture 15 mg continuous-delivery capsule	Generic	Yes	One	$180
Amphetamine mixture 20 mg continuous-delivery capsule	Adderall XR	No	One	$265
Amphetamine mixture 20 mg continuous-delivery capsule	Generic	Yes	One	$180
Amphetamine mixture 25 mg continuous-delivery capsule	Adderall XR	No	One	$278
Amphetamine mixture 25 mg continuous-delivery capsule	Generic	Yes	One	$180
Amphetamine mixture 30 mg continuous-delivery capsule	Adderall XR	No	One	$267
Amphetamine mixture 30 mg continuous-delivery capsule	Generic	Yes	One	$177
Atomoxetine 10 mg capsule	Strattera	No	One	$218
Atomoxetine 18 mg capsule	Strattera	No	One	$218
Atomoxetine 25 mg capsule	Strattera	No	One	$223
Atomoxetine 40 mg capsule	Strattera	No	One	$233
Atomoxetine 60 mg capsule	Strattera	No	One	$235
Atomoxetine 80 mg capsule	Strattera	No	One	$271
Atomoxetine 100 mg capsule	Strattera	No	One	$278
Clonidine 0.1 mg sustained-release tablet	Kapvay	No	Two	$167
Dextroamphetamine 5 mg/ 5 ml solution	ProCentra	BG	Two	$256
Dextroamphetamine 5 mg tablet	Generic	Yes	Two	$24
Dextroamphetamine 10 mg tablet	Generic	Yes	Two	$37
Dextroamphetamine 5 mg sustained-release capsule	Generic	Yes	One	$86
Dextroamphetamine 10 mg sustained-release capsule	Dexedrine	No	One	$229
Dextroamphetamine 10 mg sustained-release capsule	Generic	Yes	One	$100

Table 4. ADHD Drugs Cost Comparison

Generic Name and Dose [1]	Brand Name	Drug is a Generic [2]	Frequency of Use per Day [3]	Average Monthly Cost [4]
Dextroamphetamine 15 mg sustained-release capsule	Dexedrine	No	One	$272
Dextroamphetamine 15 mg sustained-release capsule	Generic	Yes	One	$115
Dexmethylphenidate 2.5 mg tablet	Focalin	No	Two	$70
Dexmethylphenidate 5 mg tablet	Focalin	No	Two	$83
Dexmethylphenidate 10 mg tablet	Focalin	No	Two	$110
Dexmethylphenidate 2.5 mg tablet	Generic	Yes	Two	$52
Dexmethylphenidate 5 mg tablet	Generic	Yes	Two	$66
Dexmethylphenidate 10 mg tablet	Generic	Yes	Two	$80
Dexmethylphenidate 5 mg sustained-release capsule	Focalin XR	No	One	$225
Dexmethylphenidate 10 mg sustained-release capsule	Focalin XR	No	One	$226
Dexmethylphenidate 15 mg sustained-release capsule	Focalin XR	No	One	$223
Dexmethylphenidate 20 mg sustained-release capsule	Focalin XR	No	One	$230
Dexmethylphenidate 30 mg sustained-release capsule	Focalin XR	No	One	$234
Guanfacine 1 mg sustained-release tablet	Intuniv	No	One	$220
Guanfacine 2 mg sustained-release tablet	Intuniv	No	One	$218
Guanfacine 3 mg sustained-release tablet	Intuniv	No	One	$227
Guanfacine 4 mg sustained-release tablet	Intuniv	No	One	$226
Lisdexamfetamine 20 mg capsule	Vyvanse	No	One	$201
Lisdexamfetamine 30 mg capsule	Vyvanse	No	One	$199
Lisdexamfetamine 40 mg capsule	Vyvanse	No	One	$199
Lisdexamfetamine 50 mg capsule	Vyvanse	No	One	$202
Lisdexamfetamine 60 mg capsule	Vyvanse	No	One	$200
Lisdexamfetamine 70 mg capsule	Vyvanse	No	One	$201
Methylphenidate 2.5 mg chewable tablet	Methylin	No	Two	$275
Methylphenidate 5 mg chewable tablet	Methylin	No	Two	$335
Methylphenidate 5 mg/5 ml solution	Methylin	No	Two	$317
Methylphenidate 5 mg/5 ml solution	Generic	Yes	Two	$240
Methylphenidate 5 mg tablet	Methylin	BG	Two	$23
Methylphenidate 5 mg tablet	Ritalin	No	Two	$66
CR BEST BUY Methylphenidate 5 mg tablet	Generic	Yes	Two	$18
Methylphenidate 10 mg/5 ml solution	Methylin	No	Two	$549
Methylphenidate 10 mg/5 ml solution	Generic	Yes	Two	$351
Methylphenidate 10 mg tablet	Methylin	BG	Two	$29
Methylphenidate 10 mg tablet	Ritalin	No	Two	$86
CR BEST BUY Methylphenidate 10 mg tablet	Generic	Yes	Two	$15
Methylphenidate 20 mg tablet	Methylin	BG	Two	$43
Methylphenidate 20 mg tablet	Ritalin	No	Two	$115

Table 4. ADHD Drugs Cost Comparison

Generic Name and Dose [1]	Brand Name	Drug is a Generic [2]	Frequency of Use per Day [3]	Average Monthly Cost [4]
CR BEST BUY Methylphenidate 20 mg tablet	Generic	Yes	Two	$38
Methylphenidate 10 mg chewable tablet	Methylin	No	Two	$475
Methylphenidate 10 mg/9 hr patch/disc	Daytrana	No	One	$242
Methylphenidate 10 mg sustained-release tablet	Methylin ER	BG	One	$34
CR BEST BUY Methylphenidate 10 mg sustained-release tablet	Generic	Yes	One	$32
Methylphenidate 10 mg sustained-release capsule	Metadate CD	No	One	$187
Methylphenidate 10 mg sustained-release capsule	Ritalin LA	No	One	$179
Methylphenidate 15 mg/9 hr patch/disc	Daytrana	No	One	$237
Methylphenidate 18 mg sustained-release tablet	Concerta	No	One	$207
Methylphenidate 18 mg sustained-release tablet	Generic	Yes	One	$172
Methylphenidate 20 mg/9 hr patch/disc	Daytrana	No	One	$238
CR BEST BUY Methylphenidate 20 mg extended-release tablet	Generic (methylphenidate ER)	Yes	One	$33
CR BEST BUY Methylphenidate 20 mg sustained-release tablet	Generic (methylphenidate SR)	Yes	One	$34
Methylphenidate 20 mg sustained-release tablet	Metadate ER	BG	One	$57
Methylphenidate 20 mg sustained-release tablet	Methylin ER	BG	One	$38
Methylphenidate 20 mg sustained-release tablet	Ritalin SR	No	One	$99
Methylphenidate 20 mg sustained-release capsule	Metadate CD	No	One	$186
Methylphenidate 20 mg sustained-release capsule	Ritalin LA	No	One	$187
Methylphenidate 27 mg sustained-release tablet	Concerta	No	One	$215
Methylphenidate 27 mg sustained-release tablet	Generic	Yes	One	$176
Methylphenidate 30 mg/9 hr patch/disc	Daytrana	No	One	$239
Methylphenidate 30 mg sustained-release capsule	Metadate CD	No	One	$188
CR BEST BUY Methylphenidate 30 mg sustained-release capsule	Generic	Yes	One	$144
Methylphenidate 30 mg sustained-release capsule	Ritalin LA	No	One	$183
Methylphenidate 36 mg sustained-release tablet	Concerta	No	One	$217
Methylphenidate 36 mg sustained-release tablet	Generic	Yes	One	$181
Methylphenidate 40 mg sustained-release capsule	Metadate CD	No	One	$259
CR BEST BUY Methylphenidate 40 mg sustained-release capsule	Generic	Yes	One	$145
Methylphenidate 40 mg sustained-release capsule	Ritalin LA	No	One	$194
Methylphenidate 50 mg sustained-release capsule	Metadate CD	No	One	$320
Methylphenidate 54 mg sustained-release tablet	Concerta	No	One	$252
CR BEST BUY Methylphenidate 54 mg sustained-release tablet	Generic	Yes	One	$197
Methylphenidate 60 mg sustained-release capsule	Metadate CD	No	One	$317

1. Not all dose forms are listed. Higher doses, not generally or widely used in children, are not represented.
2. BG indicates that the drug is a "branded generic," a medicine that is generic but given a special name by its maker for marketing purposes.
3. As typically prescribed, but dosing varies with these drugs.
4. Monthly costs reflect national average retail prices for January 2012, rounded to the nearest dollar. Information derived by *Consumer Reports Best Buy Drugs* from data provided by Wolters Kluwer Pharma Solutions, which is not involved in our analysis or recommendations.

The Evidence

This section presents more information on the effectiveness and safety of prescription drugs to treat ADHD.

This report is based on an analysis of the scientific evidence on prescription drugs used to treat ADHD. More than 4,000 research articles and studies on ADHD drugs were identified, screened, and evaluated. From these, the analysis focused on 404 of the most relevant findings to provide evidence of comparative effectiveness and safety.

How Effective Are Drugs Prescribed for ADHD?

In general, stimulant medications reduce ADHD symptoms in about 60 to 80 percent of people who take them. This includes reducing hyperactivity and impulsivity. This can improve a person's daily functioning, and their ability to focus, learn, and work. However, some studies show that even with long-term treatment, many people with ADHD continue to have problems at school, work, and home.

The largest study found that intensive treatment with a stimulant medication and close monitoring provided an advantage for the first 14 months over typical, less-monitored medication treatment or behavioral therapy alone. After that, this advantage began to decrease somewhat by two years, and faded entirely between three to eight years after starting treatment. But it's difficult to draw firm conclusions about the long-term benefits of medication from these results because many of the children had discontinued or changed their treatment after the first 14 months. In this study, after 8 years, most of the children (about 70 percent) no longer had ADHD, regardless of what kind of treatment they received.

There is uncertainty about how long the benefits of ADHD medications last because no good quality studies have looked at continued treatment for longer than a couple of years. The study cited above found that closely monitored medication is beneficial for up to 14 months. Some smaller studies of children who took methylphenidate found that improvements started to decrease, at least somewhat, as early as nine months to two years after starting treatment.

Given these uncertainties about long-term effectiveness, the decision about whether to stop medication must be made on an individual basis. Some children might benefit from continuing to take a medication. However, some children seem to "outgrow" their ADHD symptoms, so medication might not be beneficial or necessary after a while. One option is to stop taking the medicine for a brief period to see if you or your child notices a difference.

Most studies looking at medication therapy for ADHD have focused on children, while adults have not been widely studied. But even in children, the strength of the scientific evidence comparing ADHD drugs is not high. Most of the studies are short-term, and only a few involved large numbers of people. The evidence that exists finds no stimulant clearly more effective than any other, and the studies that compare the various stimulant drugs to placebo (dummy pills) generally show around the same level of effectiveness among the stimulants.

When compared with the stimulants, atomoxetine (Strattera) has yielded mixed results. Most studies have found it somewhat less effective, but some studies have found it about equal in effectiveness to the stimulant, methylphenidate.

When the other two nonstimulants—long-acting forms of clonidine (Kapvay) and guanfacine (Intuniv)—are used alone, the improvement with these drugs might be less than with stimulants, but studies directly comparing them are needed to confirm this finding. When clonidine or guanfacine are used in combination with a stimulant (when a stimulant alone has not been effective), the additional symptom control is modest, but might be enough. A few studies of the short-acting forms of clonidine and guanfacine found they can reduce ADHD symptoms in children, but these results should be viewed with caution since they come from only a few small-scale studies, and some results were conflicting.

A number of other drugs—the antidepressant, bupropion (Wellbutrin); tricyclic antidepressants; and several antipsychotics—are sometimes used to treat ADHD, but very few studies have been done

to evaluate their effectiveness. While a few small studies of some of these drugs have shown that they might reduce ADHD symptoms, these results should be viewed with caution. The medicines are not FDA-approved for treating ADHD and they carry their own side effect profiles. For example, antidepressants increase the risk of suicidal thinking and actions in children, teenagers, and adults.

How Safe Are Drugs Prescribed for ADHD?

When people taking drugs to treat ADHD are closely monitored by doctors, use of the drugs is generally considered to be very safe. Less than 5 percent of children have side effects that require them to stop taking a stimulant. But notably, the long-term consequences of taking any drug for ADHD for many years have not been fully evaluated in studies.

The stimulant ADHD medications and atomoxetine (Strattera) were previously associated with rare reports of sudden death, stroke, and heart attack. However, as noted on page 11, recent studies do not support an increased risk in children or adults. But due to the possibility that the medications could still pose a small risk that went undetected in the studies, the FDA has not removed the warning from labeling of these medications, and continues to recommend that stimulant medications and Strattera should generally not be used in people with serious heart problems, or for whom an increase in blood pressure or heart rate would be problematic.

Clonidine (Kapvay) and guanfacine (Intuniv) might cause problems with low blood pressure and low heart rate that can be severe. These problems generally occur early in the course of treatment, and can be managed by slowly increasing the dose and monitoring during dose changes.

Strattera has also been associated with a few other rare, but serious, side effects that have resulted in the FDA strengthening its cautions on the drug. First, there have been a few cases of liver damage and liver failure. Alert your doctor immediately if your child becomes jaundiced—showing yellowing of the skin or whites of the eyes—which is a sign of liver damage. Blood tests will reveal any evidence of liver damage. Second, Strattera has been linked to an increased risk of suicidal thoughts or actions in children and adolescents. Before starting Strattera, be sure to tell your doctor if your child has a history of depression or suicide attempts. You should call your doctor right away if you notice your child starting to feel more depressed or suicidal.

One concern about stimulants is whether children and teenagers with ADHD who take them are more vulnerable to drug and substance abuse later in life. The best evidence available at this time does not suggest an increased risk for those with ADHD only. But studies do indicate there is an increased risk for those with both ADHD and conduct disorder.

The stimulants themselves, are also subject to abuse. Studies have shown that some teenagers and college students who do not have ADHD misuse and abuse amphetamines and/or methylphenidate. Most experts advise that teenagers with ADHD who take stimulants should be monitored—including keeping close tabs on whether they are getting extra prescriptions—to make sure they are not sharing these drugs with friends.

All of the stimulants cause side effects. Very few differences have been found in terms of their safe use. The most common side effects are decreased appetite, headache, insomnia, nervousness, and rapid heart rate. Careful dosing and practical advice can usually reduce or eliminate most of these effects. Children using the patch form of methylphenidate might also experience some mild skin reactions such as redness, itching, or an allergic rash.

All the stimulants also carry warnings of possible suppression of growth (height or weight). There is no evidence of differences among stimulants in their effect on height, but some evidence suggests that children taking dextroamphetamine had greater weight loss than those taking methylphenidate. There have been reports of slightly decreased growth in children and teenagers taking Strattera, as well. All children taking these medicines should be monitored for abnormal growth or weight changes. Slower growth in children taking stimulants seems to resolve after 2 years, and after 3 to 5 years with atomoxetine (Strattera).

Age, Race, and Gender Differences

Caution should be used when considering stimulants and other drugs for ADHD in children

younger than 6. There is just not enough scientific evidence to draw definitive conclusions about their effectiveness and safety in this age group.

Girls, children under 6, various ethnic groups, and people with conditions such as tic disorders, developmental delay, autism, or epilepsy have all been underrepresented in most studies of drugs prescribed for ADHD. The evidence that does exist generally does not indicate that any drug prescribed for ADHD is any more or less effective based on age, gender, race, or the presence of other illnesses, with a couple of exceptions described below.

One possible exception is Tourette's syndrome. Clonidine might not be quite as effective as stimulants in improving ADHD-specific symptoms in children who also have Tourette's syndrome. However, both clonidine and guanfacine reduced tic frequency and severity in children with both tics and ADHD. There's been concern that the stimulant drugs used to treat ADHD might worsen tics or make them more frequent, but overall, the evidence does not indicate the medications pose this risk.

Another possible exception is anxiety and ADHD. In children and adults with anxiety and ADHD, atomoxetine (Strattera) improved both. In children with anxiety, it is unclear whether the improvement in ADHD symptoms with stimulants is as good as in children without anxiety. Reports of new anxiety did not differ among the stimulants.

Talking With Your Doctor

It's important for you to know that the information we present here is not meant to substitute for a doctor's judgment. But we hope it will help you and your doctor arrive at a decision about which ADHD drug is best for you—if one is warranted at all—and which gives you the most value for your health-care dollar.

Bear in mind that many people are reluctant to discuss the cost of medicine with their doctor, and that studies have found that doctors do not routinely take price into account when prescribing medicine. Unless you bring it up, your doctors might assume that cost is not a factor for you.

Many people (including physicians) think that newer drugs are better. While that's a natural assumption to make, it's not necessarily true. Studies consistently find that many older medicines are as good as—and in some cases better than—newer medicines. Think of them as "tried and true," particularly when it comes to their safety record. Newer drugs have not yet met the test of time, and unexpected problems can and do crop up once they hit the market.

Of course, some newer prescription drugs are indeed more effective and safer. Talk with your doctor about the pluses and minuses of newer vs. older medicine, including generic drugs.

Prescription medicines go "generic" when a company's patents on them lapses, usually after about 12 to 15 years. At that point, other companies can make and sell the drug.

Generics are much less expensive than newer brand-name medicines, but they're not lesser quality drugs. Indeed, most generics remain useful even many years after first being marketed. That's why more than 60 percent of all prescriptions in the U.S. today are written for generics.

Another important issue to talk about with your doctor is keeping a record of the drugs you are taking. There are several reasons for this:

- First, if you see several doctors, each might not be aware of medicine the others have prescribed.
- Second, since people differ in their response to medication, it's common for doctors today to prescribe several before finding one that works well or best.
- Third, many people take several prescription medications, nonprescription drugs, and dietary supplements at the same time. They can interact in ways that can either reduce the benefit you get from the drug or be dangerous.
- Fourth, the names of prescription drugs—both generic and brand—are often hard to pronounce and remember.

For all those reasons, it's important to keep a written list of all the drugs and supplements you are taking, and to periodically review it with your doctors.

And always be sure that you understand the dose of the medicine being prescribed for you and how many pills you're expected to take each day. Your doctor should tell you this information. When you fill a prescription at a pharmacy or if you get it by mail, check to see that the dose and the number of pills per day on the pill bottle match the amounts your doctor told you.

How We Picked the *Best Buy* Drugs for ADHD

Our evaluation is primarily based on independent scientific reviews of the evidence on the effectiveness, safety, and adverse effects of prescription drugs for ADHD. A team of physicians and researchers at the Oregon Health & Science University Evidence-based Practice Center conducted one of these analyses as part of the Drug Effectiveness Review Project, or DERP. DERP is a first-of-its-kind, multi-state initiative to evaluate the comparative effectiveness and safety of hundreds of prescription drugs.

A synopsis of DERP's analysis of prescription drugs for ADHD forms the primary basis for this report. A consultant to *Consumer Reports Best Buy Drugs* is also a member of the Oregon-based research team, which has no financial interest in any pharmaceutical company or product.

The full DERP review of ADHD drugs is available at http://derp.ohsu.edu/about/final-document-display.cfm. (This is a long and technical document written for physicians.)

The drug costs we cite were obtained from a healthcare information company that tracks the sales of prescription drugs in the U.S. Prices for a drug can vary quite widely, even within a city or town. All the prices in this report are national averages based on sales of prescription drugs in retail outlets. They reflect the cash price paid for a month's supply of each drug in January 2012.

Consumer Reports selected the *Best Buy Drugs* using the following criteria. The drugs (and doses) had to:

- Be as or more effective than other drugs used to treat ADHD.
- Have a safety record equal to or better than other drugs for ADHD.
- Have an average price for a 30-day supply that was substantially lower than the most costly prescription drug for ADHD meeting the first two criteria.

The *Consumer Reports Best Buy Drugs* methodology is described in more detail in the Methods section at www.CRBestBuyDrugs.org.

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We followed a rigorous editorial process to ensure that the information in this report and on the *Consumer Reports Best Buy Drugs* website is accurate and describes generally accepted clinical practices. If we find an error or are alerted to one, we will correct it as quickly as possible. But *Consumer Reports* and its authors, editors, publishers, licensers, and suppliers can't be responsible for medical errors or omissions, or any consequences from the use of the information on this site. Please refer to our user agreement at www.CRBestBuyDrugs.org for further information.

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