

BEST BUY DRUGS

The Antihistamines:

Treating Allergies, Hay Fever, and Hives

Comparing Effectiveness, Safety, and Price



Our Recommendations

This report evaluates seven newer or second-generation antihistamine medications that are widely used to relieve the symptoms of hay fever (known medically as *allergic rhinitis*), hives (urticaria), and other allergies. Studies have found these drugs to be equally effective and generally safe, but they can be misused.

Some people who take allergy medicines do not have allergies, so you should see your doctor for a diagnosis before taking antihistamines on a regular basis.

The newer antihistamines cause less drowsiness than the older ones, which include nonprescription drugs such as Benadryl Allergy, Chlor-Trimeton Allergy, and Dimetapp Allergy. But the newer drugs are no more effective than the older ones at relieving symptoms.

The monthly cost for the newer medicines varies from about \$13 to more than \$300, so price might be an important factor in your choice. This report shows how you could save hundreds of dollars a year or more if you currently take an expensive brand-name antihistamine. Taking dosing convenience, cost, and effectiveness and safety into account, we have selected the following as *Consumer Reports Health Best Buy Drugs*:

- Loratadine 10 mg tablets
- Loratadine dissolving 10 mg tablets
- Loratadine liquid 10 mg
- Alavert dissolving 10 mg tablets

All are low-cost generics available without a prescription in pharmacies and other stores that sell medications. All contain loratadine, the active ingredient in the nonprescription drug Claritin (until 2002 a best-selling prescription drug), which has been shown to effectively relieve symptoms of hay fever, hives, and other allergies. You should also be aware that some people may respond well to one antihistamine while getting no benefit from another. So if loratadine does not work for you, then try cetirizine or one of the other antihistamines.

Your insurance might not fully cover antihistamines or might charge you a higher than usual co-payment. Most insurers changed their policy when loratadine became a nonprescription drug. They now assume that most people will treat mild allergy symptoms just like they do a cold, the flu, or bouts of minor pain – with nonprescription medicines. Check with your insurer or health-plan administrator about its policy on antihistamines.

Welcome

This report on a class of drugs to treat hay fever (allergic rhinitis), hives (urticaria), and other upper-respiratory symptoms triggered by allergies is part of a Consumers Union 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 ConsumerReportsHealth.org/BestBuyDrugs.

Hives are red welts on the surface of the skin that are often itchy. They are usually an allergic reaction to food or medicine, but other substances and factors, including stress, can trigger them too. Up to 24 percent of the people in the U.S. will get hives at some point, according to the American Academy of Allergy Asthma and Immunology (AAAAI). Hives are usually harmless and disappear on their own, but if they become severe, an antihistamine might be appropriate.

Hay fever is a type of allergic rhinitis, an allergic reaction triggered when a person breathes in something they are allergic to, such as dust, dander, or in the case of hay fever, pollen. About 60 million people in the U.S. suffer from allergic rhinitis, the AAAAI says. About 18 million American adults and 7.1 million children have hay fever, according to the Centers for Disease Control and Prevention.

The most common symptoms include nasal congestion, a runny nose, sneezing, and itchy and watery eyes. Nonprescription allergy medicine is available in drug and grocery stores. These come in a variety of forms, including pills, liquid solutions, nasal sprays, and skin creams. Most of the pills contain the active ingredients chlorpheniramine (e.g. Chlor-Trimeton Allergy); clemastine (Tavist); brompheniramine (Dimetapp); or diphenhydramine (Benadryl Allergy). Those drugs are considered “first-generation” antihistamines and have been available for decades.

This report focuses on “second-generation” antihistamines, which include five oral medicines and two nasal sprays. Three of the five oral drugs are available as generics, and two are available as nonprescription over-the-counter (OTC) drugs. The nasal sprays are available as brand-name and generic prescription medicines. The drugs covered in this report are:

Generic Name	Brand Name(s)	Available as a Prescription Generic Drug?	Available as an OTC Drug?
Azelastine nasal spray/pump	Astelin, Astepro	Yes	No
Cetirizine	Zyrtec	Yes	Yes

Generic Name	Brand Name(s)	Available as a Prescription Generic Drug?	Available as an OTC Drug?
Desloratadine	Clarinex	No (Two generics have been approved by the FDA but are not available yet.)	No
Fexofenadine	Allegra	Yes	No
Levocetirizine	Xyzal	No	No
Loratadine	Claritin, Alavert	Yes	Yes
Olopatadine nasal spray	Patanase	No	No

You might recognize the brand names of the oral medicines—Allegra, Claritin, Clarinex, Zyrtec, and Xyzal. All have been widely advertised on TV and in magazines. And their use has become widespread, largely eclipsing (but by no means eliminating) the use of first-generation antihistamines.

The main reason for their popularity is that they cause less sedation and drowsiness. But these problems can still occur when taking the newer medications, especially at higher doses. The sedative effect of first-generation antihistamines isn't just annoying or inconvenient; it can be dangerous. Studies have consistently found that people taking the older antihistamines are at a higher risk for auto accidents and other incidents at home and work. Labels on these drugs warn people not to drive or operate machinery while using them. In addition, the newer antihistamines need to be taken just once a day while the older ones must be taken two or more times a day because their effect wears off more quickly.

Even so, there's been a long-standing debate about just how much better the newer drugs are and whether they're worth the extra cost. There's no easy answer. Most doctors advise their patients to use the newer pills, while others think their patients do just as well taking the older nonprescription drugs. Some people respond better to the older antihistamines than the newer ones. In addition, a patient might get the relief from an older drug without much sedation, especially if his or her symptoms are mild. Be aware, however, that studies have found a slowed reaction time among some people taking first-generation antihistamines even when they denied feeling drowsy.

On the other hand, you might be quite susceptible to the sedative effect of older antihistamines and respond better to the newer drugs. You might also get better symptom relief from a newer antihistamine,

though studies have found they aren't any more effective than older antihistamines. And as we have previously noted, the newer medicines can still cause some drowsiness, especially when higher doses are taken.

The availability of loratadine (Alavert, Claritin, and generics) and cetirizine (Zyrtec, and generics) in low-cost nonprescription formulations changes the cost and risk/benefit decision, as we discuss later in this report.

Most antihistamines, new and old, are also available in combination with a decongestant, such as pseudoephedrine. These combination products were not included in the analysis conducted by the Oregon Health & Science University's Drug Effectiveness Review Project, which forms the basis of this report, so we do not include them in our review. But you should know that decongestant products should be used with caution by people with high blood pressure, heart conditions, diabetes, glaucoma, or prostate disease. Consult a doctor if you are not sure whether you should use a combination product.

If your symptoms are mild, an antihistamine might be all you need. A doctor can also evaluate whether you need other medicines, including prescription drugs, to relieve your symptoms. They include:

- A steroid or an antihistamine nasal spray
- A new kind of allergy drug called a leukotriene blocker. There are three: montelukast (Singulair); zafirlukast (Accolate); and zileuton (Zyflo)
- Another type of immune-modifying drug called omalizumab (Xolair)
- Allergy shots (also known as immunotherapy)

This report does not discuss those medications. If you are taking them or have questions, consult your doctor.

Severe allergy symptoms could be a sign of asthma. Most people (but not all) who have asthma also have underlying allergies. Technically speaking, asthma is a separate condition characterized primarily by inflammation and constriction of the bronchial tubes that makes it difficult to breathe. But the two conditions can go hand in hand, especially in children and teenagers. Asthma is more common among the young and usually develops in childhood. But it can also strike adults. See Table 2 on page 8 for a quick guide on how to tell the difference. Antihistamines are *not* a common treatment for chronic asthma.

Some antihistamines are occasionally used to treat other conditions, such as motion sickness or vertigo. In this report we focus on the use of second-generation antihistamines only for treating hay fever, chronic allergy symptoms, and hives.

This report was published in September 2010.

What Are Antihistamines and Who Needs Them?

Antihistamines work by blocking the chemical messenger histamine, the main trigger of allergy symptoms in the nose, airways, and skin. Histamine is a part of the body's natural defense mechanisms. It works in part by widening blood vessels. That action causes congestion and sneezing, and is also what causes red, itchy hives on your skin after, say, a bug bite.

In people who have allergies and allergy-induced asthma (for reasons still not entirely clear), the body's immune system overreacts when exposed to otherwise harmless substances such as pollen, dust mites, mold spores, and animal dander (it's the skin primarily, but also saliva and urine, that triggers the allergic reaction). Excessive amounts of histamine are released, causing the symptoms of an allergic reaction (see Table 1 on page 7). Fortunately, a vast majority of allergic reactions are mild, even in people who suffer them seasonally or have chronic allergies.

But severe allergic reactions do occur and can be life-threatening. They are mostly reactions to insect stings, drugs, or foods—not to mold, pollen, or other hay-fever triggers. You might have heard the term “anaphylactic shock.” This is a type of allergic reaction in which a large amount of histamine is released, causing the airways and blood vessels to constrict, which can make breathing difficult and cause a significant drop in blood pressure. Such reactions are medical emergencies that generally require treatment with adrenaline injections and intravenous corticosteroids.

The best way to prevent allergy symptoms (both mild and severe) is to avoid the offending substance. Skin tests can help identify what you are allergic to. But complete avoidance is not always possible. The reality is that most allergy sufferers need to take medicine, including antihistamines. A 2010 Consumer Reports survey found that allergy sufferers use a variety of measures to get relief, including avoidance of the substance they're allergic to and both nonprescription and prescription medications. You can read more about the survey results and the strategies that people said were most helpful at: <http://www.consumerreports.org/health/conditions-and-treatments/allergy/allergy-treatment/overview/allergy-treatment.htm>.

Studies have found that some people who get prescriptions for allergy medicine do not in fact have allergies. If you are taking antihistamines or other allergy medicine regularly, you should consult a doctor to make sure that you do indeed have allergies and that the medication is appropriate for your condition.

If a doctor determines that you have an allergy, treatment is important. Mounting evidence in recent years has found that people with allergies are at much higher risk of developing asthma and sinus infections (sinusitis). And the inflammation that accompanies (and to some degree fosters) the allergic response can damage the respiratory system and make you more susceptible to lung infections like pneumonia.

So, one way to think about antihistamines (and other allergy medicine) is that they're not just for symptom relief but might in fact help prevent the progression to more severe and potentially life-threatening problems.

If you know you have allergies, you're a strong candidate for antihistamines (and are probably already taking one). Your choices are a bit more complex if you are not sure whether your symptoms are due to an allergy. Tables 1 and 2 on pages 7 and 8 will help you sort out what could be causing your symptoms.

The most common mistake is thinking you have allergies when you actually have a cold, bronchitis, a cough, or mild flu. If you have one of those conditions, you might need more than an antihistamine for relief. As mentioned above, many nonprescription cold and flu medicines contain an antihistamine along with other drugs. They include fever reducers and pain relievers such as aspirin, acetaminophen, and ibuprofen.

You could also have a more serious condition. Some older people who have a persistent cough and/or trouble breathing might be in the early stages of heart failure or emphysema, for example.

You should see a doctor if your symptoms persist. And you should be aware that allergy-induced asthma or severe allergic reactions don't respond well to antihistamines alone and should be treated

with other, more potent medicines. In particular, you should see a physician immediately if you have serious breathing problems associated with an allergic reaction.

Table 1. Do You Have Allergies or Something Else?

Location	Probably Allergies	Probably NOT Allergies
Nose and Eyes	Sneezing	Sore throat
	Teary eyes	Runny nose with colored, sometimes thick, mucus discharge
	Itchy nose and throat	Fever (slight if a cold; higher if the flu)
	Congestion, runny nose	Cough, chest congestion
	Clear nasal discharge	Muscle aches, feeling achy all over
	Cough (sometimes)	
	Headache (sometimes)	
Lungs	Facial pain (sometimes)	
	Wheezing	Wheezing
	Shortness of breath	Shortness of breath
	Difficulty breathing	Difficulty breathing
Skin	Coughing (clear sputum)	Coughing (clear, colored or blood sputum)
	These symptoms when exposed to offending substance or at certain times of the year	These same symptoms all the time or periodically; especially worse with exercise or exertion, or over time; and/or accompanied by pronounced fatigue
	Itchy, red, scaling patches, often on the face, elbows or knees (eczema)	Painful, red blisters but not itchy rashes appearing soon after contact with offending substance (e.g. poison oak or ivy or caustic substance) and only where contact occurred
	Itchy, red, large map-like patches on the body (hives)	Itchy, red rash in groin, underarms, on feet or under breast in women (likely fungal)
		Silvery scaly patches that sometimes itch (may be psoriasis)
		Itchy skin without rash (simple dry skin)

Source: Adapted from "Is it Just an Allergy?" Consumer Reports on Health newsletter, May 2005 (Vol. 15, No. 5), page 4.

Table 2. Is it an Allergy or Asthma?

	Hay Fever or Allergies	Asthma
What is it?	A bodily reaction to usually harmless substances in the environment – most often pollen, mold, and animal dander.	A condition in which the tubes in the lungs become swollen and narrow, making it difficult to breathe and get enough oxygen in and out of your lungs. Can be triggered by pollen, mold, dander, smoke and air pollution, exercise, other illness, stress, and some drugs.
Why do some people get it?	Genetic predisposition	Genetic predisposition
	Can strike people of all ages, but often shows up in childhood and teen years	Infection can trigger asthma
		Usually shows up in childhood; less commonly strikes over age 25
Main Symptoms	Sneezing	Mild attacks:
	Teary eyes	Feeling out of breath
	Itchy nose and throat	Tightness in chest
	Congestion, runny nose	Wheezing
	Clear nasal discharge	Coughing
	Cough (sometimes)	
	Difficulty breathing (sometimes)	Severe attacks:
	Headache (sometimes)	Very difficult to breath
	Itchy red patches on skin (hives)	Difficulty talking
		Skin feels as if it's pulled tightly around ribs and neck
		Rapid heartbeat
		Must sit down, can't walk easily
Main Treatment Options	Nasal sprays	Inhalers and nebulizers containing short-acting bronchodilators
	Antihistamines	Inhalers containing steroids
	Decongestants	Leukotriene-blocker pills
	Allergy shots	Steroid pills or shots
		Immune-system modifiers

Source: ConsumerReportsHealth.org

Choosing a Antihistamine – Our *Best Buy* Picks

Antihistamines are effective and generally safe. They ease the symptoms of hay fever, hives and other allergies in a majority of people, though they don't usually relieve symptoms entirely. And some people get more relief than others. Antihistamines can also become less effective with long-term use.

Our analysis indicates that the tablet and liquid forms of second-generation antihistamines—cetirizine, desloratadine, fexofenadine, levocetirizine, and loratadine—don't differ in any consistent way in terms of effectiveness, safety or the side effects they cause. They all generally bring some relief in 1 to 3 hours. And although responses vary, the drugs continue to work for 12 to 24 hours in most people. But the nasal sprays—azelastine and olopatadine—have been linked to taste alterations, including bitterness, and nasal discomfort. Olopatadine nasal spray has been linked to nose bleeding, sores in the nose, and holes in the nasal septum. Though human studies have not been performed in pregnant women, animal studies have found that both nasal sprays can

cause birth defects, so they should not be used by women who are pregnant or breast-feeding.

There is limited research of good quality that has looked at the use of these antihistamines for treating hives. What we do know is that loratadine was better at reducing symptoms than cetirizine in two studies. Cetirizine was more effective than fexofenadine in one study. And levocetirizine provided better symptom relief than desloratadine, but there was no difference in improvements in quality-of-life studies.

All of the newer antihistamines cause less sedation and drowsiness than older antihistamines. Studies indicate that cetirizine and levocetirizine are more sedating than loratadine and desloratadine, and that cetirizine might be more sedating than fexofenadine. Cetirizine was associated with an increased risk of abnormal heart rhythm in one study, but other analyses, including a large review by the FDA that examined several databases, found no increased risk.

Table 3. Summary of Evidence on Antihistamines

Generic Name (Brand names)	Usual Adult Dose	Proven Effective Against Hay Fever and Seasonal Allergies?	Proven Effective Against Chronic or Perennial Allergies?	Proven Effective Against Hives? (Urticaria)
Azelastine nasal spray/pump (Astelin, Astepro)	One or two sprays per nostril twice daily	Yes	Yes	NA ²
Cetirizine (Zyrtec)	10 mg once daily	Yes	Yes	Yes
Desloratadine (Claritin)	5 mg once daily	Yes	Yes	Yes
Fexofenadine (Allegra)	60 mg once or twice daily, or 180 mg once daily	Yes	No ¹	Yes
Levocetirizine (Xyzal)	5 mg once daily	Yes	Yes	Yes
Loratadine (Alavert, Claritin)	10 mg once daily	Yes	Yes	Yes
Olopatadine nasal spray (Patanase)	Two sprays per nostril twice daily	Yes	No	NA ²

1. Sufficient evidence was not available for fexofenadine, although it is likely effective in treating perennial allergy symptoms.

2. NA = Not applicable; the nasal sprays are not used for treating hives.

Table 4. Side Effects

Relatively Minor	More serious
Usually go away in time: Drowsiness Dry mouth, nose, or throat Hoarseness Headache Dizziness Nausea	Can be annoying or dangerous and should be reported to a health-care professional: Rapid or pounding heartbeat Unusual weakness Nervousness Stomach pain Yellowing of the skin Difficulty urinating Vision problems

In studies comparing the newer medications, 15 to 25 percent of the people reported at least one side effect, including drowsiness. (See Table 4 on page 10.) But 3 percent or fewer stopped treatment because of side effects. Thus, as presented in Table 3 on this page, the newer antihistamines are quite comparable, with none offering a distinct advantage over the others. But their cost differs significantly. As detailed in Table 5 on page 11, they range from \$13 per month to more than \$300 per month.

Taking effectiveness, safety, cost, and dosing convenience into account, we have selected the following antihistamines as *Consumer Reports Health Best Buy Drugs*:

- Loratadine 10 mg tablets
- Loratadine dissolving 10 mg tablets
- Loratadine liquid 10 mg
- Alavert dissolving 10 mg tablets

All are low-cost generic drugs available without a prescription in drug and food stores and many small convenience stores. And all are as effective and safe as the other second-generation antihistamines.

Loratadine is made by several companies, and some pharmacy chains have their own version of it. Alavert is a “branded generic” form of loratadine. A branded generic is a copy of an original drug (in this case Claritin) given a special name by its manufacturer for marketing purposes.

You should also be aware that some people may respond well to one antihistamine while getting no benefit from another. So if loratadine does not work for you, then try cetirizine or one of the other antihistamines.

As you can see on Table 5 on page 11, the monthly costs for our Best Buys vary considerably. That's common for nonprescription drugs, so we urge you to shop around for the best price, especially if you need to take an antihistamine on a regular basis. You might want to check online as well to see which pharmacy chains offer the best prices on our Best Buys. There are two loratadine liquids and two dissolving tablets included among the Best Buys picks even though they are somewhat more expensive. That's because these forms of the drug are widely used to treat children. Older people who can't swallow pills also use them.

There is little research of good quality on the use of second-generation antihistamines by children. Because of this, there is insufficient evidence to determine if any of the second-generation antihistamines are more effective at relieving symptoms or pose greater safety concerns than the others. But overall, the medications are well-tolerated by them, with low rates of withdrawal due to adverse events.

If your child needs an antihistamine to treat hay fever or other respiratory symptoms due to allergies or hives, we advise trying one of our Best Buy loratadine picks first. The available evidence indicates

loratadine is just as effective as the other over-the-counter option, cetirizine, but it is less likely to cause sedation. One study in children found cetirizine and loratadine to be just as effective as first-generation antihistamines for relieving allergic rhinitis symptoms, and loratadine has been found to provide symptom relief at 5 mg to 10 mg daily.

Our Best Buy nonprescription medicines are available in 10 mg doses. Should you need to take a larger dose to get symptom relief, try taking 20 mg of our Best Buys (two pills or portions). (Note that this increases your chances of having side effects, including feeling drowsy.) If that does not work, consult your doctor. You might need to try another class of medicine.

If you have insurance coverage for medicine, you should check your plan's policy on antihistamines. Most insurers and managed-care plans changed

their policy when loratadine (previously sold as a prescription-only medicine under the brand-name Claritin) became available over-the-counter.

They now assume that you will treat mild allergy symptoms just like you do a cold, the flu, or bouts of minor pain—with a nonprescription drug. They generally don't cover nonprescription antihistamines, and many urge their enrollees to first try over-the-counter loratadine or first-generation antihistamines. Most insurers still cover prescription antihistamines, but they might require a much higher co-payment for them. That means you could end up paying nearly the same amount or slightly more if you get a prescription branded antihistamine instead of nonprescription loratadine. The bottom line is to check with your specific plan to find out whether antihistamines are covered and how much you will have to pay out of pocket.

Table 5. Antihistamine Cost Comparison

Generic Name and Dose	Brand Name ¹	Drug is a Generic? ²	Drug is OTC? ³	Usual Adult Dose ⁴	Average Monthly Cost ⁵
Azelastine nasal spray/pump 137 mcg	Azelastine	Yes	No	Two to four sprays, twice daily	\$63-\$127
Azelastine nasal spray/pump 137 mcg	Astelin	No	No	Two to four sprays, twice daily	\$86-\$172
Azelastine nasal spray/pump 137 mcg	Astupro	No	No	Two to four sprays, twice daily	\$75-\$151
Azelastine nasal spray/pump 205.5 mcg	Astupro	No	No	Two to four sprays, twice daily	\$76-\$153
Cetirizine chewable tablet 10 mg	Zyrtec	No	Yes	One	\$30
Cetirizine tablet 10 mg	Zyrtec	No	Yes	One	\$25
Cetirizine liquid 10 mg/10 ml	Zyrtec	No	Yes	10 mg per day	\$95
Cetirizine tablet 10 mg	Generic	Yes	Yes	One	\$17
Cetirizine liquid 10 mg/10 ml	Generic	Yes	Yes	10 mg per day	\$66
Desloratadine dissolving tablet 2.5 mg	Clarinex Reditabs	No	No	One	\$206
Desloratadine dissolving tablet 5 mg	Clarinex Reditabs	No	No	One	\$209
Desloratadine tablet 5 mg	Clarinex	No	No	One	\$169
Desloratadine liquid 2.5 mg/5 ml	Clarinex	No	No	2.5 mg per day	\$103

Table 5. Antihistamine Cost Comparison (continued)

Generic Name and Dose	Brand Name ¹	Drug is a Generic? ²	Drug is OTC? ³	Usual Adult Dose ⁴	Average Monthly Cost ⁵
Desloratadine liquid 5 mg/10 ml	Clarinex	No	No	5 mg per day	\$207
Fexofenadine tablet 30 mg	Allegra	No	No	Two	\$50 ⁶
Fexofenadine capsule 60 mg	Allegra	No	No	Two	\$71 ⁶
Fexofenadine tablet 60 mg	Allegra	No	No	Two	\$117
Fexofenadine tablet 180 mg	Allegra	No	No	One	\$105
Fexofenadine tablet 30 mg	Generic	Yes	No	Two	\$53
Fexofenadine tablet 60 mg	Generic	Yes	No	Two	\$86
Fexofenadine tablet 180 mg	Generic	Yes	No	One	\$68
Fexofenadine dissolving tablet 30 mg	Allegra ODT	No	No	Two	\$155
Fexofenadine liquid 30 mg/5 ml	Allegra	No	No	30 mg twice per day	\$102
Levocetirizine tablet 5 mg	Xyzal	No	No	One	\$141
Levocetirizine liquid 2.5 mg/5 ml	Xyzal	No	No	5 mg per day	\$304
 Loratadine dissolving tablet 10 mg	Alavert	BG	Yes	One	\$14
Loratadine dissolving tablet 10 mg	Claritin Reditabs	No	Yes	One	\$27
 Loratadine dissolving tablet 10 mg	Generic	Yes	Yes	One	\$18
Loratadine tablet 10 mg	Claritin	No	Yes	One	\$25
 Loratadine tablet 10 mg	Generic	Yes	Yes	One	\$13
Loratadine liquid 10 mg/10 ml	Claritin	No	Yes	10 mg per day	\$80
 Loratadine liquid 10 mg/10 ml	Generic	Yes	Yes	10 mg per day	\$56
Olopatadine nasal spray	Patanase	No	No	Four sprays, twice daily	\$113

(1) "Generic" indicates that the drug is sold as a generic.

(2) "Yes" means it is a generic, sold under the chemical or scientific name. "BG" means it is a branded generic, which is a generic copy of an original drug given a special name by its manufacturer. In this table, for example, Alavert is a branded generic. "No" means it is a brand-name drug.

(3) OTC stands for over-the-counter; "yes" means it is a nonprescription OTC drug.

(4) Frequency of use reflects recommendations on the package insert; some products can be used more or less frequently.

(5) For drugs available by prescription only, monthly costs reflect nationwide retail average prices for July 2010, rounded to the nearest dollar. Data is provided by Wolters Kluwer Pharma Solutions, which is not involved in our analysis or recommendations. For loratadine and cetirizine drugs available OTC, monthly costs reflect average or typical prices obtained by *Consumer Reports* in August 2010 from five national drugstore chains—CVS, Rite Aid, Target, Walgreens, and Walmart—in 19 cities across the U.S.

(6) These average retail prices are for August 2009 to July 2010 due to low prescription volume.

The Evidence

This section presents more information on the effectiveness and safety of antihistamines.

This report is based on an analysis of the scientific evidence on second-generation antihistamines. Overall, 3,121 studies and research articles were identified and screened. From these, the analysis focused on 18 studies that provided direct evidence of comparative effectiveness or safety.

How Effective Are Antihistamines?

The scientific literature comparing antihistamines with each other is not extensive. Most of the studies are short-term, and only a small portion include large numbers of people. Taken as a whole, the evidence indicates that on all three of these measures, the available drugs do not differ substantially in effectiveness. With all, relief of symptoms usually begins in 1 to 3 hours and lasts 12 to 24 hours for most people.

The evidence is particularly weak comparing antihistamines in people who have chronic allergies and need to take the drugs intermittently all year long and over many years. And there's no evidence (because the studies have not been done) that fexofenadine (Allegra) is effective in such people, though the assumption from other evidence and wide clinical use is that it is.

All the newer tablet antihistamines have been found to be effective against hives, but there is very little evidence comparing one newer antihistamine with another. In one study, loratadine produced a slower but slightly more complete relief of symptoms compared with cetirizine (Zyrtec) in the early stages. But at the end of the study, people treated with both drugs did not report significant differences in their responses. In another study, levocetirizine was better for relieving symptoms than desloratadine, but patients reported that both drugs improved their quality of life to a similar degree.

How Safe Are Antihistamines?

The newer antihistamines appear to be quite safe. They cause less drowsiness than older first-genera-

tion antihistamines. But 15 percent to 25 percent of the people taking an antihistamine will experience a side effect, including drowsiness. Alcohol can exacerbate drowsiness, so you shouldn't drink while taking antihistamines. And you should use caution if driving or operating heavy or dangerous machinery while taking an antihistamine.

In a very small number of people, antihistamines can cause more serious reactions, such as rapid heartbeat or heart palpitations. See a doctor if you experience such symptoms.

The newer antihistamines cause drowsiness, but studies indicate they cause less drowsiness than two older antihistamines, diphenhydramine and chlorpheniramine. Other research found that cetirizine and levocetirizine were more sedating than loratadine and desloratadine. There is some evidence that cetirizine is also more sedating than fexofenadine. One observational study found no difference in sedation between loratadine and fexofenadine.

Two second-generation antihistamines (terfenadine and astemizole) were removed from the market because they led to a higher risk of potentially serious heart problems. Some evidence suggests that there might be a very small risk of heart problems with currently available antihistamines. A large study found that cetirizine was associated with an increased risk of heart arrhythmias. Other research, however, indicated that cetirizine, desloratadine, fexofenadine, and loratadine do not pose an increased risk of arrhythmias.

Antihistamines can interact with other medicine or dietary supplements in ways that can be dangerous. Be sure to tell your doctor about all other medication you take, even if you think it might not be important. The main drugs to be concerned about are:

- Antifungal medications, such as ketoconazole. They can increase the effect of some antihistamines.
- Aspirin, which in large doses can cause ringing in the ears (tinnitus), a danger sign sometimes masked by antihistamines.

- Certain types of fruit juice, such as grapefruit juice, apple juice, and orange juice. They might make some second-generation antihistamines less effective.
- Any drugs known to change the way the heart beats, such as droperidol. They should be used cautiously if you are taking antihistamines.
- Medications used to improve breathing, such as theophylline. They may raise the risk of antihistamines side effects.
- Certain antibiotics, such as erythromycin. They can increase the effects of antihistamines.
- Antacids that contain aluminum or magnesium. When taken within 15 minutes of fexofenadine, these antacids significantly decreased the effect of that antihistamine.
- The stomach acid reducer cimetidine, which increases the effect of azelastine nasal spray.

If you take an antihistamine combined with a decongestant called pseudoephedrine (look on the package where the active ingredients are listed), be aware that such products should be used with caution by people with high blood pressure, heart conditions, diabetes, glaucoma, or prostate disease.

People who take products that combine these drugs are more likely to have side effects, such as headaches and trouble sleeping.

Age, Race, and Gender Differences

People older than 65 and members of various ethnic groups have been under-represented in studies of antihistamines. The evidence is insufficient to determine if any of the newer antihistamines are safer or better than the others at relieving allergy symptoms among people of any particular racial group or age. There's also insufficient evidence to determine if men and women respond to the drugs differently.

But safety and side effects are a concern in different age groups. Desloratadine (Claritin), levocetirizine (Xyzal), and cetirizine (Zyrtec) have been found to be safe and effective in children as young as 6 months old; evidence on the safety and efficacy of loratadine is limited to children 2 years or older. Evidence on fexofenadine, azelastine nasal

spray, and olopatadine nasal spray is limited to children 6 years or older.

Children might experience drowsiness to varying degrees when taking antihistamines, and the adults responsible for them should be alert to this. This is especially important when it comes to teenagers who drive, because drowsiness can impede the ability to operate an automobile safely.

People age 60 and older are more susceptible to the side effects of antihistamines, especially drowsiness. People older than 70 or so are at greater risk of falls in general, and antihistamine-induced drowsiness can raise that risk. The dosage of some second-generation antihistamines (primarily Zyrtec) should be reduced in older age and for people with kidney or liver problems.

Pregnant or nursing women should only use the second-generation antihistamines if their doctor agrees it's absolutely necessary. And even then, it should be limited to the oral and liquid formulations—cetirizine, desloratadine, fexofenadine, levocetirizine, and loratadine. Animal studies indicate that those second-generation antihistamines don't increase the risk of birth defects. No clinical trials have been done in pregnant women to ascertain the birth defect risk. Azelastine nasal spray caused birth defects in mouse, rabbit, and rat studies, and olopatadine nasal spray has been associated with adverse effects on fetuses in animal studies.

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 antihistamine is best for you, if one is warranted at all, and which one 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 have consistently found 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 medicines, including generic drugs.

Prescription medicines go "generic" when a company's patents on them lapse, 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 are not lesser quality drugs. Indeed, most generics remain useful medicines many years after first being marketed. That is why more than 60 percent of all prescriptions in the U.S. today are written for generics.

Another important issue to talk with your doctor about 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 medicines the others have prescribed.
- Second, since people differ in their response to medications, 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 these reasons, it's important to keep a written list of all the drugs and supplements you are taking and 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 are 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 container match the amount that your doctor told you.

How We Picked the *Best Buy* Antihistamines

Our evaluation is primarily based on an independent scientific review of the evidence on the effectiveness, safety, and adverse effects of second-generation antihistamines. Physicians and researchers at the Oregon Health & Science University Evidence-Based Practice Center did the analysis as part of the Drug Effectiveness Review Project, or DERP.

DERP is a first-of-its-kind, 11-state initiative to evaluate the comparative effectiveness and safety of hundreds of prescription drugs. A synopsis of DERP's analysis of the antihistamines forms the basis for this report. A consultant to *Consumer Reports Health 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 antihistamines is available at <http://www.ohsu.edu/drugeffectiveness/reports/final.cfm>. (This is a long and technical document written for physicians.)

Additional information was extracted from ConsumerReportsHealth.org, *Consumer Reports*, and an article in Consumer Reports on Health ("Is it Just an Allergy?" May 2005 issue). Consumer Reports on Health is a subscription monthly newsletter published by Consumers Union.

The prescription drug costs we cite were obtained from a health-care information company that tracks the sales of prescription drugs in the U.S. Prices for a drug can vary quite widely, even within a single city or town. The prices for prescription drugs in this report are national averages based on sales of the drugs in retail outlets. They reflect the retail cash price that would be paid for a month's supply of each drug in July 2010. Prices for nonprescription drugs were obtained from several large drugstore chains. They reflect average prices in August 2010.

Consumer Reports Health selected the *Best Buy Drugs* using the following criteria. The drug (and dose) had to:

- Be approved by the FDA for treating allergic rhinitis
- Be as effective as any other second-generation antihistamine
- Have a safety record equal to or better than other second-generation antihistamines
- Have an average price for a 30-day supply that is substantially lower than the most costly second-generation antihistamine meeting the first two criteria

The *Consumers Reports Health Best Buy Drugs* methodology is described in more detail in the Methods section at ConsumerReportsHealth.org/BestBuyDrugs.

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About Us

Consumers Union, publisher of *Consumer Reports* magazine, is an independent and nonprofit organization whose mission since 1936 has been to provide consumers with unbiased information on goods and services and to create a fair marketplace. Its website is www.consumersunion.org. The magazine's website is www.consumerreports.org.

Consumer Reports Health Best Buy Drugs is a public-education project administered by Consumers Union. It is partially grant funded. Principal current outside funding comes from the state Attorney General Consumer and Prescriber Education Grant Program, which is funded by a multistate settlement of consumer-fraud claims regarding the marketing of the prescription drug Neurontin.

The Engelberg Foundation provided a major grant to fund the creation of the project from 2004 to 2007. Additional initial funding came from the National Library of Medicine, part of the National Institutes of Health. A more detailed explanation of the project is available at ConsumerReportsHealth.org/BestBuyDrugs.

These materials were made possible by a grant from the state Attorney General Consumer and

Prescriber Education Grant Program, which is funded by the multistate settlement of consumer-fraud claims regarding the marketing of the prescription drug Neurontin.

We followed a rigorous editorial process to ensure that the information in this report and on the *Consumer Reports Health Best Buy Drugs* website is accurate and describes generally accepted clinical practices. If we find, or are alerted to, an error, we will correct it as quickly as possible. But *Consumer Reports* and its authors, editors, publishers, licensers, and suppliers cannot 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 ConsumerReportsHealth.org/BestBuyDrugs for further information.

Consumer Reports Health Best Buy Drugs should not be viewed as a substitute for a consultation with a medical or health professional. This report and the information on ConsumerReportsHealth.org/BestBuyDrugs are provided to enhance your communication with your doctor rather than to replace it.

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