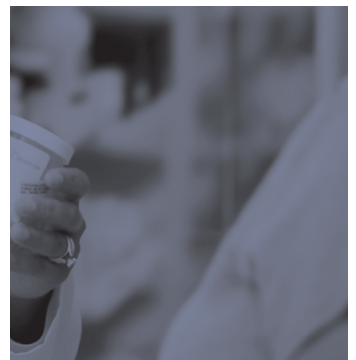


BEST BUY DRUGS[™]

Using the Triptans to Treat:

Migraine Headaches

Comparing Effectiveness, Safety, and Price



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Our Recommendations

Triptans are effective medicines used to treat migraine headaches. They significantly reduce pain within two hours for most people. Complete relief is less common, but the likelihood may be greater if you take a triptan early during a migraine attack. Triptans also help relieve other migraine symptoms, such as nausea, vomiting, and sensitivity to light, noise, and motion.

If you have mild and less frequent migraine attacks, try other pain relievers first, including acetaminophen (Tylenol and generics); nonsteroidal anti-inflammatory drugs (NSAIDs), such as aspirin, ibuprofen (Advil and generics), or naproxen (Aleve and generics); or combination products that contain acetaminophen, aspirin, and caffeine (Excedrin Extra Strength, Excedrin Migraine, and generics). If your migraines are moderate to severe in pain intensity, and/or disrupt your life, you might benefit from a triptan.

But you should know that triptans temporarily narrow blood vessels, so they should not be taken by people with certain conditions, including coronary artery disease or angina (chest pain), and peripheral vascular disease. People who have had a heart attack or stroke, have uncontrolled high blood pressure, or have migraines that are accompanied by weakness or paralysis in an arm or leg, vertigo, ringing in the ears, or speech difficulties, should also avoid triptans.

In addition, triptans should be prescribed with caution for those with risk factors for vascular disease, such as men over 40, women over 55, and anyone who smokes, has high cholesterol, diabetes, a family history of early heart disease or stroke, or is significantly overweight.

The seven available triptans (plus one combination pill) differ in their effectiveness and the side effects they cause. They are fairly expensive (three—naratriptan, rizatriptan, and sumatriptan—are now available as generics), ranging from \$12 to \$46 per pill. The nasal spray and injectable forms cost more.

For people with moderate to severe migraine pain and symptoms, we have chosen one triptan as our *Consumer Reports Best Buy Drug*:

■ Sumatriptan (generic) tablets, nasal spray, and injectable forms

Sumatriptan is available as a less expensive generic, and studies have found that it is as effective as or better than most of the other triptans. Another sumatriptan option is a patch formulation (Zecuity) that was approved by the FDA in January 2013, but it is not available as a generic so it is likely to be expensive.

If sumatriptan doesn't work for you, we recommend trying rizatriptan (Maxalt and generic). Studies indicate it works very well in delivering pain relief within two hours compared with many of the other triptans. But it may be more expensive.

The cost for triptan treatment depends on how often you have to take one, since they're taken only when a migraine occurs. Frequent use can be expensive.

This report was published in March 2013.

Welcome

This report covers a class of drugs known as triptans, which are used to treat migraine headaches when they occur (not to prevent them). These drugs can reduce the pain associated with migraines but they differ in how well they work, how fast they work, and how long they provide pain relief. Triptans also differ in the side effects they cause.

This report 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.

Seven triptans are currently available. In addition, there is a combination pill, Treximet, that contains both a triptan (sumatriptan) and naproxen, a type of pain reliever called a nonsteroidal anti-inflammatory drug, or NSAID. The eight triptan-containing drugs are:

Generic Name	Brand Name(s)	Available as a Generic Prescription Drug?
Almotriptan	Axert	No
Eletriptan	Relpax	No
Frovatriptan	Frova	No
Naratriptan	Amerge	Yes
Rizatriptan	Maxalt, Maxalt MLT (dissolving tablet)	Yes
Sumatriptan	Alsuma (injection), Imitrex, Imitrex Nasal Spray, Imitrex Statdose (injection), Sumavel DosePro (needleless injection), Zecuity patch	Yes
Sumatriptan + naproxen	Treximet	Not as a combination pill, but the two individual drugs are available separately as generics
Zolmitriptan	Zomig, Zomig Nasal Spray, Zomig ZMT (dissolving tablet)	Generic tablets expected after May 2013

Migraine headaches are quite common, and they occur three times as often in women. About 18 percent of women and 6 percent of men suffer from migraines, according to the Migraine Research Foundation. This means that about 36 million adults in the U.S. (more than 27 million of whom are women) get these types of severe headaches.

Migraines are a leading cause of absenteeism and decreased productivity at work. The overall cost burden of migraines to society exceeds that of other chronic conditions, including asthma, depression, diabetes, and heart disease.

Children get them, too. About 10 percent of school-age kids get migraines, according to the Migraine Research Foundation. In fact, about 50 percent of the people who get migraines first experience them before the age of 12. Boys are more likely than girls to have migraines, but this ratio switches as they go through puberty. The result is that women suffer from these headaches more often than men. It's unclear why they have a higher rate of migraines, but the female hormone estrogen may play a role.

Heredity plays a strong role in whether you're likely to develop migraines. About 70 to 80 percent of the people who get migraines have a family history of these types of headaches, according to the National Headache Foundation.

Most migraine sufferers average a few attacks per month, but some people get them more often. If you have migraines that last for more than four hours at least 15 days each month for at least six months, you would be classified as suffering from chronic migraines.

Migraines can be difficult to diagnose because they can cause similar symptoms as other types of headaches. In fact, migraines are often misdiagnosed as sinus or tension headaches, according to the National Headache Foundation, which also notes that more than half the people who have migraines have not received a diagnosis from a physician. And that means they may not be getting treatment, or the right treatment. If you think you have migraines, see your doctor for an accurate diagnosis and treatment.

Some types of migraines—*hemiplegic* and *basilar-type*—should not be treated with triptans because of concerns about an increased risk of stroke. With hemiplegic migraines, people have migraine symptoms accompanied by weakness or paralysis on one side of the body. Basilar-type migraine symptoms include migraine pain, aura, difficulty speaking, vertigo, or ringing in the ears. Getting the proper diagnosis from your doctor will help steer you toward the correct treatment.

Another type of migraine, called a *typical aura without headache*, generally doesn't require treatment with triptans. The symptoms include visual disturbances—often referred to as an “aura”—that may include flashing lights, zigzag lines, blind spots, or blurred vision, with or without a headache. Attacks usually last around 30 minutes but can be over in as little as five minutes. If you experience this type of migraine, see a physician the first time it happens to rule out other possible conditions, such as a detached retina.

Other medicines (prescription and nonprescription) are also available to relieve migraine pain and symptoms. Among these are over-the-counter pain relievers, such as acetaminophen (Tylenol and generics), aspirin, ibuprofen (Advil, Motrin IB, and generics), and naproxen (Aleve and generics); as well as combination products that contain acetaminophen, aspirin, and caffeine (Excedrin Extra Strength,

Excedrin Migraine, and generics). Prescription strength NSAIDs are also used, and one, Cambia (dissolvable diclofenac), is FDA-approved for treating migraines.

Treatment guidelines issued by several medical groups, such as the American Academy of Neurology and the American Academy of Family Physicians, recommend that you try a nonprescription or prescription NSAID first for mild to moderate migraine pain, and consider a triptan if you have severe, disabling migraines or if the other pain relievers don't work. Triptans are often used alone but can also be taken with an NSAID.

You should be aware that triptans do not prevent migraine attacks. Several classes of prescription drugs other than pain relievers and certain dietary supplements are used to prevent migraine attacks. Those include certain antidepressants, beta-blockers, calcium channel blockers, some antiseizure drugs, and supplements, such as feverfew and butterbur. We do not evaluate those treatments in this report, but prevention, which includes non-drug treatments, is an important part of managing frequent migraines.

The list below can be used to assess whether you are a candidate for a migraine-prevention drug. The most important thing to know is that no drug results in a 100 percent avoidance of migraines. Most studies indicate that reducing the number of attacks in half is the most that you can hope for with the drugs currently available for this purpose. You are a likely candidate for preventive drugs if:

- You have frequent attacks (two or more a month) that disrupt your life for three or more days a month
- Your pattern of migraines is predictable
- You can't use pain relievers or triptans due to other health reasons
- Pain relievers or triptans provide insufficient relief of your attacks

You also may want to talk with your doctor about nonmedication therapies for managing migraine headaches. For example, many migraines are set off by triggers, some of which can be avoided or moderated. Typical triggers include certain foods; alcohol; caffeine-containing substances, such as coffee, chocolate, and tea; dehydration; getting too little sleep or too much; certain kinds of lights, odors, or loud noises; menstruation; plane rides and jet lag; skipping meals; and stress.

Other nondrug treatment options include acupuncture, biofeedback, massage, physical therapy, relaxation training, and stress-management techniques.

This report and our *Best Buy* picks are based on a systematic analysis of the medical evidence on triptans. There's more information on page 19 and at www.CRBestBuyDrugs.org about how we conducted our evaluation.

This report was published in March 2013.

What Are Triptans and Who Needs Them?

A migraine is a complex neurological condition that involves several changes in the body, including the dilation (widening) of blood vessels, inflammation, and activation of pain receptors. Different medicines are used to target each of these mechanisms. Triptans—which are used to treat, not prevent, migraines—work by constricting (narrowing) dilated or widened blood vessels.

It's important to note that a fairly large segment of the population—those with proven vascular disease—should not take triptans, and those with risks for vascular disease, such as older age, high cholesterol, high blood pressure, obesity, diabetes, family history of heart disease, and smoking, should take them only after a thorough medical evaluation to ensure that they don't have coronary artery disease or other blood vessel disease.

Most doctors will not and should not prescribe a triptan without screening you for heart disease risk if you are a man over 40 or a woman over 55. The main reason is that triptans can narrow your arteries. The drugs have been linked to rare cases of heart attacks, life-threatening disturbances of heart rhythm, stroke, and death. The box on this page lists conditions that should either preclude you from taking a triptan or warrant caution.

Almost everyone has a headache once in awhile. Tension-type headaches are the most common and are usually mild, transient, and easily treated with over-the-counter pain relievers. Less common types of headaches include cluster headaches and migraines. They can occur repeatedly and generally involve more severe pain. Some people are incapacitated by a migraine; they can't work or perform other daily functions and must lie down in a quiet, dark place until the pain subsides. There are several ways to distinguish an everyday headache (often called a tension-type headache by doctors) from other types of headaches and migraines. For more information about the different types of headaches that can be experienced, see Table 1 on page 8.

Migraine symptoms can vary from one person to another and can also change from attack to attack.

People Who Should Not Take Triptans

If you have or have had:

- Coronary artery disease (with or without angina)
- A previous heart attack
- A previous stroke or transient ischemic attack (TIA)
- Peripheral vascular disease
- Uncontrolled high blood pressure
- Hemiplegic migraines, such as those with temporary weakness of an arm or migraines with neurologic symptoms (basilar-type migraine)

Take with caution if you are:

- Older than 40, for men
- Older than 55, for women
- Currently taking certain antidepressants (talk with your doctor)

Or if you:

- Have diabetes
- Have a family history of early heart disease or stroke
- Have high cholesterol
- Are in menopause
- Are obese
- Are pregnant
- Smoke

Some people experience visual disturbances—often referred to as an “aura”—that may include flashing lights, zigzag lines, blind spots, or blurred vision. People also differ in how frequently they get migraines, the severity of the pain, and the speed at which the pain intensifies. We advise you to see a doctor if you think you have migraines. Even if self-medicating with nonprescription drugs is working for you, it's worthwhile to get a proper diagnosis and have a doctor guiding your care. Also, it is not uncommon to need a prescription drug. You might choose to go to a neurologist or a clinic that specializes in headaches or pain, but many family doctors and internists have sufficient experience treating people who have uncomplicated migraine headaches.

And as we have previously noted, some types of migraines—hemiplegic and basilar-type—are generally not treated with triptans. And only a doctor

Table 1. What Kind of Headache Do You Have?

Ordinary, Periodic tension-type	Chronic Daily Headache, Chronic Migraine	Cluster	Migraine, Episodic Migraine
<ul style="list-style-type: none"> ■ Dull, aching pain that is mild to moderate in intensity ■ May last from 30 minutes to several hours ■ A feeling of tightness, pressure across forehead or sides and back of head ■ No nausea or vomiting ■ No visual disturbance or auras¹ ■ Mild sensitivity to light or noise can occur, but not common 	<ul style="list-style-type: none"> ■ Occur at least 15 days per month for three months for at least four hours per day ■ Steady pain on one or both sides of head ■ No visual disturbance or auras ■ May be made worse or even caused by chronic use of acetaminophen and NSAIDs 	<ul style="list-style-type: none"> ■ Pain is usually severe and centered on one side behind the eye or temple ■ Pain is sharp, stabbing ■ May last 30 minutes to up to three hours ■ Can be more than one attack a day ■ Comes in waves, with attacks daily or near-daily for weeks or months and then disappears for months or even years ■ May be associated with runny nose, watery eye, and drooping eyelid (often all on one side of the head) 	<ul style="list-style-type: none"> ■ Pain is moderate to severe ■ Pain can occur on one or both sides of head ■ Often pulsating or throbbing ■ Periodic attacks (several a year to several a month) that last from four to 72 hours if untreated ■ Nausea with or without vomiting is quite common ■ Sensitivity to movement, light, and/or noise common ■ May have auras or visual disturbances ■ If you have symptoms of both tension headaches and migraines, you may have a condition called coexisting migraine and tension-type headache

Source: www.ConsumerReports.org/health

1. Auras are often visual disturbances but can also feel like numbness or weakness on one side of the body. For example, you may see dots or shapes or flickering lights. These can obscure your vision. Auras are associated with migraines and usually precede an attack. Typical auras last five minutes to 60 minutes and are followed within an hour by the migraine pain. See the migraine column.

A word of caution about NSAIDs

Aspirin, ibuprofen (Advil, Motrin IB, and generics), and naproxen (Aleve and generics)

Be careful not to overuse these medications. Doing so can cause serious gastrointestinal problems including bleeding, ulcers, and potentially deadly perforations of the stomach, small intestine, or large intestine. To reduce the chance of those side effects, use the lowest dose that provides relief for the shortest time possible. Taking the medications with food may also help.

In addition, overuse of NSAIDs (along with triptans and other pain relievers) can sometimes trigger headaches, converting sporadic migraines to chronic daily headaches. You should tell your doctor if this happens. You will have to stop taking the medication for a period of time and switch to alternatives.

will be able to determine if you suffer from one of those rare types of migraines. As a general rule, anyone with a headache that is the first they have had, the worst, or associated with other symptoms, such as weakness or paralysis in an arm or leg, vertigo, ringing in the ears, or speech difficulties, should be evaluated by a physician.

Migraine treatment can include the use of several types of drugs, including NSAIDs, triptans, and ergotamines. Once a diagnosis is made, doctors and medical organizations generally agree on how to proceed with treatment and prevention options. Your doctor's treatment recommendations will depend on the severity and frequency of your migraine pain, but generally, if you have infrequent, nondisabling, and mild migraines, you should first try aspirin, an NSAID, or combination products containing acetaminophen, aspirin, and caffeine to relieve your pain. All of those are available without a prescription or by prescription

Table 2. Effectiveness of Oral Triptans*

			Chances of experiencing:			
Generic Name and Dose	Brand Name	Maximum Dose in 24-Hour Period	Pain Relief at 2 Hours	Complete Freedom from Pain at 2 Hours	Sustained response, no adverse event	Recurrence
Almotriptan 12.5 mg	Axert	25 mg	56%	25%	13%	33%
Eletriptan 40 mg	Relpax	80 mg	69%	39%	21%	26%
Frovatriptan 2.5 mg**	Frova	7.5 mg	—	—	—	—
Naratriptan 2.5 mg	Amerge	5 mg	49%	18%	11%	20%
Rizatriptan 10 mg	Maxalt	30 mg	65%	37%	16%	38%
Sumatriptan 100 mg	Imitrex	200 mg	61%	32%	15%	31%
Zolmitriptan 2.5 mg	Zomig	10 mg	63%	29%	14%	31%
Zolmitriptan 5 mg	Zomig ZMT	10 mg	62%	33%	14%	28%
Placebo	—	—	31%	8%	4%	37%

* Data from a meta-analysis of head-to-head trials, in C. Asseburg, P. Peura, T. Oksanen, J. Turunen, T. Purmonen and J. Martikainen (2012). Cost-effectiveness of oral triptans for acute migraine: Mixed treatment comparison. *International Journal of Technology Assessment in Health Care*, 28, pp 382-389. doi:10.1017/S0266462312000517.

** No head-to-head trials

Bold indicates superiority to sumatriptan 100 mg in high-quality head-to-head comparative studies.

Italics indicates superiority of sumatriptan to another oral triptan in high-quality head-to-head comparative studies

as generics. Studies have found that those drugs are broadly effective for many people with mild migraines, especially if the attacks are not frequent.

If your migraine headaches are severe, your doctor may still recommend that you try one of those low-cost drugs first. Some people with moderate to severe migraines respond well to them.

Most people who have moderate to severe migraines will probably need a triptan (if they don't have one of the conditions listed in the box on page 7, that would preclude them from taking one). This is especially the case if your migraines disrupt normal life.

For the simultaneous treatment of multiple possible causes of migraines, your doctor may recommend that you try taking a triptan with an NSAID. Treximet, which contains sumatriptan and naproxen, is the only such combination pill available. Studies indicate that it may be more effective than sumatriptan alone, but there's no evidence that it has an

advantage over buying individual generic sumatriptan and naproxen (Aleve and generics, and others) pills and taking them together.

Other drugs are available, but triptans are considered superior to them. Opioid-based pain relievers, such as hydrocodone and oxycodone, that are combined with aspirin or with acetaminophen (Percocet, Percodan, Vicodin, and generics) are sometimes used, but rarely work well against migraines. And as we previously noted, those drugs can also lead to "rebound" or "medication overuse" headaches, can be habit-forming, and can make migraines worse in many ways.

Another medicine sometimes used to treat migraines is a nasal spray called dihydroergotamine (Migranal). It's quite effective—it helps 60 percent or so who take it, studies have found. But it can have particularly harsh side effects since it causes blood vessels throughout the body to narrow. It can also cause nasal stuffiness. Dihydroergotamine is also available as an injection, which can be self-administered or given by a doctor.

Choosing a Triptan – Our *Best Buy* Picks

To choose a triptan, you and your doctor should consider its cost and how many doses are allowed per month under your insurance coverage, the evidence on effectiveness and side effects, how fast and for how long the medicine works, and which form—oral, nasal, or injection—best meets your needs.

All triptans are available as pills. Two (sumatriptan and zolmitriptan) are also available as nasal sprays, one (sumatriptan) is available as a patch, and two (rizatriptan and zolmitriptan) are available as tablets that dissolve in your mouth. The dissolvable tablets may be an option for people who have difficulty swallowing pills. One issue to be aware of with the dissolvable tablets is that they contain aspartame, which can be a migraine trigger for some people. So if you are sensitive to this artificial sweetener, you may want to avoid the tablets.

The injection, nasal spray, and patch formulations may be good options for migraine sufferers who experience nausea and vomiting. Sumatriptan is the only triptan available in patch and injectable form. The patch (Zecuity) has a battery that helps deliver sumatriptan through the skin, but because it is not available as a generic, it is likely to be expensive. The injection provides faster relief than pills or nasal spray but has the highest incidence of side effects. While many people are squeamish about injecting themselves, injectables may be a good option for chronic migraine sufferers whose onset of pain tends to be quick and severe, those who awaken with an advanced attack, or those who vomit early in an attack and can't take oral triptans. The injectable comes in three forms—a syringe, a disposable pen injector, and one that uses a gas canister to inject the sumatriptan under the skin without a needle.

Triptans differ in how fast they act and in other ways as well. Some triptan pills relieve migraine pain quickly while others work more slowly but have longer-lasting effects. And all triptans can cause side effects. So there are several factors to consider in choosing a triptan that's right for you.

Evidence of effectiveness for some of the most widely used doses of each of the triptans is presented in

Table 2 on page 9. In trials of people who had moderate to severe migraines, triptans in general relieved some pain within two hours in 49 to 69 percent of people. Complete freedom from pain was less common, however, with only about 18 to 39 percent of people pain-free within two hours of taking a triptan. Migraine recurrence was common, and only 11 to 21 percent of people had sustained relief from their migraine symptoms.

Sumatriptan has the most evidence by far, which is particularly important for side effects, since there has been more opportunity for a serious problem to show up with it than with other triptans that have not been studied as thoroughly. The nasal spray triptans have not been compared to other triptans in head-to-head trials, so they are not included in Table 2. And although sumatriptan injection is more likely to give rapid relief than the oral triptans, we also do not include it in the table because it's used more as a rescue medication when other formulations have not brought relief.

Sumatriptan is the benchmark for effectiveness against which other triptans are compared. Studies suggest that the majority of newer triptans, except frovatriptan, deliver pain relief at least equivalent to sumatriptan. However, rizatriptan may provide better pain relief than many of the other triptans. And, although fewer studies have been done using the dissolvable tablet form of rizatriptan, so far, more people taking it have had complete freedom from pain and return to normal function at two hours than with the 50 mg tablet of sumatriptan, and there were more people with sustained freedom from pain at 24 hours.

There are a few caveats you should be aware of when it comes to rizatriptan versus sumatriptan. First, the dissolvable rizatriptan tablet contains the artificial sweetener aspartame, which may trigger a migraine in those sensitive to it. Also, rizatriptan is only available in tablet forms, whereas sumatriptan comes in injectable, nasal spray, patch, and tablet formulations—which can be a big advantage. Doctors advise against mixing triptans, so if you're on another triptan but need faster, reliable relief for an unusually severe or persistent migraine, your options are limited. But if

Table 3. Frequency of Oral Triptan Side Effects

Generic Name and Dose (Brand Name)*	Any Adverse Event Experienced*	Chest Pain/Tightness	Dizziness	Numbness/Tingling	Sleepiness	Fatigue
Almotriptan 12.5 mg (Axert)	24%	Less than 1%	Less than 2%	Less than 1%	Less than 1%	Less than 2%
Eletriptan 40 mg (Relpax)	27%	1% to 7%	1% to 7%	1% to 2%	2% to 7%	3% to 7%
Frovatriptan 2.5 mg** (Frova)		—	—	—	—	—
Naratriptan 2.5 mg (Amerge)	23%	2%	2% to 5%	—	1% to 4%	2% to 5%
Rizatriptan 10 mg (Maxalt)	30%	1% to 3%	5% to 6%	4%	2% to 9%	2% to 8%
Sumatriptan 100 mg (Imitrex)	33%	1% to 7%	2% to 10%	2% to 7%	2% to 7%	3% to 11%
Zolmitriptan 5 mg (Zomig)	40%	—	—	—	—	—
Sumatriptan/naproxen 85 mg/500 mg (Treximet)	—	Less than 2%	3% to 5%	2% to 3%	3% to 4%	Less than 2%

* Data from a meta-analysis of head-to-head trials, in C. Asseburg, P. Peura, T. Oksanen, J. Turunen, T. Purmonen and J. Martikainen (2012). Cost-effectiveness of oral triptans for acute migraine: Mixed treatment comparison. International Journal of Technology Assessment in Health Care, 28, pp 382-389. doi:10.1017/S0266462312000517.

** No head-to-head trials

Bold indicates superiority to sumatriptan 100 mg in high-quality head-to-head comparative studies.

you're taking a sumatriptan pill, patch or spray, you can get an injection in that situation.

Doctors usually advise people to take their triptan early during the onset of a migraine. Newer, placebo-controlled trials find that 41 to 68 percent of people achieve complete freedom from pain at two hours when taking these triptans early: oral eletriptan 40 mg, rizatriptan 10 mg, sumatriptan 100 mg, zolmitriptan 5 mg, and the combination pill, sumatriptan/naproxen 85 mg/500 mg. However, we cannot say for certain that early treatment is better than delayed treatment, because no studies have directly compared these two treatment strategies to see if one is superior to the other.

In addition to pain, triptans also relieve other migraine symptoms, including nausea, vomiting, and sensitivity to light and noise. While fewer studies have examined how well and how consistently triptans relieve those symptoms, most studies suggest they do not differ markedly in this regard. Studies have also found that 23 to 68 percent of the people who take a triptan pill can get back to normal life within two hours.

Triptans can cause unpleasant side effects. (See Table 3, above.) Between 23 and 40 percent of the people

who take them experience side effects, and some stop taking them as a result. But for most people, side effects are mild and usually ease over time. The most common ones are dizziness, numbness, tingling, flushing, sleepiness, and fatigue. But to many people, the most worrisome side effect is chest tightness, heaviness, pain, or pressure. That discomfort, which is sometimes referred to as “triptan sensations”, can occur in or spread to the jaw and neck area, too. Up to 7 percent of the people who take a triptan experience this side effect. If you have chest pain or tightness, you should contact your doctor immediately just to be on the safe side.

Triptans have been associated with rare cases of heart attacks, life-threatening disturbances of heart rhythm, stroke, and death. These problems may be due to the constriction in blood vessels that triptans cause. People with heart disease or risk factors for heart disease may have a greater risk of these problems, but they have also occurred in people with no history of heart disease. Other side effects that may be due to this issue include very rare reports of transient and permanent blindness, and partial vision loss.

Overall, the available evidence does not clearly show that one triptan has a superior safety profile

Table 4. Triptan Costs










Generic Name and Dose	Brand Name	Maximum Allowed Dose Per 24 Hours	Price Per Dose ¹	Average Monthly Cost ¹ (If two migraines a month and take one pill or dose per attack)	Average Monthly Cost ¹ (If two migraines a month and take maximum allowed amount per attack, over 24 hours)
Almotriptan tablet 6.25 mg	Axert	25 mg	\$34	\$67	\$269
Almotriptan tablet 12.5 mg	Axert	25 mg	\$34	\$68	\$137
Eletriptan tablet 20 mg	Relpax	80 mg	\$38	\$76	\$303
Eletriptan tablet 40 mg	Relpax	80 mg	\$38	\$76	\$153
Frovatriptan tablet 2.5 mg	Frova	7.5 mg	\$42	\$83	\$249
Naratriptan tablet 1 mg	Generic	5 mg	\$24	\$48	\$239
Naratriptan tablet 2.5 mg	Generic	5 mg	\$12	\$23	\$47
Naratriptan tablet 2.5 mg	Amerge	5 mg	\$40	\$80	\$160
Rizatriptan tablet 5 mg	Generic	30 mg	NA ²	NA	NA
Rizatriptan tablet 5 mg	Maxalt	30 mg	\$39	\$77	\$464
Rizatriptan tablet 10 mg	Generic	30 mg	NA ²	NA	NA
Rizatriptan tablet 10 mg	Maxalt	30 mg	\$44	\$87	\$262
Rizatriptan dissolvable tablet 5 mg	Maxalt MLT	30 mg	\$39	\$79	\$473
Rizatriptan dissolvable tablet 5 mg	Generic	30 mg	NA ²	NA	NA
Rizatriptan dissolvable tablet 10 mg	Maxalt MLT	30 mg	\$46	\$91	\$274
Rizatriptan dissolvable tablet 10 mg	Generic	30 mg	NA ²	NA	NA
 Sumatriptan nasal spray 5 mg	Generic	40 mg	\$38	\$76	\$610
Sumatriptan nasal spray 5 mg	Imitrex	40 mg	\$50	\$101	\$805
 Sumatriptan nasal spray 20 mg	Generic	40 mg	\$38	\$76	\$153
Sumatriptan nasal spray 20 mg	Imitrex	40 mg	\$48	\$95	\$191
 Sumatriptan tablet 25 mg	Generic	200 mg	\$17	\$34	\$276
Sumatriptan tablet 25 mg	Imitrex	200 mg	\$38	\$75	\$600
 Sumatriptan tablet 50 mg	Generic	200 mg	\$15	\$30	\$119
Sumatriptan tablet 50 mg	Imitrex	200 mg	\$39	\$78	\$312
 Sumatriptan tablet 100 mg	Generic	200 mg	\$14	\$28	\$55
Sumatriptan tablet 100 mg	Imitrex	200 mg	\$41	\$82	\$163
 Sumatriptan cartridge injectable 4 mg/0.5 mL	Generic	12 mg	\$54	\$109	\$327
 Sumatriptan cartridge injectable 6 mg/0.5 mL	Generic	12 mg	\$47	\$94	\$188
Sumatriptan cartridge injectable 6 mg/0.5 mL	Imitrex	12 mg	\$120	\$240	\$479
 Sumatriptan pen injectable 4 mg/0.5 mL	Generic	12 mg	\$49	\$97	\$291

Table 4. Triptan Costs (continued)

Generic Name and Dose	Brand Name	Maximum Allowed Dose Per 24 Hours	Price Per Dose ¹	Average Monthly Cost ¹ (If two migraines a month and take one pill or dose per attack)	Average Monthly Cost ¹ (If two migraines a month and take maximum allowed amount per attack, over 24 hours)
 Sumatriptan pen injectable 6 mg/0.5 mL	Generic	12 mg	\$50	\$100	\$200
Sumatriptan pen injectable kit 6 mg/0.5 mL	Alsuma	12 mg	\$55	\$110	\$219
Sumatriptan pen injectable 6 mg/0.5 mL	Imitrex	12 mg	\$66	\$133	\$266
Sumatriptan needleless injectable 6 mg/0.5 mL	Sumavel dosePro	12 mg	\$65	\$130	\$260
 Sumatriptan vials injectable 6 mg/0.5 mL	Generic	12 mg	\$39	\$78	\$156
Sumatriptan patch 6.5 mg/4 hours	Zecuity	6.5 mg	NA ²	NA	NA
Zolmitriptan tablet 2.5 mg	Zomig	10 mg	\$41	\$81	\$326
Zolmitriptan tablet 5 mg	Zomig	10 mg	\$45	\$91	\$182
Zolmitriptan dissolvable tablet 2.5 mg	Zomig ZMT	10 mg	\$39	\$77	\$309
Zolmitriptan dissolvable tablet 5 mg	Zomig ZMT	10 mg	\$45	\$91	\$182
Zolmitriptan nasal spray 5 mg	Zomig	10 mg	\$48	\$96	\$192
Fixed-Dose Combination Products					
Sumatriptan/naproxen sodium 85 mg/500 mg	Treximet	170 mg/ 1,000 mg	\$31	\$61	\$122

1. Prices per dose and monthly costs are derived from national average retail costs for December 2012 rounded to the nearest dollar. Information is derived by Consumer Reports Best Buy Drugs from data provided by Wolters Kluwer Pharma Solutions which is not involved in our analysis or recommendations.

2. NA = Price data not available.

or a lower rate of side effects than the others. Limited evidence suggests that naratriptan may have a lower rate of side effects than sumatriptan, rizatriptan, and zolmitriptan, but at the same time, naratriptan appears to be less effective at relieving migraine pain.

You should tell your doctor if you take certain antidepressant drugs, including citalopram, duloxetine, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline, or venlafaxine. When triptans are taken in combination with these medications, there is a risk of a potentially life-threatening condition called serotonin syndrome. So do not take these medications together unless it's under a doctor's supervision.

Triptans should not be taken within two weeks of taking a MAO-A inhibitor—a class of antidepressant medication that includes isocarboxazid (Marplan),

phenelzine (Nardil), and tranylcypromine (Parnate). The drugs could negatively interact and increase the risk of seizures, nausea, vomiting, sweating, flushing, and dizziness.

If your doctor recommends taking a triptan together with an NSAID, you can buy the pills separately. The combination pill, Treximet, is also an option if you want the convenience of two medicines in one tablet. It contains 85 mg of sumatriptan and 500 mg of naproxen.

The idea behind Treximet is that treatment that targets multiple mechanisms of a migraine might offer greater pain relief over treatment with a triptan alone. In two randomized, placebo-controlled trials, more people taking Treximet were completely free from pain at two hours, and had sustained freedom from pain between two and 24 hours after dosing than those who took sumatriptan 85 mg, alone.

Also, although there is always concern about the possibility of more side effects when you are taking more than one medicine, trials have found that the rates of overall adverse effects were no more likely with Treximet than with sumatriptan, alone. In addition, the rates of chest discomfort, dizziness, sleepiness, numbness, and tingling were the same between the two treatments. So, it is reasonable to think that the sumatriptan/naproxen combo pill may have a similar safety profile while being more effective than sumatriptan alone for some people. But as we previously noted, NSAIDs, including naproxen, can pose a risk of serious gastrointestinal side effects, so to minimize the chances of this, use as low a dose as possible for the shortest amount of time to provide relief.

At \$31 per pill, Treximet is more expensive than buying individual generic sumatriptan and naproxen pills. Since there is no evidence that taking sumatriptan and naproxen in the more expensive form of a fixed-dose combination product works any better than taking individual sumatriptan and naproxen pills, you could save money by buying the generic versions of both sumatriptan and naproxen and taking them together as separate pills. Sumatriptan is only available in 25 mg, 50 mg, or 100 mg tablets, so you can't get the 85 mg dose that is contained in Treximet. Your doctor can help you decide which dose of sumatriptan is right for you. And no matter which triptan you are taking, be sure to talk with your doctor before adding naproxen or any other drug.

Triptans can be expensive. A single dose, as you can see in Table 4 on page 12, ranges in cost from \$12 to \$120, if drugs that are injected are included. Three triptans—naratriptan, rizatriptan, and sumatriptan—are now available as generics. In pill form, they can offer savings of more than half the cost of a comparable dose of the brand-name drugs.

For people with frequent migraines, the cost of multiple doses of a triptan drug can add up, and may even pose a barrier to treatment. For those with less frequent migraines, cost may be less of an issue. As explained earlier, triptans are intended to be taken only when you have a migraine attack. So if you have one or two attacks per month—or fewer—the cost is generally manageable, even if

Caution with repeating triptan doses

Talk to your doctor about:

- The number of times you can safely repeat a triptan dose within a 24-hour period.
- The recommended amount of time to wait before you repeat a dose.
- The maximum daily dose restrictions of your triptan of choice.
- Whether another triptan might work better for you.

Don't:

- Take more than one brand of triptan in the same 24-hour period unless your doctor specifically prescribes that type of combination treatment.

you have to pay out of your own pocket. But if you have three or more attacks per month, triptan treatment can become quite expensive, even if you have insurance coverage.

If you have health insurance, you should check to see which triptans are covered by your plan, and how many doses are covered per month. Some cover a limited number of triptan pills per month. You may also want to find out the amount of your co-payment for pharmaceuticals, and whether your plan has a preferred triptan. Some insurance plans may require a “nonpreferred” co-insurance payment—that is, you will have to pay more than the usual co-payment amount.

Buying a higher dose pill or spray, if that's what you need to relieve your migraine pain, is another strategy to reduce cost. As you can see in Table 4, if you need a fairly high dose to relieve your symptoms, you should *not get a low dose prescription to save money. This will end up costing you much more.* The higher dose pills or nasal sprays cost about the same per dose as the lower-dose pills or sprays. So if you need to take more pills or doses of a spray to get relief, talk with your doctor about switching to a prescription for a higher dose, which could save you money.

The seven triptans in pill form cost \$12 to \$46 per pill. The nasal sprays are more expensive, and the injectable forms of sumatriptan are quite expensive.

sive. In Table 4, we have calculated the cost of triptan treatment for a hypothetical person who has two migraines a month and takes one pill per attack, or takes up to the maximum dose allowed for each attack. This gives you a range of costs from low to high.

We have also given you the price per dose in the table, so it's easy to calculate what you might spend based on the number of migraine attacks you have.

Bear in mind that the prices we quote in Table 4 are average retail costs based on a nationwide database of prescription sales. You will probably find lower prices online and at some large discount stores. It pays to comparison shop, especially if you have to pay all or a sizable portion of the cost out of your own pocket, and you take a triptan frequently.

Taking the evidence for effectiveness, safety, and side effects into account—as well as cost and choice of the form of drug, we have chosen the following triptan as *Consumer Reports Best Buy Drug*:

- Sumatriptan (generic) tablets, nasal spray, and injectable forms—for people with moderate to severe headache pain and symptoms

Sumatriptan is available as an inexpensive generic. But it also has several other advantages, including that it offers the widest choice for mode of delivery. If you respond to this medicine, you have four ways to take it—tablets, nasal spray, injection, or patch (as previously noted, the Zecuity patch is not available as a generic so it is likely to be expensive)—and those can complement and supplement each other. That is a big advantage over the other triptans.

The injectable form of sumatriptan (which is available as a syringe, a disposable pen injector, and a needleless injection) is highly effective at reducing migraine symptoms quickly—more rapidly than any other triptan. You should know, though, that if your migraine pain does not respond to the first injection, studies have not found any clear benefit in giving a second injection during an attack. The nasal spray also sometimes yields faster relief than pills.

But if pills are your preference (as they are for most people), sumatriptan tablets are available at three

dose strengths, one more than many of the other triptans. This gives you more flexibility in choosing the dose that works best for you. If you need a stronger dose, talk with your doctor about the 50 mg or 100 mg pill; it will save you money. But be careful not to use more of these drugs than necessary. As we previously noted, overuse of triptans can result in medication-overuse headaches, which may force you to stop taking the drug.

It's very important for you to know that people respond differently to the various triptans. You may get little or no relief from one, and respond much better to another. So if our *Best Buy* pick doesn't work for you, then discuss with your physician trying one of the other triptans. Doctors commonly switch people to another triptan if the first one they prescribe is not effective.

If sumatriptan does not work for you, we recommend trying rizatriptan, which is available as a regular tablet (Maxalt and generic) and a dissolvable tablet (Maxalt MLT and generic). Studies indicate that rizatriptan may be more effective than some other triptans on several measures of effectiveness. At 10 mg, it is more likely to relieve pain within one hour, get rid of pain completely by two hours, and provide sustained pain relief for 24 hours than most of the other triptan pills. As we previously noted, the dissolvable tablets contain aspartame, which can be a migraine trigger for some people. So if you are sensitive to this artificial sweetener, you may want to avoid these tablets.

If you can't tolerate sumatriptan or other triptans due to side effects, we recommend you try a lower dose. Studies show that lower doses are less likely to cause side effects. So if a smaller dose still provides you with enough relief from your migraine pain as a larger dose, this may help you avoid unwanted side effects.

Some people are not helped by *any triptan*, or they don't tolerate them well. In that case, you and your doctor will have to turn to other treatments.

Evidence

This report is based on an analysis of the scientific evidence on triptans. More than 1,600 studies were identified that were published in the peer-reviewed medical literature between 1988 and 2008. From these, the analysis focused on 98 studies that directly compared one triptan with another, or with other migraine medications or a placebo.

Effectiveness

Triptans vary in effectiveness. For those who want to take pills or capsules, all the triptans are more effective than placebo. Two—frovatriptan (Frova) and naratriptan (Amerge)—are less likely than others to relieve pain within two hours. The other five relieve pain within two hours in 61 to 69 percent of people. The fixed-dose combination product containing sumatriptan and naproxen (Treximet), relieves pain within two hours in 57 to 65 percent of people.

Studies indicate that rizatriptan may be more effective than many of the other triptans on several measures. At 10 mg, it is more likely to relieve pain by two hours than almotriptan 12.5 mg, naratriptan 2.5 mg, sumatriptan 100 mg, and zolmitriptan 2.5 mg.

However, when it comes to the dissolvable tablet form of rizatriptan, there are fewer studies available on how it compares to other triptans. So far, studies show that more people are pain-free and function normally two hours after taking the 10 mg dissolvable rizatriptan tablet compared to the 50 mg sumatriptan tablet. And more people in the rizatriptan group were still pain-free at 24 hours. However, similar numbers of people in the rizatriptan and the sumatriptan groups experienced a return of their migraine within 24 hours. But, no studies have yet directly compared the rizatriptan dissolvable tablet to the 100 mg sumatriptan tablet.

Lower doses of some triptan tablets relieve migraines as well as higher doses when administered later in an attack. Sumatriptan 50 mg, rizatriptan 5 mg, and zolmitriptan 2.5 mg, for example, have been found to be nearly as effective as doses that were double. The other triptans may also work as well at lower doses, but studies have not proven this yet. The dose

is important because lower doses pose less risk of side effects. Higher doses tend to work better early in an attack and may enhance complete pain relief. But they also raise the risk of side effects. The important thing is to find the dose that works best for you.

The effectiveness of triptans has largely been judged by pain ratings at one and two hours; this has—in effect—become a standard measurement. That's largely because surveys have found that people with migraines care most about relieving their pain quickly. Unfortunately, as reported above, fewer than half of all patients can expect to experience complete freedom from pain within the first two hours after taking a triptan. Far fewer studies have examined pain relief over 24 hours and relief from other symptoms, such as sensitivity to noise or light.

Even fewer studies have examined headache recurrence after the effects of a triptan has worn off. This is despite the fact that pain recurrence is a common complaint of migraine patients. Some people must take second and third doses of their triptan and/or other types of migraine medications to “rescue” themselves from headache pain that returns within 24 hours of the initial relief.

Treatment Early in a Migraine Attack

Compared with the older trials where people with migraines waited a while to take the study drug, newer trials have focused on taking the drug earlier in an attack, at the first sign of mild pain. This is considered more of a “real-world use” of triptans.

So far, results from these “early-treatment” trials show that anywhere from 41 to 68 percent of patients are pain-free at two hours for oral eletriptan 40 mg, rizatriptan 10 mg, sumatriptan 100 mg, zolmitriptan 5 mg, and for the combination product containing sumatriptan/naproxen (Treximet) 85 mg/500 mg.

Other early-treatment trials measured migraine pain levels at 24 hours and found that taking a triptan early-on is better than a placebo for almotriptan 12.5 mg, eletriptan 40 mg, rizatriptan 10 mg, sumatriptan 100 mg, and for the fixed-dose combination product

containing sumatriptan and naproxen (Treximet). However, we cannot say for certain that early treatment is better than delaying treatment, because no studies have directly compared these two treatment strategies to see if one is superior to the other.

Safety

Triptans are generally safe medications when used appropriately and prescribed for the correct patients. But they should not be taken by people with certain conditions and risk factors for heart disease and stroke. Studies that directly compared different triptans suggest that they have similar safety profiles because there was no difference in the rates of side effects, including chest pain/tightness, and dizziness.

Triptans have been associated with rare cases of heart attacks, life-threatening disturbances of heart rhythm, stroke, and death. These problems may be due to the constriction in blood vessels that triptans cause. People with heart disease or risk factors for heart disease may have a greater risk of these problems, but they have also occurred in people with no history of heart disease. Other side effects that may be due to this issue include very rare reports of transient and permanent blindness, and partial vision loss.

Before you take a triptan, you should make sure you don't have any factors that increase your risk for heart disease and stroke that could prohibit you from taking one of these medicines. Your doctor should also ask about or screen you for these risk factors. The most important risk factors for heart disease and stroke are high blood pressure, diabetes, elevated LDL cholesterol, and smoking cigarettes. Millions of Americans have high blood pressure or diabetes and don't know it. You should not take a triptan if your blood pressure and blood sugar have not been checked. You also should not take a triptan if you are at risk for a heart attack or stroke, or if you are already under treatment for those disorders.

If you have chest pain or tightness while taking a triptan, you should contact your doctor immediately. Up to seven percent of the people who take triptans experience chest pain and/or tightness. This side effect has not been linked to heart disease. But because people taking triptans have had heart attacks on rare occasions, it's better to be safe than sorry.

Drug Interactions

All triptans interact adversely with ergotamine and dihydroergotamine (Migranal Nasal Spray), and they should not be taken within 24 hours of using an ergotamine drug. One triptan—eletriptan (Relpax)—should not be taken within 72 hours of taking medicines that inhibit a specific liver enzyme (CYP3A4). They include the following:

- Ketoconazole (Nizoral) and itraconazole (Sporanox), which are antifungals
- Nefazodone (Serzone) for depression
- Clarithromycin (Biaxin) for bacterial infections
- Trileandomycin (Tao) for pneumonia
- Ritonavir (Norvir) and Nelfinavir (Lexiva) for HIV/AIDS
- Verapamil for high blood pressure

The physical effects of rizatriptan can be magnified when taken with the blood pressure medicine propranolol (Inderal). Rizatriptan, sumatriptan, and zolmitriptan can interact with antidepressants called monoamine oxidase inhibitors (MAOIs), such as phenelzine (Nardil), tranylcypromine (Parnate), and isocarboxazid (Marplan). Talk with your doctor about how to adjust your triptan dosage or whether to use another triptan in those cases.

Tell your doctor if you take certain antidepressant drugs, including fluoxetine, paroxetine, sertraline, fluvoxamine, citalopram, escitalopram, venlafaxine, and duloxetine. When triptans are taken with these drugs, there is a risk of a potentially life-threatening condition called serotonin syndrome. So do not take these medications together unless it's under a doctor's supervision.

Age, Race, and Gender Differences

There is no evidence that any triptan is more or less effective or safe for any particular group based on age, gender, or race/ethnicity. In general, studies of triptans involved mostly white women around 40 years of age who were in otherwise good health. Trials of triptans have also generally excluded people with cardiovascular disease, uncontrolled hypertension, liver disease, and several other conditions for the reasons discussed above.

5 Tips to 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 triptan and dose is best for you, if one is warranted at all, and which gives you the most value for your health-care dollar.

1. Mention cost to your doctor.

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

2. Ask about older medications.

Many people (including physicians) think that newer drugs are better. While that's a natural assumption to make, it's not always 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 newer vs. older medicines, including generic drugs.

3. Consider generic drugs.

Prescription medicines go "generic" when a company's patents on them have lapsed, usually after about 12 to 15 years. At that point, other companies can make and sell the drugs. Generics are much less

expensive than newer brand-name medicines, but they are not lesser quality drugs. Indeed, most generics remain useful medicines even many years after first being marketed. That is why more than 75 percent of all prescriptions in the U.S. today are written for generics.

4. Keep up-to-date records.

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

- First, if you see several doctors, each may 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 medicines 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 take and periodically review it with your doctors.

5. Know the facts.

Finally, always be sure that you understand the dose of the medicine being prescribed 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 bottle match the amounts your doctor told you.



How We Picked the *Best Buy* Drugs

Our evaluation is primarily based on an independent scientific review of the evidence on the effectiveness, safety, and adverse effects of triptans. A team of physicians and researchers at the Oregon Health & Science University Evidence-Based Practice Center conducted the analysis 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 triptans forms the 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 triptans is available at <http://derp.ohsu.edu/about/final-products.cfm>. (This is a long and technical document written for physicians.)

Our general advice on migraine diagnosis and treatment is based on recent published reports and reputable online sources, including www.ConsumerReports.org/health.

The drug costs we cite were obtained from a health-care information company, Wolters Kluwer Pharma Solutions, which tracks the sale of prescription drugs in the U.S. Prices for a drug can vary widely, even within a single 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 December 2012.

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

- Be approved by the FDA for treating migraine headaches
- Be as effective or more effective than other triptans
- Have a safety record equal to or better than other triptans

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

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A more detailed explanation of the project is available at www.CRBestBuyDrugs.org.

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