

Sumatriptan's Evolution from Brand Drug to Best Buy of 2010

AFTER A LONG WAIT, MANY SUMATRIPTAN GENERICS ARE NOW AVAILABLE IN THE UNITED STATES

Sumatriptan, among the first drugs developed specifically as a migraine treatment, has greatly improved physicians' ability to treat severe migraine. About 16% of women and 6% of men have migraines, according to the Migraine Research Foundation. With the condition so commonplace, the drug—available as a tablet, nasal spray, and fast-acting subcutaneous injectable—quickly became one of the most widely prescribed drugs.

GlaxoSmithKline (GSK) developed sumatriptan and began marketing the drug under the brand name Imitrex after gaining US Food and Drug Association (FDA) approval in 1992. By 2005, Imitrex sales had reached \$1.1 billion and represented 32% of the migraine treatment market, according to

business analysts.

Imitrex is effective for about 50% of patients with acute migraine, according to Peter Goadsby, MD, a migraine specialist and Director of the Headache Center at the University of California, San Francisco. Even with several new migraine drugs coming to market, sumatriptan is "still widely prescribed for the treatment of acute migraine," he says.

Like other triptans, sumatriptan is also



very expensive. A single dose can range from \$20 for a lower dose tablet to \$146 for an injectable, according to a report by Wolters Kluwer Health on prescription drug sales in the United States as of March 2010.

Many of the migraine patients who tried Imitrex and were satisfied with the results complained that their insurance company capped the number of doses it would cover each month. Many patients eagerly awaited the arrival of generics after GSK's patent was to expire in 2006. However, delays followed. GSK was granted a 6-month extension on its Imitrex patent after the FDA accepted its research on pediatric patients.

Of the 9 manufacturers that were granted approval by the FDA between 2007 and 2009 to market generic sumatriptan through various delivery methods, 4 contested GSK's basic patents and were involved with litigation with GSK, according to Mary Anne Rhyne, a GSK spokeswoman. All of the suits have been settled, says Rhyne. She acknowledged that it is common for pharmaceutical manufacturers to have to defend their patents from generics that try to enter the market before patent expiration. In this case, GSK was granted a 6-month patent extension for Imitrex to complete trials in pediatric patients.

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Cost Variation of Sumatriptan for Migraine

National average retail cost of generic and brand name sumatriptan as of March 2010.

Generic Name and Dose	Brand Name	Max Allowed Dose Per 24 Hours	Price Per Dose	Average Monthly Cost (Based on Two Migraines a Month and Taking Maximum Dose Allowed)
Sumatriptan nasal spray, 5 mg	Generic	40 mg	\$47	\$752
Sumatriptan nasal spray, 5 mg	Imitrex	40 mg	\$62	\$992
Sumatriptan tablet 25 mg	Generic	200 mg	\$24	\$384
Sumatriptan tablet 25 mg	Imitrex	200 mg	\$39	\$624
Sumatriptan injectable 6 mg	Generic	12 mg	\$124	\$496
Sumatriptan injectable 6 mg	Imitrex	12 mg	\$146	\$584

Source: Adapted from Consumer Reports Health Best Buy Drugs and Wolters Kluwer Health.

Sometimes the brand pharmaceutical company will enter into agreements with generic companies. That was the case with Imitrex. The pharmaceutical company Dr Reddy's Laboratories (DRL), which is headquartered in Hyderabad, India, was the first of the 9 generics to enter the US market. It launched its authorized generic (a drug produced by a brand pharmaceutical and marketed under a private label) version of sumatriptan in November 2008 and entered the market as "full generic competition" in August 2009, says Milan Kalawadia, a DRL representative for North America.

"As a part of the 2006 settlement of our patent litigation with GSK, DRL was the authorized generic for sumatriptan," Kalawadia noted in a written statement. "I believe the official exclusivity period began in February of 2009, at which point Teva [Pharmaceuticals] entered the market as the exclusive generic, at which point there were 3 parties in the market—Dr Reddy's (authorized generic), GlaxoSmithKline (brand), and Teva (abbreviated new drug application generic)."

A check of several online migraine patient discussion forums including "The Daily Headache" and "MyMigraine Connection" found that there is an uneven availability of sumatriptan generics nationally. Some neurologists also report that they still cannot get the generic version of the medication. That may be due in part to distribution agreements with pharmacy chains. "Dr Reddy's product is sold to the major retailers and wholesalers," says Kalawadia. "With multiple players in the market it is conceivable that you may find another generic product at the pharmacy from which a patient may be filling a script."

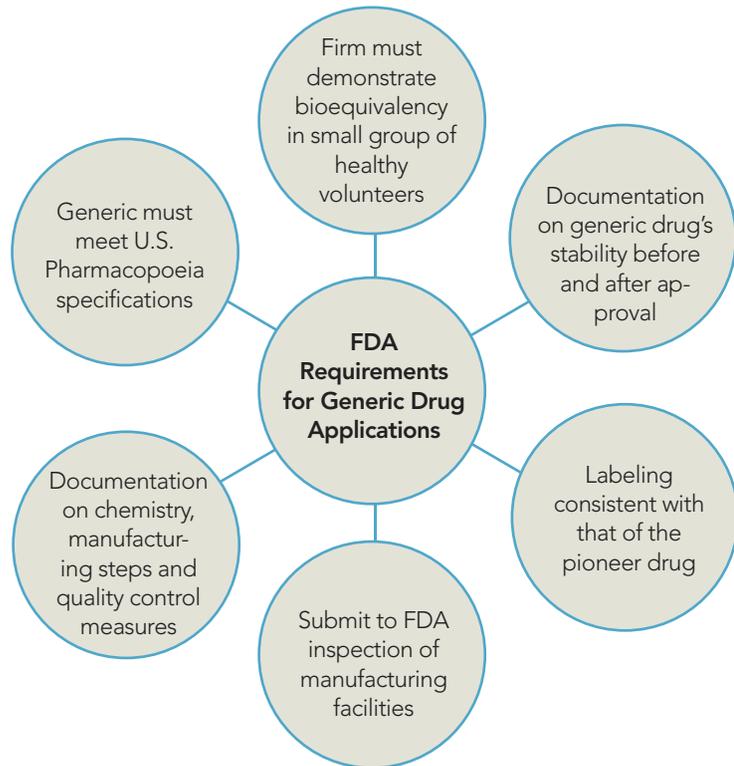
At press time, neither the FDA nor the American Society of Health-System Pharmacists indicated a shortage of sumatriptan in the United States.

As intended, the competition has brought down prices (See Cost Variation of Sumatriptan for Migraine). In its May report, *Consumer Reports* called sumatriptan a safe, effective medicine that offers "the most value for your healthcare dollar." ●

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FDA Requirements for Generic Drug Applications



Manufacturers may apply to the FDA to sell generic versions of a drug when patents and exclusivity periods for brand-name drugs are set to expire. Generic manufacturers are not required to duplicate clinical trials performed by the brand name drug.

- The generic must have the same active ingredients, labeled strength, and dosage form as the FDA-approved brand name.
- The manufacturer must demonstrate bioequivalency to the brand-name drug, most often by measuring absorption time and concentration in 24 to 36 healthy volunteers. The generic version must deliver the same amount of active ingredients into a patient's bloodstream in the same amount of time as the approved drug.
- The generic drug's labeling must be essentially the same as that of the approved drug.
- The firm must fully document for FDA review the generic drug's chemistry, manufacturing steps, and quality control measures.
- The firm must provide assurance that raw materials and the finished product meet existing U.S. Pharmacopoeia specifications for drug purity.
- The firm must demonstrate that the generic drug maintains stability as labeled. Once on the market, the firm must continue to monitor the drug's stability. Firms making sterile drugs must submit sterility assurance data showing the product's microbiologic integrity.
- The firm must submit a full description of the facilities where the drug will be manufactured, processed, tested, packaged, labeled and controlled. It must certify compliance with federal regulations regarding manufacturing practices.
- Before approving a generic drug the FDA usually conducts an on-site inspection of the manufacturing facility.

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