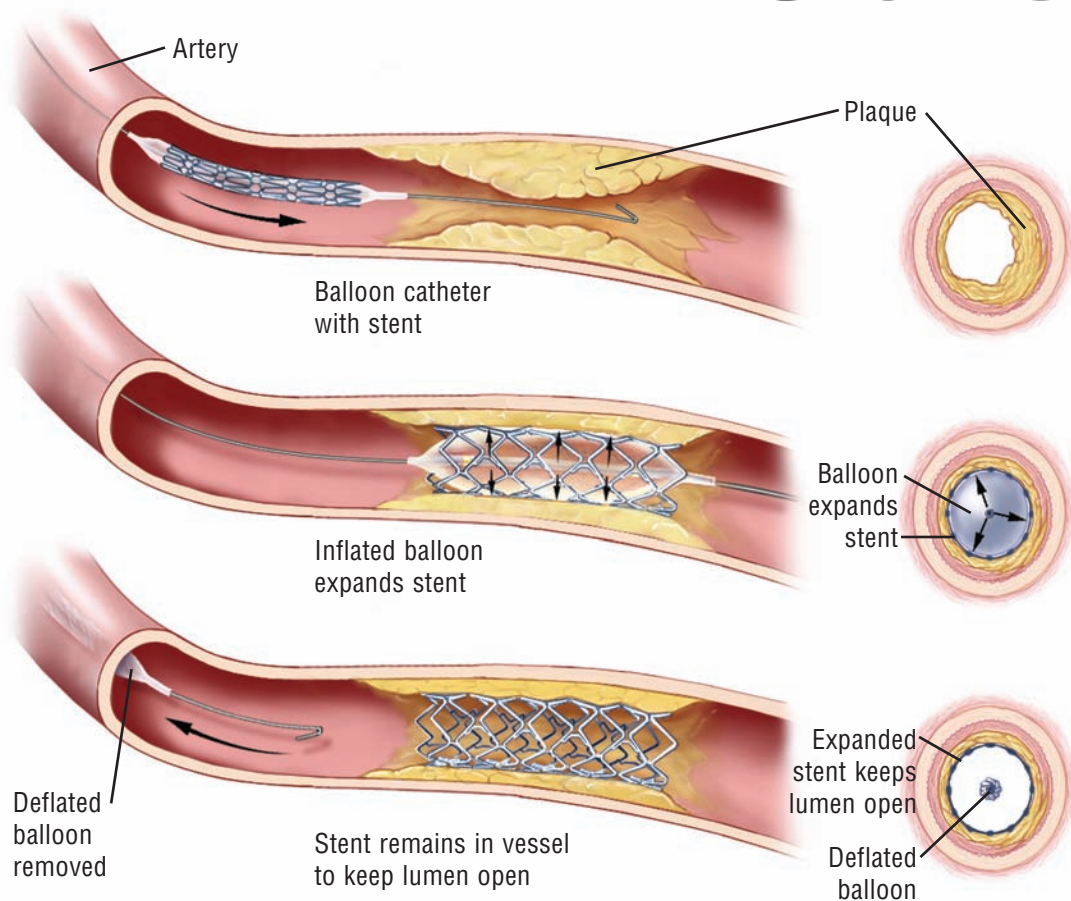


## Stents



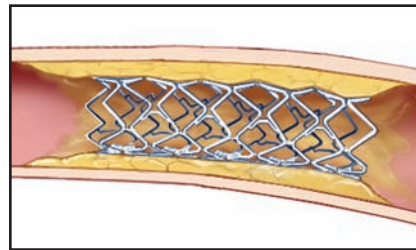
## Opening Blocked Arteries

A stent is a tiny metal mesh tube that is inserted into a narrowed or blocked artery to open it and restore blood flow. The most common use of a stent is to open an artery that is partially blocked by plaque, which builds up on the inner artery walls and slows blood flow to the heart. The stent holds the blood vessel open until the body can coat it with its own blood vessel cells, which stops the risk of blood clot formation. This healing process normally takes about six months to complete, although the stent remains in place permanently.

There are several types of stents available, including those that are coated with a medication that is slowly released into the artery to keep scar tissue from forming and to prevent the artery from closing again during the healing process. Unfortunately, these special stents, known as drug-eluting stents, have recently been blamed for blood clot formation in rare cases that resulted in heart attacks or even death, months or years after they were inserted. This may be a result of the drug slowing the healing of the clogged artery. Recently, a new drug-eluting stent, similar to dissolvable stitches, has been developed. It is designed to dissolve about two years after it is inserted. A magnetized stent is also being tested that would allow blood vessel cells incorporated with iron to grow over the stent more quickly. Clinical testing is ongoing to determine the safety and efficacy of this new stent, which could reduce the risk of blood clot formation while avoiding restenosis.

## Stents Improve Blood Flow but Carry Risks

Since the introduction of cardiac stents, millions of patients have been treated with this new technology and, in many cases, have avoided open heart surgery to correct blockage of blood vessels leading to the heart. The insertion of a stent during or following a cardiac angioplasty procedure helps relieve chest pain and related symptoms by increasing blood flow to the heart muscle. However, not all patients with atherosclerosis and narrowed or blocked arteries will benefit from stent placement. Some patients cannot undergo the procedure to insert the stent, and others cannot tolerate the antiplatelet medications that must be taken for a year or more after the stent is inserted.



*When the balloon is deflated and removed, the stent remains to hold the blood vessel open until the body can coat it with its own blood vessel cells.*

### Drug-Eluting Stents

About six million patients worldwide have been implanted with drug-eluting stents, which became available in 2003. Each year, two million additional people will receive a drug-eluting stent, with one million of these in the United States. During the procedure, a stent is inserted through a large artery in the arm or groin and is threaded up into the narrowed artery over a balloon catheter. In some cases, the balloon is inflated and the stent opens, propping open the artery and restoring blood flow. In other cases, the balloon opens the artery and the stent is inserted immediately afterward.

### Early and Long-Term Complications

Complications, including bleeding, blood clots, or infection, can occur as a result of stent placement. Rarely, a blood vessel can tear during the procedure. Some patients are allergic to the stent material or the drug coating on the stent. After the stent has been placed, it can move out of place. The artery can become blocked again after the stent has been in place for a period of time—a condition known as *restenosis*. To prevent restenosis and to help healing, patients who have received a stent take anticlotting medications for specific periods of time, as prescribed by their doctors. Most patients take aspirin for the rest of their lives and likely will take an additional antiplatelet drug, such as clopidogrel, to prevent blood clots for a year or even longer. Doctors are now trying to determine the proper length of time that patients with bare metal and drug-eluting stents should take clopidogrel to avoid the risk of blood clot formation.

Your pharmacist can answer any questions you may have about medications your doctor has prescribed, including antiplatelet medications used after stent implantation.