**Are stents safe?**

Yes, stents are generally safe. While all medical procedures have risks and benefits, angioplasty and stenting have very low rate of complications.

Angioplasty is a procedure that reopens a blocked artery and restores blood flow. Often a small mesh device, called a stent, is implanted in the artery to prop open the artery.

Angioplasty and stenting work in conjunction with the rest of your heart health care. It is still important to adjust to a healthier lifestyle that incorporates healthy eating and exercise. You will need to continue to take your heart medications. Never stop taking a prescribed medication without talking to the doctor who implanted your stent.

**Do stents work?**

Yes. Stents work. They are a reliable means of propping open an artery, and do a much better job of keeping a blockage open than angioplasty balloons alone. But which patients will truly benefit from opening an artery is not obvious. Although it sounds confusing, not all arteries need to be opened.

Angioplasty and stenting is very effective in the right patients, especially heart attack patients. Doctors often say, “Time is muscle.” This means the longer it takes to treat a patient who is suffering a heart attack, the more damage that the heart muscle may suffer. If the heart is starved of oxygenated blood for too long, heart failure can develop or the patient may even die. In a heart attack, every second counts.

Angioplasty and stenting can be appropriate for patients with severe angina, which is often characterized by chest pain or discomfort, fatigue, shortness of breath, or dizziness. Angina patients may include those who did not respond to medications, who could not tolerate the medications and their side effects, or who are not willing to have their lifestyle restricted due to symptoms.

Angioplasty and stenting are not a substitute for medications or for improvements in lifestyle (such as exercise more, improving your eating habits, or stopping smoking). Both medications and lifestyle changes have been shown to benefit heart health. Angioplasty and stenting is one option on the treatment spectrum for patients with cardiovascular disease, depending on each individual patient’s situation.
Questions & Answers About Angioplasty & Stenting (Continued)

Why are there conflicting reports about stents?

Q

There is no one perfect treatment for every patient with heart disease. Cardiovascular disease is the leading cause of death and disability for men and women. It is a complicated, progressive disease. The cardiovascular field has been a leader in conducting clinical trials, collecting data, and analyzing what works and what doesn’t in the treatment of heart disease. But how to treat heart disease is not a simple question with a single answer.

When interventional cardiologists consider whether to recommend angioplasty and stenting, they weigh the results of tests and the effect of symptoms on quality of life, among other factors. For example, how bad are the symptoms and for how long have they been going on? What is the patient’s tolerance for symptoms? How severe is the blockage? How many blockages are there, and in which blood vessels do they occur? How much blood is getting through the blocked artery? Are there other conditions to consider, such as diabetes or obesity? Every study that has been conducted has looked at different pieces of the puzzle, so it is unlikely that any one scientific finding will be conclusive for every patient.

What we know is that it is important for heart disease patients to talk with their doctors about their situations and agree upon a treatment plan specific to their individual health needs.

Do stents cure heart disease? Do they prevent heart attacks?

Q

A

To date, nothing cures coronary artery disease. Angioplasty and stenting does stop heart attacks, and in some cases, when a “stable” patient is becoming unstable, it can prevent a heart attack. This is a judgment call a doctor must make after reviewing all of the details of a patient’s case: test results, symptoms, whether the symptoms have been worsening over time, how long medications have been tried, and what the effects of the medications have been.

The most important take-away about angioplasty and stenting is that the procedure is one tool in the cardiologist’s toolbox. Over the last 35 years, since angioplasty and, later, stents were developed, huge strides have been made in the treatment of cardiovascular disease. Death from heart attack has remarkably reduced. Before angioplasty, one in four heart attack patients died; now, with angioplasty and stenting, only one in 20 heart attack patients die. Besides angioplasty and stenting, other factors have contributed to this improvement, such as new medications and an improved understanding of what causes heart disease and how to diagnose and treat it.

While we have come a long way in treating heart disease and heart attacks, we still have a long way to go. Research today is focusing on how to better predict which blockages are most “vulnerable” to rupture, how to more precisely insert stents at the point in the artery that will provide the most benefit and relief to patients, and how to apply technologies to other disease states in the heart and the blood vessels.
Questions & Answers About Angioplasty & Stenting (Continued)

Do doctors use too many stents?

The vast majority of cardiologists are deeply committed to providing optimal care for their patients. They should not be tarred with the brush of the few whose behavior is wholly unacceptable. There have been some high-profile cases of doctors charged with performing angioplasty and stenting procedures that were unnecessary. With approximately 5,000 board-certified doctors who specialize in angioplasty and stenting in the United States, there is the potential for some to be extreme outliers. This is the case in any profession. As for those few, their actions should be addressed by medical licensing boards and, in some cases, the judicial system.

In addition to medical licensing boards and the court system, there are a number of safeguards and protocols in place to promote high-quality, appropriate cardiovascular care. These include clinical guidelines developed by medical societies (such as the Society for Cardiovascular Angiography and Interventions, American College of Cardiology, and American Heart Association, among others), appropriate use criteria that help doctors evaluate each patient’s case along recommended standards for care, and a process that accredits cath labs based on rigorous review of their processes and random review of patient records.

Moreover, SCAI, the professional organization that represents interventional cardiologists, has developed quality improvement tools that support efforts to continuously evaluate and improve the care each cath lab provides.

Who should get a stent? Who should not?

Based on a multitude of scientific data, we know some things with certainty. During a heart attack, when the artery is suddenly closed, a stent can save your life and preserve heart muscle, which affects your future health and quality of life. On the contrary, for less severe cases when an artery has a small blockage and blood is getting through, medications and lifestyle changes only – not stenting – are probably a proper therapeutic course.

For the patients in between, the answers are less clear. Cardiologists have developed guidelines based on scientific data to help them recommend appropriate treatments for different types of patients. In general, patients with more severe symptoms are more likely to benefit from restoring blood flow with stents or surgery. Also, patients with evidence of severely decreased blood flow by a stress test generally do better with restoration of blood flow. A variety of tests provide information to guide these clinical recommendations. Ultimately, the doctor must consider each patient’s unique array of symptoms, expectations, and preferences, and then use his or her clinical judgment to discuss your treatment options and recommendations with you.
Questions & Answers About Angioplasty & Stenting (Continued)

Medications, stents, bypass surgery – how will my doctor know what will work for me?

Doctors develop clinical guidelines based on scientific research to help them determine the best treatment for each patient. For instance, the research on angina shows medication can make a significant difference, so the guidelines recommend trying lifestyle changes and medication before angioplasty and stenting.

For medication to be effective, it has to be taken as prescribed. It’s one thing to know that and another thing to practice it. It’s very easy to forget, and for many patients, medication can be expensive. And for other patients, the medication side effects may be intolerable.

If you find that, despite making significant changes to your lifestyle and taking medication, you see little improvement in your symptoms, your doctor may talk to you about angioplasty and stenting. Angioplasty is a minimally invasive procedure to reopen a blocked artery. Angioplasty often includes implanting a small mesh device called a stent, which holds open the artery, allowing blood to flow.

Your doctor may recommend bypass surgery – open-heart surgery in which the blocked artery (or arteries) is replaced with a blood vessel from another part of the body. If a lengthy portion of an artery becomes narrowed, if an artery is severely blocked, or if the blockage is in a critical location, bypass surgery may be the recommended therapy.

These are all tools we have to treat heart disease. Which ones are best for you, given your condition, your tolerances and preferences, should be determined through a conversation with your doctor.

What is COURAGE?

COURAGE is the name of a large 2007 study that examined whether patients with stable angina who received angioplasty and stenting had better outcomes than patients who received only medication. The study examined whether patients lived longer or had fewer heart attacks. The results of the study indicated the people who took their prescribed medications as directed lived just as long as people who received angioplasty and stents, and the same number of heart attacks occurred.

It is important to note that the patients in the COURAGE study had a stable form of heart disease. They had been having the same degree of symptoms for several months. Previous studies have shown that “unstable” patients benefit from angioplasty and stenting performed as soon as possible. So they were not included in this study.

COURAGE demonstrated that patients with stable symptoms of heart disease can be managed without angioplasty and stenting. However, taking into consideration some of the details of the COURAGE trial, cardiologists believe that some patients with stable angina may consider angioplasty and stenting. There are several reasons why:

• First, you may want better relief of symptoms. While COURAGE revealed that those who received stents did not live longer than those who were given only medications, many patients who underwent angioplasty and stenting got better relief from angina in the first three years. After five years, their level of symptoms evened out. Since this relief depends on each patient’s unique circumstances – age, sex, race, medical or family history, habits, preferences, and so on – it’s important to discuss all of the treatment options with your doctor.

• Second, you may also consider angioplasty and stenting when medications and lifestyle changes are not enough to relieve frequent angina.

• Third, if you cannot take all of the prescribed medications, you may need angioplasty and stenting to treat your angina. COURAGE patients had access to the type and dosages of drugs recommended as optimal medical treatment for angina. In some cases, stenting will not require patients to take as many long-term medications for their heart.
Questions & Answers About Angioplasty & Stenting (Continued)

Q Stents cost a lot. Are they worth it?

A Developing a stent, testing it, producing it, and monitoring it for safety is an expensive enterprise. In addition, there are costs associated with each episode of care, including the expertise of a team of healthcare professionals who take care of you before, during and after your procedure.

One recent study (Journal of the American Medical Association – Surgery) found dramatic health plan cost savings and reduced workplace absences associated with minimally invasive procedures as opposed to major surgery. Among six procedures examined, angioplasty and stenting led the way in savings to employer-sponsored health insurance plans and reduced absenteeism from work. Over the course of one year, angioplasty and stenting saved health plans $30,850 per patient and reduced the number of work days missed by 37.7 per patient compared to major surgery.

A 2012 survey of 460 angioplasty patients showed 4 out of 5 (81 percent) said their lives have changed for the better since undergoing angioplasty and stenting. Angioplasty patients reported needing less post-procedure care and returning to work three times faster than bypass surgery patients.

Q I had a stent implanted when I had a heart attack. Is it safe? Should I be worried? Do I need to have my stent removed?

A Your stent is safe and will not need to be removed.

Angioplasty and stenting is indisputably the gold standard of care for patients having a heart attack. Heart attacks are caused by a blocked artery that prevents blood from flowing to the heart. Angioplasty reopens the artery and a small mesh device called a stent holds open the artery to restore your blood flow. Because of technology and scientific advancements over the past 35 years, a person who suffers a heart attack today is 80 percent more likely to survive a heart attack today due to angioplasty and stenting than before. During a heart attack, stents can save lives and help preserve quality of life by saving heart muscle.

Q Where should I go for more info?

A There are many good websites on the internet, including SecondsCount.org, but the best any website can do is to give you information that helps you ask good questions and have a productive conversation with your healthcare provider. Whether you have one question or 20, be sure to ask. Keep asking until the answers make sense to you. If you don’t understand, feel comfortable with, or trust your doctor, find a new doctor.