

# A Hole in the Heart: Understanding the Link between PFOs and Stroke

## Patent Foramen Ovale (PFO) and Stroke

There are many types of heart defects, but the most common is a patent foramen ovale (PFO), or a hole in the heart. As many as 20 percent of Americans have a PFO. Many of these people, however, don't know it. But, it's important to know about PFO and how to treat it, because having a PFO can increase a person's stroke risk by up to 25 percent.

### What is a PFO?

Patent foramen ovale (PFO) is a term used to describe a small "hole" in the heart between the left and right atrium. Everyone is born with this opening, which resembles a flap. In most people, the flap seals itself shortly after birth. But in others, the flap does not close completely and can open whenever the chest is strained, such as during coughing or sneezing. When there is a PFO, blood that has not been cleansed by passing through the lungs can flow through the flap, carrying debris and blood clots through the opening and into the bloodstream.

### How does a PFO affect stroke risk?

Most strokes are caused by blood clots clogging arteries to the brain and cutting off normal blood flow. When a part of the brain is deprived of blood and oxygen, it begins to starve and die.

Blood clots can travel from any part of the body through the PFO and to the brain. As people age, they are more likely to develop blood clots in their legs. If those clots make their way through the hole and to the brain, they could cause a stroke.

Every year, approximately 100,000 Americans suffer PFO-related strokes.

### If I've already had a stroke, why should I care about PFOs?

If you have had a stroke, but did not have any obvious risk factors leading to the stroke, ask your doctor about PFO. Having one stroke automatically

puts you at risk for a second. If doctors were unable to pinpoint the cause of the stroke, they may choose to look for a PFO.

### How are PFOs diagnosed?

Because PFOs have no symptoms in adults, a diagnosis usually does not come until after a stroke or other event has occurred to make doctors suspect a PFO. By taking a picture of the heart, using an ultrasound, doctors can see if there is a PFO.

### How are PFOs treated?

If you've had a stroke with no known cause and tests have shown that you have a PFO, you may choose to treat the PFO or to do nothing at all. Currently, there are three main treatment methods for PFO: medicine, open-heart surgery and a newer procedure that closes the flap without major surgery.

### Blood thinners

Patients with a diagnosed PFO can take medicine to control how their blood clots. While the drugs do not seal the flap, they may control the amount of blood clots formed and reduce the number



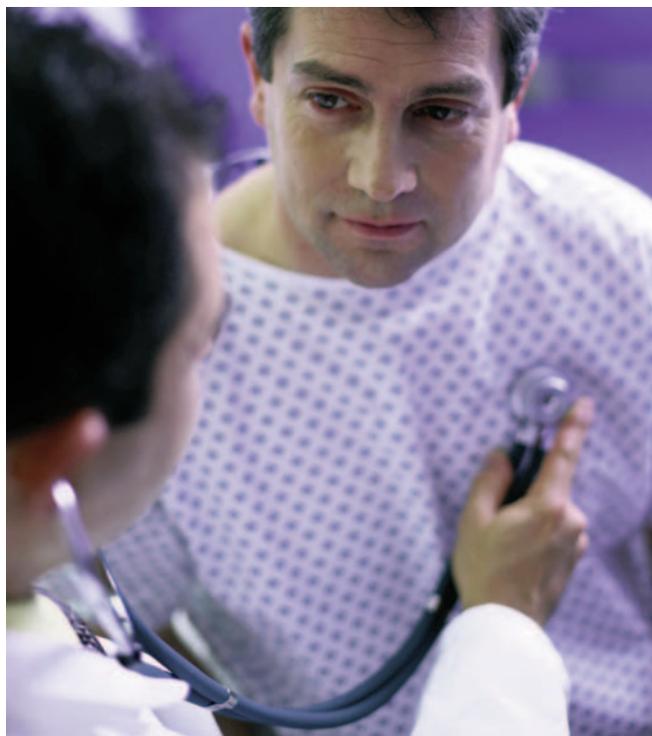
of clots that could possibly travel to the brain. The drugs, called anti-platelets and anti-coagulants, must be taken daily and regularly to be effective. Patients who don't take the drugs as directed may put themselves at increased risk for stroke.

### Open-heart surgery to close the hole

Another treatment option is to close the PFO with open-heart surgery. As with any major operation, patients and their doctors should weigh the risk and complications of surgery against the benefits.

### Closure of the PFO with a non-surgical device through participation in a clinical trial

A third PFO treatment option involves a less-invasive procedure to seal the flap. An implanted closure device, which resembles a tiny umbrella, is delivered to the PFO using a small tube threaded from a vein in the thigh up to the heart. The implant is released and expands in the flap, plugging the hole. The tube is then removed. Tissue grows in and around the implant to seal the PFO. Done typically as an out-patient procedure, it requires less recovery time than surgery.



### Where can I learn more?

Many hospitals in major U.S. cities are now enrolling stroke and TIA survivors with PFO into a research study to compare the less-invasive PFO-closure procedure with traditional medicines in preventing recurrent stroke in these patients. For details on clinical trials or on PFO:

visit [www.stroke.org](http://www.stroke.org) or call  
1-800-STROKES (787-6537)

[www.amplatzer.com/us/Respect](http://www.amplatzer.com/us/Respect)



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