Minimal Incision Valve Surgery (MIVS)
Frequently Asked Questions

How common is heart valve disease?
If you are facing surgery to replace a diseased heart valve, you are not alone. Each year, more than 700,000 patients undergo some type of heart surgery globally. In fact, you may recognize some of their faces. Barbara Walters, Barbara Bush, Arnold Schwarzenegger, Robin Williams and Elizabeth Taylor all have had heart valve surgery.

What does a heart valve do?
Your heart pumps blood continually to deliver oxygen to every part of your body. The heart is a powerful muscle that keeps the blood moving by pumping it to the lungs, where it picks up oxygen and delivers it to the rest of the body. When the blood returns to the heart, it is pumped back to the lungs to pick up more oxygen. For this process to work efficiently, the blood must move freely and in only one direction. The heart’s valves open so blood can move forward, and then close to keep it from moving backward. This process is repeated 5 or 6 billion times during the average lifetime.

How many heart valves does the heart have?
The heart has 4 valves. The mitral and tricuspid valves control blood flow between the upper and lower chambers of the heart.

REFERENCES
1. The Patient’s Guide to Heart Valve Surgery, by Adam Pick

Complications for this procedure are similar to those with any heart surgery procedure and may include injury to the vessels and other structures in the heart, plaque embolization, stroke, sepsis, hematoma at the access site, arrhythmia, arterial thrombosis, cardiac failure, peripheral nerve damage, allergic reaction to contract medium, or death.

Discuss all of these risks with your physician, and other options available to you for the treatment of heart disease.

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On its way out of the heart to carry oxygen to the rest of the body, blood passes through the pulmonary and aortic valves.

What is heart valve disease?
Several things can go wrong with heart valves.

• They can leak – when a worn-out valve fails to close properly or leaks it’s called prolapsed. Blood flows backward (regurgitates) and the heart must work harder to pump the same amount of blood.

• They can become narrow due to calcium build-up – this narrowing is called stenosis. It keeps the valve from opening completely and reduces the amount of blood that can flow through it.

• They can become damaged from an infection – bacteria that causes rheumatic fever can damage the heart, especially its valves. Heart valves can also be damaged or deformed by an infection called bacterial endocarditis.

• They may be defective – due to congenital reasons or they may wear out with age.
**What are the symptoms of valve disease?**

A worn out or damaged heart valve can cause some or all of these symptoms:

- Shortness of breath
- Feeling tired (fatigue) during exertion
- A cough, especially at night or when laying down
- An irregular or abnormally fast heart beat (palpitations)
- Swollen feet or ankles
- Pain or tightness in the chest
- Dizziness

Even a relatively insignificant leak in a valve can cause severe symptoms.

**What kind of tests do doctors use to diagnose heart valve disease?**

After discussing your symptoms and listening to your heart to check for a murmur, the doctor may use a number of different tests to “see” how it is working.

- A **chest x-ray** can determine the size of your heart.
- An **electrocardiogram** (also called an ECG or EKG) can detect a problem with your heart’s rhythm and some problems with how the blood flows.
- An ultrasound test called an **echocardiogram** makes it possible to watch each heart valve, checking on its structure and thickness, as it opens and closes. Your doctor may order a special type of this test, called a **transesophageal echocardiogram**.
- A **radionuclide scan**, a special type of x-ray in which a “tracer” chemical is used, produces images of a specific organ, such as the heart.
- The dye that is injected into the bloodstream during a **cardiac catheterization** allows the doctor to track the movement of blood and to detect other heart problems that could be causing your symptoms.
- **Magnetic resonance imaging (MRI)** can produce detailed pictures of your heart and arteries and how they function.

**What are my surgical options?**

During typical “open-chest” surgery to repair or replace a heart valve, the surgeon makes one large incision in the middle of the chest and breastbone to access the heart. A heart-lung machine takes over the job of circulating blood throughout the body during the procedure, because the heart must be still and quiet while the surgeon operates. Many surgeons are now able to offer their patients **minimal incision valve surgery** as an effective alternative to open-chest heart valve surgery.

**How is minimal incision valve surgery performed?**

Minimal incision valve surgery does not require a large incision or cutting through the entire breastbone. The surgeon gains access to the heart through one of three smaller, less visible incisions (sometimes called “ports”) that are made between the ribs or a smaller breastbone incision, and one small incision in the groin. The diseased valve can be repaired or replaced through one or more of the ports between the ribs, with the surgeon looking at the heart directly or through a small, tube-shaped camera.

**What are the benefits of a minimal incision procedure vs. open-chest surgery?**

Many studies have demonstrated that a minimal incision approach offers patients a number of advantages, including:

- Faster recovery and return to normal activity
- A smaller, less visible scar

**How long does it take to recover from minimal incision valve surgery?**

Patients who have minimal incision valve surgery typically:

- Spend less time in the intensive care unit after surgery
- Return home sooner
- Return to work or normal activities within 4-8 weeks
- Are back at work or resuming normal activities by the eighth week (71%)

**Will I have a scar?**

If you have heart valve surgery, you should expect some scarring. With open-chest surgery, you will have a sizeable scar in the middle of the upper chest (6-12 cm). The smaller incisions associated with a minimal incision procedure (2-6 cm) mean smaller scars, and their locations also make them less noticeable.

**What will I need to do to prepare for surgery?**

You will undergo medical tests and different imaging exams to determine:

- Your overall health
- Allergies
- Anatomy
- Best surgical approach

**What happens on the day of surgery?**

You will be asked to sign a consent to surgery
- You will be given a specific time to check in to the pre-operating room by your surgeon
- You may be asked to follow certain dietary guidelines
- Your body may need to be shaved
- You will be provided anesthesia as determined by your surgeon

**What can I expect after surgery?**

- Pain management
- Rest
- Instructions on when to shower/bathe (usually 10 days to two weeks)
- Dietary guidelines
- Back-to-activity instructions
- Follow-up care as determined by your physician

**How much pain will I have when I wake up?**

The answer depends on many factors including the approach chosen. However, studies on the minimal incision approach suggest a reduced pain level when compared to open-chest procedures. Ask your surgeon what you and your family should expect for the type of procedure you will receive.

**How long will I need before returning to work?**

Minimal incision valve surgery has been associated with a faster recovery and return to normal activity when compared to conventional surgery. Recovery will depend on several different factors, but clinical studies indicate that approximately 50% of patients will return to work and full activity within 4 weeks.

**What are the activities that I can perform when I return home?**

All patients are encouraged to resume normal activities at their own pace. Many patients report a return to normal activities within a few weeks.

**What additional resources are available to me?**

- www.YourHeartValve.com
- www.Edwards.com
- www.AmericanHeart.org
- www.aacc.org
- www.MendedHearts.org
- www.HearValveSurgeons.com
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*Additional references and sources may be provided in the original text.*
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On its way out of the heart to carry oxygen to the rest of the body, blood passes through the pulmonary and aortic valves.

Minimal incision valve surgery (MIVS) is not indicated for patients with moderate to severe peripheral or aortic atherosclerosis, a history of thoracic trauma, aneurysm of the ascending aorta, or for people suffering from severe aortic regurgitation.

Complications for this procedure are similar to those with any heart surgery procedure and may include injury to the vessels and other structures in the heart, plaque embolization, stroke, sepsis, hematomas at the access site, arrhythmia, arterial thrombosis, cardiac failure, peripheral nerve damage, allergic reaction to contrast medium, or death.

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REFERENCES
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