

Transcatheter Pulmonary Valve Replacement

Information for patients

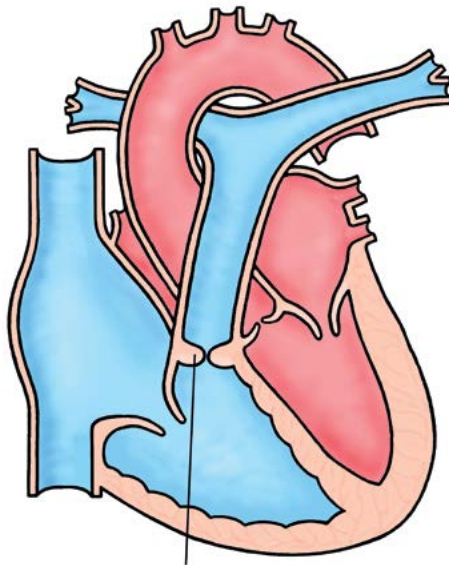


This leaflet aims to give you an overview of pulmonary valve replacements using a keyhole technique.

Transcatheter (keyhole) Pulmonary Valve Replacement

There are a number of congenital heart problems that may, at some point, require a transcatheter pulmonary valve replacement (sometimes called pulmonary valve implantation). Some patients have a leaky pulmonary valve because it has been stretched open at some point in their lives to treat conditions such as Tetralogy of Fallot or pulmonary stenosis. Some patients have a surgically placed tube connecting their pulmonary (lung) arteries to their right ventricle (pumping chamber) - this tube can become narrow or the valve in the tube can leak.

The Pulmonary Valve



Narrowed pulmonary valve

“Keyhole” valve replacement

Keyhole pulmonary valve replacements have been carried out since 2000 and over 10,000 have been carried out worldwide. So far, studies show that keyhole valve replacements have a similar success rate when compared with surgical pulmonary valve replacements, with a quicker recovery time.

Keyhole valves are made from either porcine (pig), bovine (cow) or equine (horse) tissue and the valves only come in a number of types and sizes, therefore not everyone is suitable for this type of valve replacement and sometimes open heart surgery is still needed.

What does the procedure involve?

The procedure is performed under a general anaesthetic. A thin tube (catheter) is inserted into the vein in the groin. Through the catheter, pictures (angiograms) are taken and studies performed to check that the worn-out valve/tube and the rest of the heart is suitable for valve implantation.

The cardiologist then replaces the catheter with a larger one containing the new valve inside and positions it within the worn-out valve/tube where it is inflated on a special balloon and released.

After this, further checks are carried out and then the patient is then woken from the anaesthetic.

What does the procedure involve?

The keyhole procedure avoids opening the chest to perform open heart surgery. It avoids the need for a stay on intensive care with an artificial breathing machine, the discomfort of an operation, and some of the other complications of surgery such as fluid collecting in the chest.

The hospital stay after the procedure is 1-2 days compared with open heart surgery where around a week in hospital is required.

How well do “keyhole valves” function in the longer term?

This procedure has now been carried out successfully for around 20 years and recent studies show it is a good alternative to open heart surgery. Because the valve is made from animal tissue, it is inevitable that it will wear out at some point. In many cases it will be possible to insert another keyhole valve into the old one, avoiding the need for open heart surgery again. In some cases however, once the keyhole valve wears out, an operation will be required. It is not possible to say whether this will be a suitable option lifelong and at some point, open heart surgery may be needed again.

Most of these valves work well once in place although about 20% (20 out of 100) of keyhole valves have small breaks in the support structure by 2 years after implant which in some cases stops the valve working properly. This can often be fixed with another keyhole procedure but in some cases open heart surgery is required to take out and replace the valve.

Replaced pulmonary valves, whether they were replaced using a “keyhole” or surgical technique are at greater risk of infection in the heart (endocarditis) so the usual recommendations around endocarditis prevention are recommended (good oral hygiene, regular dental check-ups, avoiding tattoos and piercings). Infection in any valve is serious and if the valve becomes infected, usually around 6 weeks of intravenous antibiotics are needed in hospital, and sometimes surgery is needed to remove and replace the valve. Please make sure you have had a recent dental check-up and all outstanding dental treatment has been completed before the procedure. If you have not seen a dentist this may delay your procedure. **Once you have had your pulmonary valve replaced, you need antibiotic cover for invasive dental treatment.** Please ask your doctor or specialist nurse for more information.

You will be started on 75mg aspirin following this procedure and this will usually be for life unless you experience any unwanted side-effects whilst taking it. If you have any issues with aspirin, please contact the specialist nurses.

What are the disadvantages and what can go wrong?

Possible complications related to the procedure include the device not staying in place once it has been positioned (this might need an operation to retrieve the device), rupture of the tube in which the new valve is positioned (this occurs in about 2 in 100 cases and again may require an operation to retrieve the device and replace the tube), infection within the device and breaks forming in the metal structures supporting the valve leading to the valve leaking. The most serious complication during the procedure is death, which is a rare complication occurring in less than 1 in 100 procedures.

Will I feel any different and are there any side effects?

Right sided heart problems are often tolerated for a very long time and many patients do not have any symptoms before the procedure so sometimes wonder why they need their valve replacing. We try to intervene early, to protect the right side of the heart in the long-term. Some people may not notice a difference in how they feel afterwards but many patients do feel better, even if they had not noticed symptoms before.

The main side effects include bruising and tenderness at the top of the leg which is normal. You shouldn't have any other worrying side effects or symptoms but if you do you can telephone the specialist nurses for advice during the week (8am-4pm) or 111 out of hours.

You will be given specific advice regarding what to look out for when you are discharged from hospital.

Pulmonary Incompetence & Pulmonary Valve Replacement - YouTube

<https://www.youtube.com/watch?v=d07J6TAMteo&list=PLoTRklWm7TS-s-mHjgQuZhit77SPNGG89&index=9>



Other information

If you decide to proceed with your transcatheter pulmonary valve replacement you will be placed on the waiting list.

You will receive a date for your procedure through the post. We try to give you around **4 weeks** notice but it's often not possible for us to give you more than a week or two notice of the date. Please contact the secretary as soon as you receive your letter to confirm on telephone number: **0113 392 8184** or via email on: **leedsth-tr.paedcardcathlist@nhs.net**.

This is very important, if you do not confirm in good time your slot will be offered to someone else.

If you are taking anticoagulant (blood thinning) drugs such as warfarin or rivaroxaban you will need to stop this in advance. You will receive a telephone pre-assessment call approximately 2 weeks prior to the date of the procedure.

Most people do not need longer than a week off work. You should avoid any heavy lifting/strenuous exercise for 3-4 days until your leg is no longer sore.

The DVLA state you must not drive for 4 weeks following a pulmonary valve replacement.

We appreciate it can be quite a wait between your clinic appointment and your procedure so, if in the time waiting for your procedure you have any questions or concerns, then please contact the specialist nursing team who will be happy to assist you.

Contact details

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