

Having a trans-catheter aortic valve implantation (TAVI)

You have been referred for TAVI as you have been diagnosed with severe aortic stenosis (see below for details). This leaflet aims to answer your questions about having a trans-catheter aortic valve implantation (TAVI). It explains the benefits and risks of the procedure you will be having, as well as any alternatives and what you can expect when you come to hospital.

If you have any further questions, please speak to a doctor or nurse caring for you.

What is aortic stenosis?

You have been diagnosed with a condition called aortic stenosis. This means that the valve that opens to allow blood to flow from your heart to the rest of your body has severely narrowed, and does not open properly. This makes it hard for the blood to flow through the valve, so your heart may need to pump harder to force the blood through. The narrowing is often caused by a build up of calcium around and inside the valve, which can happen over the course of a lifetime.

What is a TAVI?

TAVI is short for trans-catheter aortic valve implantation, and is a way of improving how your heart works without us having to remove your own narrowed valve. It involves putting an artificial valve into your heart. The valve is made up of three 'leaflets' (made of material derived from cows) which control blood flow. The valve is inside a metal cage called a stent, which holds the new valve in position.

You do not need open heart surgery to have this procedure. Instead, the valve is inserted into the heart through a thin tube (known as a catheter) which is put into the body through a small cut in either your groin or your chest.

The procedure takes up to two hours and is carried out under general anaesthetic, which means you will be asleep. Because this is a less invasive procedure with a shorter anaesthetic than open-heart surgery, it means that a person considered too high a risk for open heart surgery may face a lower risk with this new procedure.

If you have any questions about the investigations you are having, or if you would like more information, please contact us using the details on the back page.

What happens during the procedure?

The TAVI procedure is usually done under general anaesthesia, so you will be unconscious (asleep).

To make sure we position the valve correctly, we will insert an ultrasound device known as a trans-oesophageal ECHO down your food pipe once you are asleep. This will allow us to see pictures of your heart throughout the procedure.

We will also put a pacing wire into a vein in your leg. This wire acts as a pacemaker, allowing us to temporarily speed up your heart at key points in the procedure. This means that less blood is passing through your aortic valve, enabling us to ensure that the artificial valve is positioned correctly.

We will put your new valve in place by making a small cut in your groin and/or your chest. If we use your groin for the procedure, this is referred to as a trans-femoral procedure. If we use your chest, we call it a trans-apical procedure (if it is on the left side) or a trans-aortic procedure (if the cut is made to the centre of the chest). Your cardiac surgeon and cardiologist will decide which is best for you based on the results of your TAVI work up tests, and the cut will be repaired at the end of the procedure. When you wake up you may have puncture sites in your groin from the pacing wire and tubes (sheaths) used to get the images we require for positioning the valve.

Through these sheaths, we will pass a fine tube (catheter) to your heart. We will then pass a small deflated balloon through the catheter. When it reaches your aortic valve we will inflate the balloon, widening the valve. We will then remove the balloon.

Before your artificial valve can be implanted, it is carefully crimped (compressed) and mounted onto the balloon. We then pass the balloon and mounted valve through the cut in your chest or groin and put it in place. Once it is in place, your artificial valve is expanded by the balloon so that it fits across your existing valve, holding it open permanently. This procedure will improve how well your heart works without you having to have your own diseased aortic valve removed.

Why should I have a TAVI?

Having a new aortic valve implanted may relieve both the short- and long-term symptoms of your aortic stenosis. It may make your aortic valve work better and improve how well your heart works, potentially increasing both your quality of life and your life expectancy.

What are the risks?

Possible complications of the TAVI procedure include, but are not limited to:

- Allergic reaction to the dye used in the xrays – please let us know if you have had any previous allergic reactions of any kind.
- Reactions to anaesthesia – please read our leaflet **Having an anaesthetic** for more information.
- Irregular heart beat, which may either be short- or long-term.
- An abnormal join developing between an artery and a vein.
- Bleeding from puncture sites or from the procedure site (possibly requiring a transfusion).
- Pain and damage to the blood vessel which supplies blood to one of your legs.
- Haemolysis (breaking open of red blood cells), at times causing anaemia (lack of red blood cells).
- A hole in the wall between the two upper chambers of your heart.

Complications with the valve device, which may require further procedures, include:

- the device becoming blocked
- the device being or moving into the wrong position
- formation of a blood clot inside the device, which would need to be removed
- structural failure of the valve
- blood leakage around the device
- coronary blood supply blockage/blood leakage around the valve due to incorrect positioning
- puncture or damage to vessels, heart muscle or valves, potentially causing bleeding into the sack surrounding your heart
- emboli (bubble) of air, thrombus (blood clot) or calcification blocking a blood vessel and causing a temporary or permanent stroke
- the need for emergency heart surgery
- infection, including inflammation of your heart.
- high or low blood pressure
- reduced blood pressure to the peripheral organs and nerves
- reduced blood supply to the kidneys, which could lead to kidney failure and the need for either temporary or permanent dialysis
- heart attack
- radiation exposure. You will have your new valve implanted using x-ray guidance. The amount of radiation you will be exposed to for this will be the same as during a coronary angiogram, which is what the average person receives from background radiation in six months.

Very rarely, problems with the device may lead to death, due to any one or a combination of the above circumstances. This is uncommon, but please speak to the nurse or doctor caring for you if you have any questions or concerns.

What are the alternatives?

Aortic stenosis can also be treated with medication or with open heart surgery. You and your doctor will have discussed available options and decided that the best course of treatment for you is to have a TAVI.

If you decide not to have surgery we will only be able to treat you with medicines. However, we can sometimes perform balloon aortic valvuloplasty, which involves stretching open your aortic valve. This is only a temporary measure and after a while your aortic valve will become narrow again.

How can I prepare for having a TAVI?

You should continue to take your regular medicines as usual. The doctors will review the medicines you are taking at your assessment appointment before you have your procedure and will let you know if you need to adjust the dose or stop taking any of them temporarily. In particular, warfarin, metformin, and insulin doses may need to be held or adjusted – but we will contact you to let you know. You will need to stop taking your warfarin two days before your procedure, however please speak to your doctor or the Nurse Case Manager for Structural Heart Disease about this, **especially** if you have had a heart valve operation, recurrent deep vein thrombosis (DVT) or pulmonary embolism (PE). Your doctor will tell you when to start taking warfarin again after your procedure.

If you are taking antibiotics on the days before your procedure, please let the admissions team or Nurse Case Manager know.

Please bring all of the medicines that you currently take or use with you, including anything that you get from your doctor on prescription, medicines you have bought yourself over the counter, and any alternative medicines, such as herbal remedies.

Giving my consent (permission)

The staff caring for you may need to ask your permission to perform a particular treatment or investigation. You will be asked to sign a consent form that says you have agreed to the treatment and that you understand the benefits, risks and alternatives. If there is anything you don't understand or if you need more time to think about it, please tell the staff caring for you.

Remember, it is your decision. You can change your mind at any time, even if you have signed the consent form. Let staff know immediately if you change your mind. Your wishes will be respected at all times. If you would like to read our consent policy, please tell a member of staff.

How long will the surgery take?

Because we use fluoroscopy (x-rays) and an ultrasound to see what is happening inside your body you will not need to be under general anaesthetic for a long time. The whole procedure will take up to two hours.

Will I feel any pain?

As the TAVI procedure is done under a general anaesthetic you will not have any pain during the procedure. You may feel uncomfortable at the procedure site after the TAVI but this will wear off in a few days and you will be given painkillers by the nurses looking after you.

What happens after the procedure?

Initially you will be transferred to the overnight intensive recovery unit (OIR) so that you can be closely monitored overnight. You will then be transferred to either the coronary care unit (CCU) or high dependency unit (HDU) until you are well enough to go back to the ward.

During your stay in hospital, you will also have the following tests:

- A chest x-ray.
- Urine analysis.
- Routine blood tests to check how well your kidneys and liver are working, to make sure you do not have a blood infection, to check that your blood can clot properly, and to make sure you have enough haemoglobin, which carries oxygen around in your blood.
- An electrocardiogram (ECG).
- A trans-thoracic echocardiogram. You will have this just before you leave hospital after your procedure. It involves having an ultrasound probe placed on your chest so it can record images of your heart.

You are likely to be in hospital for approximately seven days after your procedure.

What do I need to do after I go home?

You will be given a letter to give to your GP. This will detail what has happened to you in hospital and which tablets you are on. You will need to take aspirin and/or clopidogrel to thin your blood and stop large clots forming on the device. How long you need to take these will vary. Please make sure you know how long you should continue taking these medicines before leaving hospital. You will be given a card explaining why you are taking this combination, and for how long you should take them.

Where possible we recommend that relatives or friends drive you home. You can go home by train if you have someone with you. Hospital transport can only be provided in special circumstances. Please talk to the nurses on your ward if you have any concerns about your journey home.

If you need to use our patient transport service, a member of our team needs to assess whether you are eligible. This involves a brief telephone interview and is completely confidential. Assessments must be carried out at least 48 hours before you need to travel. If you think you may be eligible for this transport service, please contact the Patient Transport Assessment Team on 020 7188 2888.

What should I do if I have a problem at home?

If, after discharge, you have any further queries or general concerns, please do not hesitate to contact us. We are always happy to help. The Nurse Case Manager for Structural Heart Disease and the cardiac research team are available to speak to between 9am and 5pm, Monday to Friday.

**The Nurse Case Manager for Structural Heart Disease can be contacted on:
t: 020 7188 1093, or by calling the switchboard and asking for bleep number 2374.**

If you have a question outside of these hours, please contact the ward that you were on. Explain that you are a TAVI patient and tell them the day that you were treated. A nurse or doctor will happily answer your questions if possible, or advise you on the best course of action to take.

Wards

Becket Ward: 5th floor East Wing t: 020 7188 8839

Stephen Ward: 7th floor East Wing t: 020 7188 8843

Doulton Ward: 8th floor East Wing t: 020 7188 8841

Doulton HDU: 8th floor East Wing t: 020 7188 2041

Victoria Ward: 10th floor East Wing t: 020 7188 6807

Victoria HDU: 10th floor East Wing t: 020 7188 1600

Overnight intensive recovery unit: 2nd floor East Wing t: 020 7188 5617

Further information

Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline.

t: 020 7188 8748 9am to 5pm, Monday to Friday

Patient Advice and Liaison Service (PALS)

To make comments or raise concerns about the Trust's services, please contact PALS. Ask a member of staff to direct you to the PALS office or:

t: 020 7188 8801 at St Thomas' **t:** 020 7188 8803 at Guy's **e:** pals@gstt.nhs.uk

Language Support Services

If you need an interpreter or information about your care in a different language or format, please get in touch using the following contact details.

t: 020 7188 8815 **fax:** 020 7188 5953

NHS 111

Offers medical help and advice from fully trained advisers supported by experienced nurses and paramedics. Available over the phone 24 hours a day.

t: 111

NHS Choices

Provides online information and guidance on all aspects of health and healthcare, to help you make choices about your health.

w: www.nhs.uk

Become a member of your local hospitals, and help shape our future

Membership is free and it is completely up to you how much you get involved. To become a member of our Foundation Trust, you need to be 18 years of age or over, live in Lambeth, Southwark, Lewisham, Wandsworth or Westminster or have been a patient at either hospital in the last five years. To join:

t: 0848 143 4017 **e:** members@gstt.nhs.uk

w: www.guysandstthomas.nhs.uk