

Transcatheter aortic valve implantation (TAVI) procedure

If you have aortic stenosis, you may be treated with a transcatheter aortic valve implantation, or TAVI for short. This is where a new valve is inserted inside the narrowed aortic valve in your heart. The procedure is usually performed under local anaesthetic and can improve how well your heart works, potentially relieving your symptoms and giving you a better quality of life.

What is aortic stenosis?

Your heart is a muscle that pumps blood to your lungs and around the rest of your body. There are four valves in your heart. They open to let blood flow in through the heart, and close to stop the blood flowing backwards. One of these valves is called the aortic valve. When open, oxygenated blood flows from the heart into your aorta, the major artery that supplies the rest of your body.

Aortic stenosis is when the aortic valve struggles to open well. The heart cannot easily pump blood through the narrowed valve. This causes symptoms including breathlessness and chest pain. Some people may experience dizzy spells when exercising, which may lead to fainting. The restriction and extra force required to pump blood also causes strain on the heart muscle, which may lead to fluid on the lungs, swollen ankles and eventually heart muscle weakness. If untreated, aortic stenosis will usually get worse over time.

What is TAVI and why should I have one?

Transcatheter aortic valve implantation (TAVI) is a treatment for aortic valve disease where a new valve is inserted inside of this narrowed valve. This is an interventional cardiology procedure, usually performed under local anaesthetic (conscious sedation) rather than general anaesthetic. Having a new aortic valve implanted may improve how well your heart works. This should significantly improve your symptoms, potentially increasing both your quality of life and life expectancy.

Assessment for a TAVI

You have already been taken through a series of tests and investigations, known as the TAVI assessment or TAVI work-up. These tests have confirmed that your heart and blood vessels are suitable and that TAVI is the most appropriate treatment for you. A member of your heart team will contact you with the details of when you should come to the hospital for the TAVI procedure.

If your symptoms change whilst you are waiting for the TAVI procedure date, please contact your GP or 999 in the first instance. You should also let us know promptly.

Having the TAVI procedure

What to bring with you from home

If you are coming from home to have your TAVI procedure, please bring with you:

- all your medicines, including anything you get from your doctor on prescription, other 'over the counter' medicines, and any alternative medicines, such as herbal remedies
- any relevant clinic letters from other hospitals or specialties
- contact details for family members or carers
- a list of any questions you may have.

What happens during a TAVI

When you arrive you will be assessed by members of your heart team. The evening before, or on the morning of your procedure, you will be examined by one of the anaesthetists. You will not be able to eat anything for six hours before your procedure. Your heart team will give you more information about this. The procedure typically takes 1 to 2 hours. During the procedure:

1. A catheter (a thin hollow tube) will be inserted into your groin. There are other access routes that could be possible if the route through the groin isn't suitable for you. Your heart team will explain any alternatives to you as appropriate.
2. The catheter is passed into your heart and positioned within the opening of the aortic valve.
3. If necessary, a balloon may be gently inflated to make room for the new tissue valve.
4. The TAVI implant is an artificial heart valve, made of a stent (metal tube) and porcine (pig) or bovine (cow) tissue.
5. The new valve either expands by itself or is expanded using the balloon, depending on which type of valve is used.
6. If a balloon has been used, it is deflated before the balloon and catheter are removed.
7. The new valve now sits inside your valve.

The procedure typically takes 1-2 hours. Your heart team will close the puncture site with a device that seals the blood vessel.

Will I feel any pain?

You may feel uncomfortable at the procedure site after the TAVI procedure, but this will wear off in a few days and you will be given painkillers as necessary by the nurses looking after you. You may be given paracetamol when you leave hospital. If you require additional pain medications, you should see your GP. Typically, there may be bruising or pain to your groin.

Recovering in hospital after your TAVI

During your recovery in hospital, you will be on a cardiac monitor for one to two days after the procedure and you will be seen every day by your heart team. The team will monitor your wound site during this time. Depending on where you are treated, you will also have a combination of the following tests:

- a chest X-ray
- regular routine blood tests
- an electrocardiogram (ECG)
- a transthoracic echocardiogram.

You will likely be discharged home from hospital on the first or second day following your procedure. However, all cases are unique and you may need to be kept in hospital for longer. There is limited space in the ward, so please do not bring too many things with you into hospital.

Going home after your TAVI

You should prepare for going home before you come to the hospital. This planning is one of the most important things that you, your carer and family can do to help make your procedure a success. Your plan for going home should include the following:

- **Going home** – You must have a responsible adult to help you get home. You can travel by car as a **passenger only**. If you are thinking of travelling home by public transport (with assistance), you should discuss this with your heart team/specialist nurses before your procedure in order to plan safely. Please talk to your heart team if you have any concerns about your journey home.
- **Help at home** – You will need some help when you first go home. If possible, arrange to have someone stay with you for the first two days or longer to help you recover. If you do not have family or friends to help you, please speak to your heart team.

Often, people feel their symptoms improve immediately, particularly with their breathing. You may experience some discomfort where the catheters were inserted, but over a week or two this should improve and you will be able to have medication to help the pain, if needed. Your nurse will check the incision sites and give you spare dressings if you need them.

It may take up to two to three months to recover fully from the procedure. Try to be patient, and take care of yourself, taking into consideration all elements of your health as you heal.

You will be given a discharge letter before you leave hospital, and a copy will be sent to your GP. This will detail what has happened to you in hospital and which medications you are on. You may need to take more than one type of blood thinning medication to stop blood clots forming on your new valve. How long you need to take these will vary.

You will be instructed on this before being discharged, including any other changes to your existing medication - please don't hesitate to ask any questions. Depending on which medication you are taking, you may be given additional leaflets or a card explaining why and for how long you should take them. If you have concerns after discharge, you can ring the pharmacy helpline or call your GP.

What do I need to do after I am discharged from hospital?

Physical activity and exercise

Avoid anything that may put a strain on your groin for two to three weeks after the procedure. For the first two weeks after your surgery it is best to exercise little and often. Begin by walking around the house and taking short walks outside. Once you are comfortable walking on flat ground, try walking up hills slowly, resting as necessary. Aim for two 15 minute walks each day, one in the morning and one in the afternoon.

At week three or four, you can gradually increase this – depending on your situation. You may find this difficult if you have mobility problems, so just do what you can manage.

Everyone has a slightly different recovery speed but as soon as you are walking comfortably around the home you can carry out light housework such as washing up, dusting, laundry or small amounts of ironing (while sitting down). None of these activities should make you feel extremely breathless – if they do you are working too hard and need to slow down.

Always wait at least one hour after eating before you exercise and plan exercise into your day to avoid taking on too much and tiring yourself out. Keeping active is very important, but you should avoid strenuous activity, heavy lifting or any of the activities listed above for six weeks after the procedure. It is normal to feel easily tired for a few weeks.

Remember, everyone is different so exercise at a level that feels right for you.

Caring for your wound

You will be given advice from your heart team before you leave the hospital. There will normally be no wound as such, but it is normal for both groins to be tender and bruised for a few days after the procedure. Any stitches remaining in the groin will either dissolve over the following weeks, or your heart team may advise that you need to visit your practice nurse to have them removed. You should not need a dressing in place by the time you go home, but you should avoid using very hot water for the first two weeks. It is also better to shower rather than have a bath during this time. Do not use soap or shower gel on the wound until it is properly healed, and avoid using talc. There is no need for you to cover the wound unless instructed to do so. If you have any problems, please contact your heart team for specialist advice.

In the unlikely event that your groin starts to bleed, you should lie down flat and apply pressure to the area keeping your leg as straight as possible and your head down. If the bleeding does not stop after 10 minutes, dial 999. Do not drive yourself to A&E. If the bleeding stops within 10 minutes, keep your leg as still as possible for the following hour. If bleeding restarts, go to your A&E department. Do not drive yourself to A&E.

Cardiac rehabilitation

Your heart team may arrange for you to attend cardiac rehabilitation around six weeks after your TAVI. This is a scheme of graduated exercise and general health discussions, and you will be able to have this at your local hospital.

Driving

DVLA regulations do not permit driving for four weeks after your TAVI. You do not need to inform the DVLA about your procedure, but we do advise you to tell your insurance company to avoid problems with any claims you may make in the future. If you have a Group 2 licence for heavy goods or public service, you will need to inform the DVLA who will advise you further.

The British Heart Foundation (BHF) has more information on driving with a heart condition on their website at www.bhf.org.uk

Emotions

Having a TAVI is a significant event. As well as affecting your physical health, it can also affect you emotionally. Moods and feelings can easily change from one extreme to another. People who have surgery often say that they find themselves being 'snappy and short' with those around them. You may feel depressed, tearful or irritable one minute and on top of the world the next. This is a normal part of recovering from surgery and these feelings will pass.

Talk to your family, friends and GP about how you are feeling as this will help. If you have a partner they may also experience high levels of anxiety and depression, so it's important they seek support too. The British Heart Foundation has information about emotional support and wellbeing on their website.

Flying

If your TAVI procedure has been uncomplicated, you may be able to fly two to four weeks after the procedure. Despite this, if you are planning a holiday, it may be better to wait at least six weeks before travelling, as it is unlikely that you will get the best out of your break before then. If you wish to fly within three months of your procedure, check with your doctor and the airline, as each has its own procedure. Also, remember to ensure that you have valid travel insurance.

Sex

Your love life can be resumed when you are ready; this is normally within 4-6 weeks after the TAVI procedure. Discuss it with your partner and resume once you are both happy and comfortable. It is normal to feel anxious the first time you think about sex after your operation and you may have some questions. Avoid positions which will put pressure or strain on the wound. You may become tired quicker, so take your time. Some of the medications that you are taking may affect your love life. It may feel awkward or uncomfortable to talk about but your GP or heart team are there to support you and answer any questions that you may have.

Follow up appointments

We will make arrangements for you to come back for an outpatient clinic appointment, usually within four months after your discharge. Sometimes we may ask you to have an echocardiogram on the same day.

Following this, you may be asked back for another follow up appointment several months or a year later. If you were originally referred from another hospital you may instead be discharged to your local cardiologist for continued monitoring.

Understanding the risks

As with any medical procedure, there are certain risks involved. These will be fully explained to you by your heart team. The risk of complications may include:

- 10-20% risk of heart rhythm abnormalities (arrhythmias)
- 5% risk of bleeding, bruising or pain on the access site
- 5% risk of damage to an artery, requiring surgical or percutaneous repair
- 5% risk of a moderate to severe leaky valve
- 5-10% risk of a slow heart rate requiring a permanent pacemaker
- 3% risk of stroke
- <3% risk of kidney injury
- <2% risk of infection
- <1% risk of a heart attack
- <1% risk of allergy to the x-ray dye
- <1% risk of being converted to an open heart surgery

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

Alternative treatments

Another treatment option for aortic stenosis may be surgical aortic valve replacement, where the valve is removed and replaced. Open heart surgery is more invasive than TAVI and can be more risky, particularly if you have other illnesses which increase your overall risk for a general

anaesthetic. If you have been referred for TAVI, it may be that you are at too great a risk for cardiac surgery and it has already been agreed that this procedure will not be an option for you.

There are some options that may help aortic stenosis symptoms temporarily, but these are not suitable for all patients and will not fix the diseased valve or improve your life expectancy.

- **Balloon aortic valvuloplasty (BAV)** – this will temporarily stretch open your aortic valve. This may relieve your symptoms for three to six months but only offers temporary relief as the valve narrows again. This will not improve your life expectancy and is not suitable for all people.
- **Medication** – aortic stenosis cannot be treated with medication. Medication may help to relieve some symptoms, but will not fix the diseased valve.

If you can have the TAVI procedure, it is important to remember that aortic stenosis is a serious condition when considering whether to go ahead with the treatment. It is likely that your symptoms will progress over time, impacting on your quality of life and your life expectancy.

Giving your consent (permission)

We want to involve you in decisions about your care and treatment. If you decide to go ahead with the procedure, you will be asked to sign a consent form. Staff will explain all the risks, benefits and alternatives before they ask you to sign a consent form. This states that you agree to have the treatment and you understand what it involves.

If at any time there is anything you don't understand or if you need more time to think about the procedure, please tell your heart team - even if this is after signing the consent form. It is your decision whether you have the procedure, and your wishes will be respected at all times. Please ask a member of staff if you would like to read our consent policy.

Useful sources of information

British Heart Foundation (BHF)

BHF funds research into all heart and circulatory diseases and the things that cause them. The website contains a lot of helpful information about tests for heart conditions, heart valve disease, caring for someone with a heart condition and cardiac rehabilitation.

www.bhf.org.uk

British Heart Valve Society

A professional group affiliated to the British Cardiovascular Society with representation from patients as well. It aims to improve the care of patients with valve disease via educational and training programmes, information and by defining standards of care for individuals, services and hospitals. It has produced an endocarditis information and warning card you can carry.

www.bhvs.org.uk

Heart Valve Voice

A collection of people with real experiences of heart valve disease, including a group of experts in the field, cardiac patient societies, and patients themselves.

www.heartvalvevoice.com

Contact us

If you have any questions or concerns about your TAVI procedure, please contact your heart team in the first instance **t:** 020 7188 1093

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit **w:** www.guysandstthomas.nhs.uk/leaflets

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, Monday to Friday, 9am-5pm

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.

t: 020 7188 8801 (PALS) **e:** pals@gstt.nhs.uk

t: 020 7188 3514 (complaints) **e:** complaints2@gstt.nhs.uk

Language and accessible support services

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

t: 020 7188 8815 **e:** languagesupport@gstt.nhs.uk

NHS 111

This service 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 **w:** www.111.nhs.uk

NHS website

This website gives information and guidance on all aspects of health and healthcare, to help you take control of your health and wellbeing.

w: www.nhs.uk

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t: 0800 731 0319 **e:** members@gstt.nhs.uk **w:** www.guysandstthomas.nhs.uk/membership

This information has been developed by the South London Cardiac Operational Delivery Network, in conjunction with NHS trust clinicians across the region for a consistent approach to patient information for TAVI assessment and procedure.



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A list of sources is available on request