Transcatheter Aortic Valve Implantation (TAVI)

Lancashire Cardiac Centre
Patient Information Leaflet
Welcome to the Lancashire Cardiac Centre

On the day of your procedure you will be admitted to the Cardiac Day Case Unit (Tel 01253 957725 / 957726).

Once you have had your procedure you will go to either the CITU (Cardiac Intensive Care Unit) or the CCU (Coronary Care Unit) Ward 37, or Cardiac Day Case Unit.

You may then go to one of our wards to complete your recovery which are mixed sex environments, segregated into male and female bays or single side rooms to maintain your privacy and dignity.

If you feel this is going to be an issue during your treatment please let your Consultant know.

Please be assured that the nursing staff are charged with maintaining your privacy and dignity at all times.

For your safety please bring correctly fitting non slip footwear.

For Infection Prevention please use the alcohol hand gel which is available in all clinical areas.

This leaflet has been written to provide information and is not intended to replace talking with medical or nursing staff.
Transcatheter Aortic Valve Implantation (TAVI)

You have been diagnosed with a condition called Aortic Stenosis – narrowing of the aortic valve.

Your Consultant has decided that you may benefit from having your valve replaced.

However, due to your overall medical condition, you are a higher-risk candidate for conventional (standard) open-heart surgery to replace the diseased heart valve.

An alternative treatment may be suggested by your Consultant if conventional surgery is not suitable for you because of this level of risk.

The medical name for the procedure is Transcatheter Aortic Valve Implantation (TAVI).

The aim of this minimally invasive procedure is to avoid the risk of open-heart surgery, prolonged deep anaesthesia, and the resulting long recovery period.

The Lancashire Cardiac Centre began its TAVI Programme in 2008. All procedures are carried out by experienced multidisciplinary TAVI team members.
What is Aortic Stenosis?

Your heart contains four valves. These valves make sure that the blood flows in the right direction through the heart.

The aortic (outlet) valve is on the left side of the heart and opens when blood is pumped from the heart around the body.

Aortic Stenosis is the term used when the aortic valve is narrowed, so blood cannot flow easily out of the heart.

The main causes of aortic stenosis are:

• Being born with an abnormal aortic valve
• Rheumatic valve disease.
• Degenerative ‘wear and tear’, common cause. Most patients in this group present with symptoms in their 80s

Aortic Stenosis puts extra strain on the heart since it is harder for the heart to push out blood with each heart beat.

This can result in symptoms of breathlessness and fluid retention – which can cause swollen ankles and legs and or chest pain with activity or dizziness, blackouts or early induced fatigue.

If left untreated, severe aortic stenosis results in progressive worsening an symptoms and death.

What is Transcatheter Aortic Valve Implantation (TAVI)?

In this procedure a new valve is inserted via a catheter (a thin tube) into the heart. The valve is made up of a stent (a stainless steel tube) and biological material taken from cows.

The procedure is carried out under general or local anaesthetic with sedation.
What happens before the TAVI procedure?

Screening procedures

Before we can decide whether this treatment is suitable for you, we will have to carry out a number of screening tests, these results will then be discussed at the multi-disciplinary team meetings (which includes a Consultant Cardiologist, a Cardiac surgeons and a nurse) and a decision will then made on whether this is the best treatment option for you.

- A routine physical examination.
- An Electrocardiogram (ECG) – a recording of your heart rhythm.
- Routine blood tests.
- A chest x-ray (CXR) (not always required).
- An Echocardiogram (ECHO) – images of your heart using ultrasound – a gel and probe are placed on your chest to image the structure of your heart.
- An Angiogram – which allows us to look at the arteries that supply the heart muscle – by passing a tube (catheter) into your groin or wrist artery and then taking x-ray pictures. This is not always required.
- Lung Function Tests – which measure how well your lungs are working (not always required).
- A Computed Tomography (CT) scan which allows us to look in detail at the arteries in your legs and abdomen and further evaluate your aortic valve. This is performed in the CT / X-ray department and takes around 30-60 minutes.
Transoesophageal Echo (TOE)

If we need to get more detailed information on your heart valve, your Consultant may arrange for you to have a TOE. This involves you swallowing a small probe which allows us to record images of the heart and valves from inside your oesophagus (the tube that connects your mouth to your stomach).

This is a half day procedure carried out in the Cardiac Day Case Unit (CDCU).

You may also need an ultrasound scan of the arteries in your neck (Carotid Doppler) if your Consultant thinks it necessary.

If you have any problems / infections with your teeth you will need to have an up to date review with your Dentist. Even if your teeth/ gums are in good condition ensure you have a dental checkup within 6 months of planned procedure.

Once you have been accepted for the TAVI procedure you will be asked to attend a pre-admission appointment in the Cardiac Outpatients Department.

At this appointment you will be given additional information about your admission and procedure and advised if you need to stop any medications (blood thinners such as Warfarin / Apixaban / Rivaroxaban / Dabigatran / Edoxaban) prior to the procedure.

You will have routine blood tests and swabs done and any other tests ordered by the TAVI team.

You will be able to discuss your admission and ask any further questions.
How will the Valve be put into my Heart?

There are four ways to implant the Transcatheter Aortic Valve. The TAVI team will decide which approach is best for you, after reviewing all your test results.

Transfemoral access

- through the femoral artery, the main blood vessel in your groin (top of your thigh), which leads directly to your heart. This is the preferred route for the procedure, and is carried out using a local aesthetic. However, in some patients it is not possible, and an alternative access is used – see below.

Transapical access

- through a small incision on the left side of your chest to get to the apex (tip) of the heart.

Subclavian access

- through a small incision under your left collar bone to get into the subclavian artery, which leads directly to your heart.

Direct Aortic access

- through a small incision on the right side / or centre of your chest to allow direct access to your aorta and valve.
What happens during your procedure?

On the day of the procedure you will be admitted early in the morning to the cardiac day case unit.

Immediately before the procedure we will put some local anaesthetic into your wrist and then insert a cannula (a small tube) into an artery to allow us to closely monitor your blood pressure.

You will also have a drip inserted into a vein in your neck or arm to allow us to monitor you and give you medication including sedation and/or fluids easily.

If undergoing a procedure requiring general anaesthetic you may also have a urinary catheter inserted into your bladder so that you can pass urine freely into a bag. These are usually removed the next day, or sooner, depending on your progress.

The TAVI procedure will be performed in a cardiac catheterisation laboratory. Special X-rays using a contrast dye and echocardiography (ultrasound of the heart) are used to guide the new valve into the correct position.

During all types of procedures we will speed your heart rate up to 200 beats a minute for a few seconds using a temporary pacing wire.

The whole procedure takes between 1-2 hours.

Radiation Exposure

For some of the procedure you will be exposed to extra radiation. For each X-ray you will receive the same amount of radiation as the average person gets from the atmosphere over 10 days. If you need to have a CT scan it would be the same as receiving 3 years of background radiation.

It is anticipated that the amount of radiation used will be the same as during a Coronary Angioplasty (this is when the narrowing in the heart arteries are stretched open using an inflated balloon).
What happens after the procedure?

If your procedure has been performed under a general anaesthetic you will go to the **Cardiothoracic Intensive Therapy Unit (CITU)** initially and then move onto a ward to complete your recovery.

You will have your breathing tube removed first and then the tubes in your neck, wrist and chest will be removed as soon as possible afterwards.

If your procedure has been performed under local anaesthetic / sedation you will go to the **Coronary Care Unit (CCU)**, cardiology ward or back to Cardiac Day Care Unit if you are for same day discharge.

**You will usually be in hospital for between 0-3 days**, depending on how quickly you get better. Where possible, we advise that your relatives or friends drive you home on discharge.

You will be seen by the Cardiac Physiotherapist prior to discharge if needed and then after a few weeks at home the Cardiac Rehabilitation team will telephone you to talk to you about attending the Cardiac Rehabilitation Programme.

You will be given an information leaflet with regards to your recovery at home.

You will be given an ID card with the name and type of your valve. Please carry this card with you at all times and show the card if you require a MRI scan in the future.
You may need to have some tests before you are discharged home these may include:

- A chest X-ray,
- Routine blood test to measure the function of your
- An electrocardiogram (ECG),
- An echocardiogram (ECHO) this is a simple heart ultrasound scan that you will have had already in the outpatient clinic before your procedure.

**How will I be followed up?**

We will ask you to come back to the outpatient’s clinic around 6-8 weeks after your TAVI for your first review.

You will usually see the Advanced Nurse Practitioner or TAVI Specialist Nurse for the TAVI Service at this appointment.

You may need further tests; for example, another echocardiogram, ECG or chest X-ray.

Routine follow up may be transferred back to your local hospital once we have seen you in clinic at Blackpool.

**What are the potential benefits of Valve Implantation?**

Treatment with the new valve should give you both short and long term relief of your symptoms.

It will give you a normal aortic valve function and improve your overall heart function. This could potentially increase your life expectancy and your quality of life.
What are the potential risks of the procedure?

All medical procedures including TAVI come with some risk. Every effort is made to reduce the risk. Your risk of the TAVI procedure will be determined by many factors (e.g. your age, other medical conditions, general frailty, kidney function, previous stroke or heart attack, diabetes AF and specific features related to the access site and valve aorta anatomy).

Risks

In extreme cases it may be necessary to carry out immediate emergency open-heart surgery to replace the aortic valve.

The surgical team and all the emergency equipment are always available. Cardiopulmonary bypass machine may be needed – risks of using this machine include a stroke and getting an infection in the groin incision where the bypass tubes enter the body.

Major risks

- Bleeding or damage to the groin artery needing blood transfusions or surgery approximately 5% (that is 5 in every 100 patients).
- Stroke approximately 4% (that is 4 in every 100 patients).
- Heart attack – less than 1% (that is 1 in every 100 patients).
- Acute kidney problems. Increased risk if you already have kidney disease.
- Emergency cardiac surgery 4% (that is 4 in every 100 patients).
- Permanent pacemaker needed 10-15% (that is 10-15 in every 100 patients) because of heart rhythm problems.
- Problems with the replacement valve (such as the valve slipping out of place or leaking).
• Death 2-5% (that is between 2 and 5 patients in every 100 up to 30 days post TAVI).

• An allergic reaction to the contrast dye being used – less than 2% (that is less than 2 in every 100 patients).

• A reaction to the anaesthesia – less than 1% (that is less than 1 in every 100 patients).

• Infection of the heart or blood – less than 2% (that is less than 2 in every 100 patients).

• A pericardial effusion (bleeding into the sack around the heart – which may require urgent drainage) – less than 5% – (that is less than 5 in every 100 patients).

Less serious risks

• An arrhythmia (an abnormal heart beat). For example Atrial Fibrillation (AF).

• Bruising around the wound site.

• A non-emergency repeat operation.

• A leakage of blood around the implant.
Preparing yourself for the TAVI

It is important you are in the best shape you can be before your TAVI. This might include making sure you heart rate and blood pressure are well controlled, losing weight and keeping mobile where possible. Research shows us that people who are as healthy as they can be have fewer complications during the procedure and they recover much quicker from their TAVI.

The TAVI Nurse Specialist who you will see at your first consultation with the Cardiology Consultant will assist with the above before your TAVI, and will be in regular contact with you. It is important for you to continue taking the medication prescribed to you.

Maintaining a healthy weight

Research shows that keeping to a healthy weight can reduce your risk of developing other health conditions such as diabetes, high blood pressure, high cholesterol and coronary heart disease. The ideal BMI (Body mass index) is between 18-25. This is a calculation between your height/weight ratio. You can calculate your BMI at: https://www.nhs.uk/live-well/healthy-weight/bmi-calculator/
Activity

Keeping as active as you can prior to the procedure is beneficial in promoting quicker recovery after the procedure.

Mental health

Having a positive outlook and approach prior to the procedure is likely to give a better outcome.

Healthy eating

Good nutrition is always important, but becomes vital before and after a TAVI. It is important to maintain a balanced diet, by including food from all food groups.

Tips to a healthy diet...

• Replace saturated fats for healthy fats:
  Saturated fats: come from animal fats, for example butter, lard, suet, dripping, sausage, pies, and burgers. They can increase bad cholesterol in your blood and increase your risk of heart disease.

  Healthy fats: include olive oil, sunflower oil, nuts, avocados and oily fish like mackerel, herring, sardines, salmon and tuna. These foods can have a positive effect on your cholesterol.

• Eat 5 or more portions of fruit and vegetables per day. About a third of your food should be made of fruit or vegetables. One portion is about the amount you can hold in your hand. These foods contain vital vitamins and minerals. They are also a good source of fibre and aid your digestive system.

• Eat more wholegrain foods. About a third of your food should be made up of carbohydrates (Starchy foods). This is the body’s main fuel source. Examples of carbohydrates are bread and pasta.
However wholegrain options contain more fibre and therefore keep you full for longer. An example of a wholegrain food is porridge or wholemeal bread.

If you are overweight, reduce the amount of starchy foods you eat. Instead opt for more protein based foods such as meat, chicken, fish, eggs, beans and pulses. Milk and dairy products are also an important food group and provide us with a source of calcium and protein. For example, cheese, yoghurt and milk.

- **Reduce salt, sugar and processed foods**
  Recommended daily allowance of salt is 6 grams. Salt can raise your blood pressure and cause fluid retention. Try reducing the amount you use in cooking or sprinkle over your meals. Experiment with herbs and spices instead.

Sugar in foods can increase your weight. Recommended daily allowance is approximately 30 grams (7-8 teaspoons). We all know foods which contain sugar are sweets, chocolates, biscuits and fizzy drinks but we often consume them without thinking, for example a biscuit with a hot drink.

- **Make small, realistic changes**
  For example, gradually reduce the amount of sugar in your tea, or stop buying biscuits on your weekly shop.

- **Remember it’s a lifestyle, not a diet.**
  It is important to maintain a balance of all food groups and do not completely deny yourself of the occasional treat. Cutting out food groups can be unrealistic and often short term.

**Smoking and Alcohol**

If you smoke or drink, please use this opportunity to stop or cut down. Smoking increases your risk of developing complications post procedure. Stopping smoking is the most important thing you can do to benefit your health. Hospital staff can refer you to the hospital “smoke free team”.
The use of Nicotine replacement therapy (NRT) can double the chances of successfully quitting, however the correct use of these products is vital. It is important that your health care professional discusses this with you. Many people have found the use of electronic cigarettes useful over recent years, but research is limited and therefore we do not know the long term effects of them. The use of electronic cigarettes is prohibited within the hospital site. For help and support, you can refer yourself to your local service:

Cutting back or stopping completely will speed up the healing process, your recovery and reduces your risk of complications.

**Alcohol**

The government guidelines for alcohol are not to exceed 14 units per week, having two consecutive alcohol free days and not to binge drink.

A unit of alcohol is based on the strength (ABV). The alcohol by volume (ABV) figure is the percentage in the drink.

- A single pub measure (25mls) of spirits (40% ABV) contains one unit
- A glass (50ml) of liqueur, sherry for example is (20% ABV) and contains one unit.
- Half a pint (300mls) or normal strength lager (4% ABV) contain 1.1 units of alcohol
- A standard (175ml) glass of wine (13% ABV) would be approximately 2-3 units, depending on the wine strength.
- Alcohol is also empty calories and increase weight gain, and can negatively effect your blood pressure.

If you think you are drinking over the recommended amount, you can access help from your GP or contact the hospital alcohol liaison team (ALT) 01253 953943.
Further Information

Further information is available on our website www.lancashirecardiaccentre.nhs.uk.

To find out more about the National Institute of Clinical Excellence (NICE), its work and how it reaches decisions, see www.nice.org.uk/TAVI

Websites for patient information:

https://tavi.today

British Heart Foundation
www.bhf.org.uk/informationsupport/treatments/tavi

Useful contact details

Ward 37 01253 957737
Ward 38 01253 957738
Ward 39 01253 957756
Lancashire Suite 01253 957861
Coronary Care Unit 01253 957863
Cardiac Day Case Unit (Monday-Friday only) 01253 957725 / 957726
TAVI MDT Co-ordinator / TAVI Nurse Practitioner 01253 955229 / 01253 956359
Other sources of information:

If you have any problems or queries, after discharge do not hesitate to contact the ward from which you have been discharged.

Hospital switchboard
Telephone: 01253 300000

Patient Relations Department

The Patient Relations Department offer impartial advice and deal with any concerns or complaints the Trust receives.

You can contact them via tel: 01253 955589 or by email: bfwh.patientrelations@nhs.net

You can also write to us at: Patient Relations Department, Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool Victoria Hospital, Whinney Heys Road, Blackpool FY3 8NR

Further information is available on our website: www.bfwh.nhs.uk

If you’d like a large print, audio, Braille or a translated version of this booklet then please call: 01253 955520

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