ST VINCENT'S PRIVATE HOSPITAL
SYDNEY
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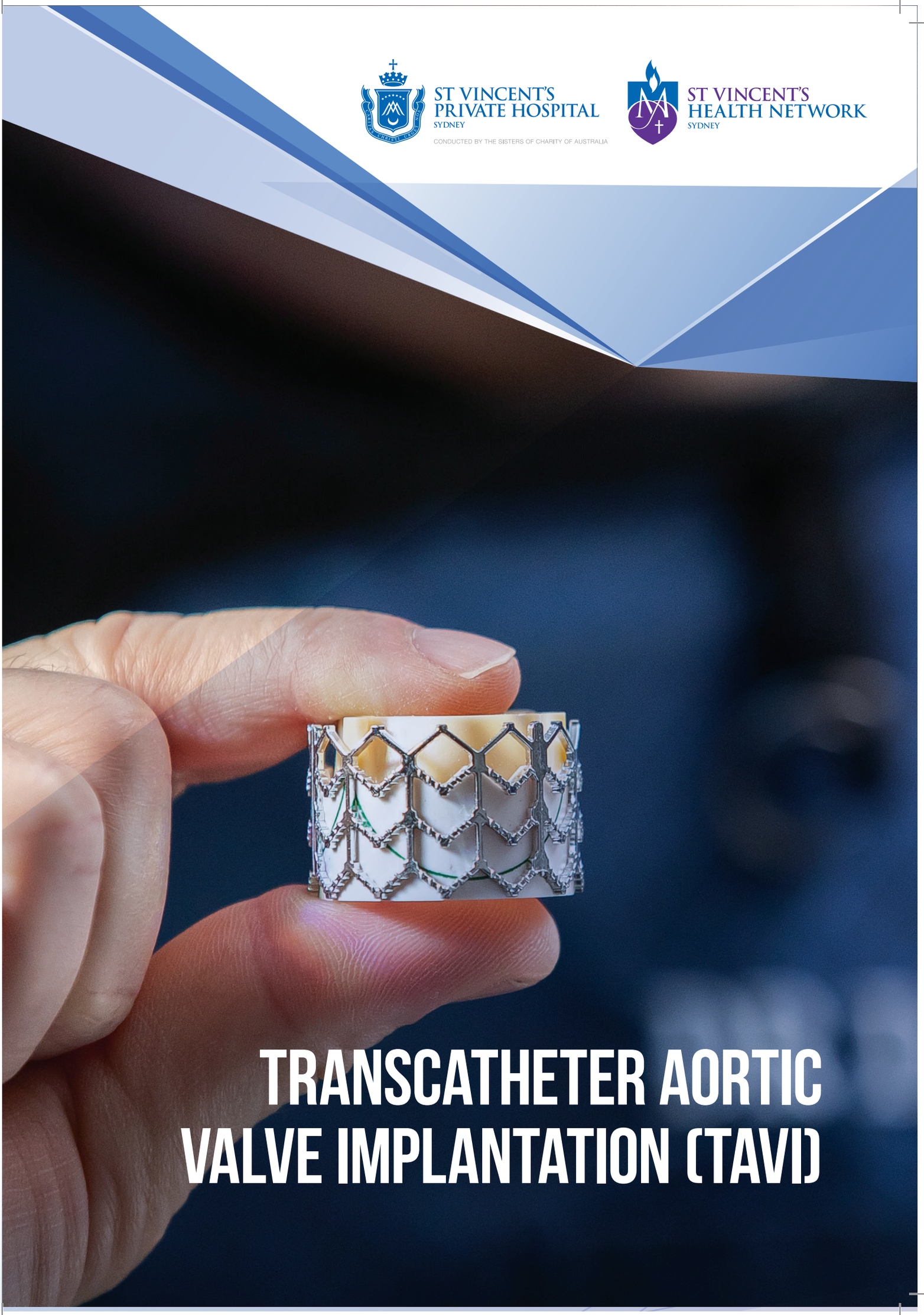
ST VINCENT'S HEALTH NETWORK
SYDNEY



TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI)

Inspired by **You**

This booklet is designed to give you an understanding of Transcatheter Aortic Valve Implantation (TAVI). Your cardiologist and/or cardiac surgeon will discuss with you the appropriateness of TAVI, and the potential benefits and risks involved.

If you are deemed a high risk for the traditional open heart surgery approach, TAVI is an alternate minimally invasive option.

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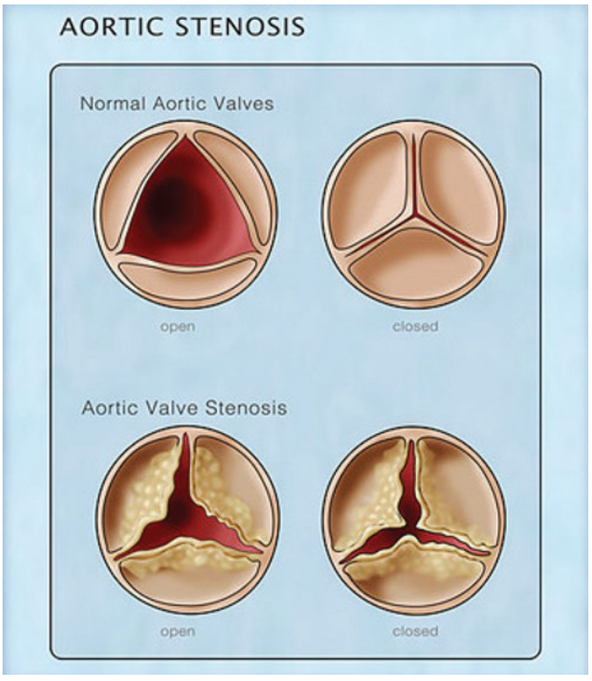
St Vincent's Philosophy

At St Vincent's Private Hospital Sydney, we believe that working with patients and their families is the key to providing exceptional healthcare. This philosophy is called person-centred care. It means that we involve you in planning and delivering your care, so we can meet your individual needs and preferences.

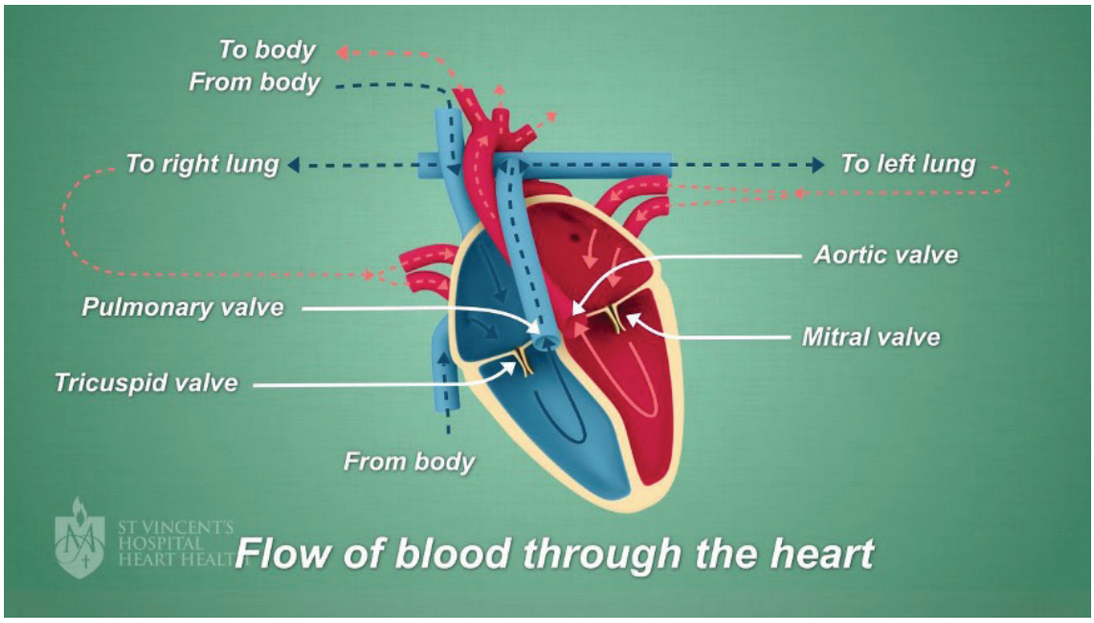
What is aortic stenosis?

The aortic valve is one of the heart valves directing the flow of blood through the heart and on to the rest of the body. Aortic stenosis is when the valve becomes thickened, hardened or inflamed. This may start as a result of infection, rheumatic fever or a congenital abnormality. In older people the valve can become calcified with time. This causes restricted movement of the valve leaflets and ineffective blood flow to the body and the coronary arteries (the arteries which supply the heart with blood) may occur.

Because of this restricted blood flow people may experience symptoms such as chest pain, fatigue, shortness of breath, light-headedness and fainting, fluid retention or reduced exercise capacity. It is important to acknowledge some people with aortic stenosis have no symptoms.



Picture ref: healthdirect.gov.au



Picture ref: svhhearthealth.com.au

As the leaflets stiffen it becomes more difficult for blood to travel through the valve. To compensate the heart muscle stretches and thickens eventually leading to heart failure. Once aortic stenosis is severe and symptoms develop it is life threatening.

Treatment options depend on each individual but can include balloon valvuloplasty, TAVI or open heart surgery. No medical therapy exists to fix aortic stenosis but there are medications which can reduce the symptoms.

What does TAVI mean?

TAVI stands for Transcatheter Aortic Valve Implantation. Instead of open heart surgery, where the valve is removed and replaced, TAVI means replacing the native valve without removing it using a catheter threaded up the artery loaded with a stented valve that sits on top of the diseased valve.

Medtronic CoreValve Valve

Edwards Life Sciences Sapien 3 valve

What is the difference between TAVI and open heart surgery? With conventional surgery the chest is cut through skin, tissue and the breast bone, the heart is stopped. The aorta is opened and the native valve is removed, a new valve is inserted and all the while the bypass machine oxygenates the body while the heart is being operated on. Afterwards the bypass machine is stopped and the patient awoken from the general anaesthesia.

TAVI is a less invasive ways of replacing the valve for people deemed high risk for open heart surgery. Instead of cutting through the breastbone as in open heart surgery the valve is advanced via a transcatheter approach. This means the valve is delivered in a catheter (hollow tube) while compressed and then taken through a small incision or cut into the blood vessel, usually the femoral artery, and guided up to the heart. Other approaches such as access via a different blood vessel elsewhere might be better suited to you but these are not as common and will be discussed if they are the better option.

With fluoroscopy and echocardiogram (ECHO) guidance the new valve is placed on top of the native valve. The aim of the procedure is to replace the valve without lengthy deep anaesthesia and the subsequent long recovery time.

Percutaneous ballooning of the mitral and aortic valve have been used as a treatment option for years however using only a balloon to open the valve does not provide a long term fix because shortly afterwards the valve re-narrows. The valve usually needs to be replaced to provide a long term solution.

The St Vincent's Hospital Heart Health website is a great resource with clear pictures about cardiac procedures and animated videos explaining the TAVI procedure.

More information see www.svhhearthealth.com.au/procedures/procedures-treatments/tavi

Interpreter services

If you do not speak or understand English well enough to have conversations about your health we can arrange an interpreter at no cost to you. Please have someone call us a few days before your appointment so we can organise an interpreter for you. Interpreters are used to communicate important clinical information with patients who are not fluent in English.

Assessments prior to TAVI.

Once a referral has been made to one of our interventional cardiologists who specialise in the TAVI procedure a thorough assessment will be required here at St Vincent's Private Hospital, Sydney. This will include but not be limited to an ECHO, a coronary angiogram and Cardiac TAVI CT. Which assessments are need will be discussed as some may have already been done recently or unnecessary. These tests can run over a few days because it is safer to have a break between the coronary angiogram and the CT (see CT below). Time spent away from home will be limited for remote patients. Although these tests are usually done as an outpatient they can also be done as an inpatient.

An **echocardiogram or ECHO** is an ultrasound of the heart. It illustrates the severity of the aortic stenosis and also the nature of the stenosis. Gel is applied to the chest and an ultrasound probe is placed on top to get the images of the heart.

Coronary angiography is where a catheter is inserted into the radial or femoral artery and x-rays are used to visualize the coronary arteries. We do this to ensure there is not significant artery disease which will need correcting before the TAVI procedure.

A **CT or computerised tomography** is where iodine-rich contrast medium is injected and then images are taken while lying on a flat bed with a machine above. This scan is important to analyse the aortic valve and the structures surrounding it. Good imaging gives a clear understanding of any obstacles to a safe TAVI procedure. It also helps us with sizing to ensure we are using the correct valve. This contrast medium is the same as that used for a coronary angiogram. It can be damaging to kidneys if there is already impaired kidney function.

Lung Function Tests are sometimes done when there is suspicion respiratory disease is contributing to the symptoms.

Dental check is required if there has not been a dental review in the prior 6 months. If this is the case make an appointment to see them before admission and have any work which needs to be done carried out before admission for the TAVI. If any dental work is carried out after the procedure it may lead to an infection on the new valve.

Assessments for the time of admission or close to:

ECG to check the heart's electrical conduction. If there is already a significant conduction problem it may be deemed safer to implant a pacemaker before the TAVI.

Chest x-ray. A Chest x-ray will only be necessary if there is some existing respiratory dysfunction.

Routine blood tests

Once the necessary tests have been done the results will be presented at the multidisciplinary meeting consisting of cardiologists, interventional cardiologists, cardiac surgeons and echocardiographers. It is then decided whether TAVI is the best option. You, your GP and your referring cardiologists will be notified of the decision soon after. If TAVI is suitable the TAVI Coordinator will be in touch to schedule in the procedure.

TAVI procedure

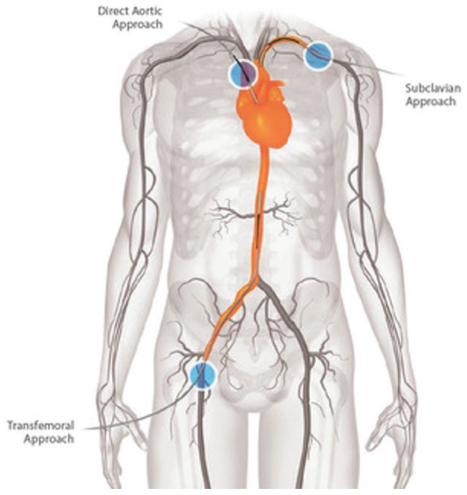
The procedure takes place in the Hybrid theatre or Coronary Catheter Lab which is state of the art technology and designed so any eventuality during the procedure can be catered for.

If taking aspirin or clopidogrel these do not need to stop prior to a TAVI unless otherwise directed by a doctor. Stronger anti-coagulants may need to be stopped. For example, but not limited to, Warfarin, Apixaban, Dabigatran or Eliquis.

Some diabetes medication including insulin requires stopping prior to the procedure. The anaesthetist or interventionist will discuss these prior to procedure day.

There will be a meeting with the cardiac anaesthetist before the procedure. A discussion about whether a general anaesthetic is appropriate or conscious sedation alone will be used will take place.

A catheter will be inserted in the neck and an arterial line in the wrist before going into the cardiac catheter lab. These are to give fluids and drugs quickly and measure output of fluids. They will be removed as soon as possible afterwards, often the next day.



Picture ref: https://www.havhrt.com/tavr

A small hole in the femoral artery is made when a transfemoral approach is used. This is at the top of the leg. A catheter is inserted into the artery. The new valve is carefully compressed and taken up this catheter and inserted on top of the native valve using a special delivery device. A temporary pacing wire is used to reduce the motion and blood pressure of the heart, making inserting the valve easier. The access point most often is the right groin artery. There will be waterproof dressings on these incision sites and the nurses will monitor the sites to ensure the small incision sites are healing well. The possible complications here can be an external or internal bleed; presenting as a haematoma. To encourage proper wound healing laying supine for at least 4 hours after the procedure is essential.

Ideal placement of the new valve is determined by angiography and echocardiography. Once the valve is functioning appropriately the catheter is removed. The groin puncture site is then closed. The entire procedure takes about one hour.

After the procedure you will go to the Intensive Care Unit for close monitoring for one night and then to the cardiac ward the following day. While on the cardiac ward a portable telemetry cardiac monitor will be used to check the heart's rhythm.

After the procedure more blood tests, a chest x-ray, ECG and an echocardiogram will be performed to assess recovery. **Recovery is individual but we expect your hospital stay to be between three to seven days.**

On discharge from hospital a list of medications will be given and required appointments will be outlined.

Physiotherapists at St Vincent's Private Hospital are here to help improve functional capacity and enhance post-procedure recovery. Physios after the procedure assist in regaining strength and improving movement.

Potential Risks of the procedure.

Aortic stenosis is a serious condition and without treatment you are at high risk of progressive symptoms and death. Like all invasive procedures, there are risks associated with the TAVI:

Major risks include bleeding or damage to the femoral artery requiring blood transfusion or surgical repair, stroke, heart attack, kidney failure, emergency cardiac surgery, pericardial effusion requiring drainage or surgery, an arrhythmia requiring pacemaker implantation and death.

Less major risks include an infection, reaction to the anaesthesia or contrast dye used, bruising around the puncture site and a paravalvular leak.

Risks will be explained in detail prior to the procedure by the treating physician and anaesthetist. Any concerns should be discussed with the medical team.

Discharge care at home

People recover at different rates depending on their general health. Some people only fully recover after about 4 weeks while others feel immediate improvement in breathing and exercise tolerance.

Medications should be taken as instructed by the cardiologist. It is important once the valve is in to reduce the risk of thrombus developing on the new valve so the anti-platelets you are given should be taken for the prescribed time.

While refraining from lifting anything heavy for the first 5 days and restricting strenuous exercise it is important you remain active so go for walks still. Daily activity and exercise are an important part of recovery.

No driving for four weeks after the procedure. If a commercial driver the restriction is in place for three months according to AustRoads.

Do not be lifting anything heavier than 5 kg nor partake in vigorous exercise; lawn mowing, vacuuming, carrying heavy groceries and the like for about 2 weeks afterwards. This is to protect the incision site while the artery heels.

Check the access site every day. If there is redness and warmth that does not go away, yellow or green drainage from the wound, fever and chills, numbness in the legs that is getting worse or pain near the site that is getting worse see a GP.

If your site is in the groin, it can be normal to have a bruise or a soft lump. It is not normal if the lump gets bigger or harder quickly. This can mean there is active bleeding under the skin. If this happens, lie down flat and ask someone to press down hard for 10 minutes just above the hole in the skin where the procedure was done. They will know if they are doing this right if the lump does not get bigger or harder. They must not stop pressing to check under their fingers during the first 10 minutes. If the bleeding has stopped after 10 minutes, rest and stay lying down for at least 2 hours and take it easy for the rest of the day. If unable to stop the bleeding, continue applying pressure and call 000 immediately for an ambulance for admission to a hospital.

If there is loss of sensation or numbness could be a problem with blood flow so seek medical attention immediately.

Rehabilitation

If you live alone you may benefit from having someone stay with you or staying at someone's house for a week or so after discharge from the hospital. You may even benefit from in hospital rehabilitation at a hospital convenient to you.

Cardiac Rehabilitation is a program for patients who have has a cardiac procedure to help them recover and stay well. It involves an outpatient program at various hospitals where patients exercise and meet up with nurses and physiotherapist. There is a cardiac rehabilitation associated with most major hospitals. The number to call for Cardiac Rehabilitation at St Vincent's Hospital is (02) 8382 2321.

Follow up after discharge.

A week after discharge see your GP.

Approximately one month to 6 weeks after the procedure we recommend you see your cardiologist. This might the doctor who did your procedure here or the referring cardiologist you saw previously. At this appointment you should have an ECHO to assess the new valve. Again at one year after the procedure you should see your cardiologist and have an ECHO.

At this time our TAVI coordinator will contact you to check on you as well. If you have any questions before this time (or indeed any time) please don't hesitate to contact our TAVI Coordinator or your doctor.

Frequently Asked Questions:

What should I bring to the hospital? Health care cards, toiletries, pyjamas, reading material, change to buy a newspaper or incidentals (St Vincent's cannot secure valuables).

When are visiting hours? Visitors are welcome from 11-1pm and 2.30–8.30pm.

Is there accommodation nearby?

St Vincent's Hospital Sydney offers basic self-catered accommodation, with shared kitchen and laundry facilities. There are no parking facilities at this accommodation. The price is $30 per person, per night. Please contact the social worker on 02 8382 2114 for reservations.

A range of local hotels also offer discounted accommodation. Please contact these hotels directly for information on accommodation and costs. Please mention St Vincent's Private Hospital Sydney when booking for the hospital discount.

Go to: www.svphs.org.au/patients-visitors/visiting/accommodation-for-visitors

Is there assistance to get from the railway station, bus stop or airport?

Country Care Link is a service we offer at St Vincent's Campus to transport country people who are attending medical appointments or hospital stays. Transport is provided by trained volunteer drivers on arrival and/or departure between the airport, railway or bus station and the medical appointment, hospital or accommodation.

Contact Country Care Link on 02 8382 6434 or 1800 806 160 Mon to Fr 9.30am to 3pm or email: transport@outreach.net.au

Regional patients are also eligible for the IPTAAS. IPTAAS is the Isolated Patients Travel and Accommodation Assistance Scheme. This is a NSW Government scheme providing financial assistance towards travel and accommodation costs when a patient needs to travel long distances for treatment that is not available locally. ***www.iptaas.health.nsw.gov.au***

IMPORTANT: If you are admitted to another hospital for any reason please let them know you are waiting on a TAVI procedure here at St Vincent's and contact our TAVI coordinator on T: (02) 8382 7589 or M: 0403 974 571.

Notes:

References:

Austroads 2016 “Assessing Fitness to Drive: For Commercial and private vehicle drivers”, https://austroads.com.au/__data/assets/pdf_file/0022/104197/AP-G56-17_Assessing_fitness_to_drive_2016_amended_Aug2017.pdf

American Heart Association https://www.heart.org/en/health-topics/heart-valve-problems-and-disease/understanding-your-heart-valve-treatment-options/what-is-tavr

Bavaria JE, Tommaso CL, Brindis RG, Carroll JD, Deeb GM, Feldman TE, Gleason TG, Horlick EM, Kavinsky CJ, Kumbhani DJ, Miller DC, Seals AA, Shahian DM, Shemin RJ, Sundt III TM, Thourani VH, 2018 AATS/ACC/SCAI/STS Expert Consensus Systems of Care Document: Operator and Institutional Recommendations and Requirements for Transcatheter Aortic Valve Replacement, Journal of the American College of Cardiology (2018), doi: 10.1016/j.jacc.2018.07.002

Chopra, M, Luk, NHV, Backer, OD, Sondergaard, l 2018 “Simplification and Optimization of Transcatheter Aortic valve Implantation- fast-Track Course without Compromising Safety and Efficacy”, BMC Cardiovascular Disorders, 18. 231.

Transcatheter Heart Valve Handbook: A Surgeons’ and Interventional Council Review, 2018 https://www.acc.org/tvhbook

Nelson AJ, Montarello N, J, Cosgrove C,S, Roberts-Thomaon R, L, Delacroix S, Chokka, RG, Montarello, J K, Worthley, S, G 2018 “Transcatheter Aortic Valve Implantation: A New Standard of Care” Medical Journal of Australia, Vol 209, issue 3 pp136-41

St Vincent’s Hospital Heart Health Website https://www.svhhearthealth.com.au/procedures/procedures-treatments/tavi

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