

## Cardiac Surgery – Valve Surgery

### Introduction

Liverpool Heart and Chest Hospital is one of the busiest cardiac surgery units in the country. The unit sees the second highest number of adult cardiac cases, treating just under 2,000 patients per year including planned and emergency cases.

A total of 16 surgeons provide adult cardiac surgical services that are available 24 hours a day, 7 days a week and every day of the year.

This guide is designed to provide an overview of **Valve Surgery**, however, you will find lots of helpful details about our surgical teams, cardiac disease, the types of surgery we provide, as well as useful patient information and resources concerning your stay in hospital, discharge home, frequently asked questions and much more on the Trust website, [www.lhch.nhs.uk/our-services](http://www.lhch.nhs.uk/our-services)

### Guidance for Patients

#### Procedure Information

##### Normal valves

There are four valves in the heart, which have different positions, structures and functions.

There are a number of problems that can affect the valves including:

- \* Stenosis - where the valve stiffens and does not open up as well - this prevents the blood from flowing forwards)
- \* Regurgitation (also known as a “leaking valve”, “valvar incompetence” or “valvular insufficiency”) - where the valve does not close properly and blood flows inappropriately back into the chamber that it came from
- \* Endocarditis (infection on the heart valve) - a serious condition that can cause stenosis, regurgitation, sepsis, thrombosis or embolism (particles flying off into the blood stream) or abscesses (aggressive cavities of infection that eat away at healthy tissue).

Symptoms of valve problems may include:

- Breathlessness
- Angina (chest pain or tightness)
- Collapse (also known as syncope)

## My Planned Care Patient Information Platform

- Irregular heart rhythms (palpitations)
- Ankle swelling
- Cough
- Fatigue

### Aortic valve disease

The aortic valve is the most common of the heart valves to develop problems. This valve controls the flow of blood out of the heart and to the body.

#### Aortic stenosis

If the aortic valve becomes narrowed and does not allow blood to leave the heart to supply the body, the body and brain are starved of oxygen. The heart therefore grows thicker and stronger to try and force more blood out, but this then means that the extra muscle bulk of the heart needs a bigger blood supply... which means that more blood needs to be ejected out of the aortic valve, making a vicious circle.

Symptoms of aortic stenosis include:

- Breathlessness
- Angina (chest pains or tightness)
- Collapse or near-collapse

Very often, however, even if the aortic valve is severely narrowed, there may be no symptoms whatsoever. In such cases, it's important to discuss with your surgeon whether surgery should be offered - in some cases, it may be better to monitor the valve.

#### Aortic regurgitation

If the aortic valve is leaking, blood that should be going forwards to the body is leaking back into the pumping chamber of the heart. This can cause the pumping chamber to become overloaded, stretch out (or "dilate") and start to fail.

Symptoms of aortic regurgitation include:

- Breathlessness

### Mitral valve disease

The mitral valve is the second most commonly affected heart valve. This valve sits between the atrium and the ventricle on the left hand side and is subjected to the highest pressures of any of the valves in the body as it has to keep closed when the muscular left ventricle is squeezing at its strongest. The mitral valve controls the blood flow from the priming chamber (atrium) to the pumping chamber (ventricle) on the left side.

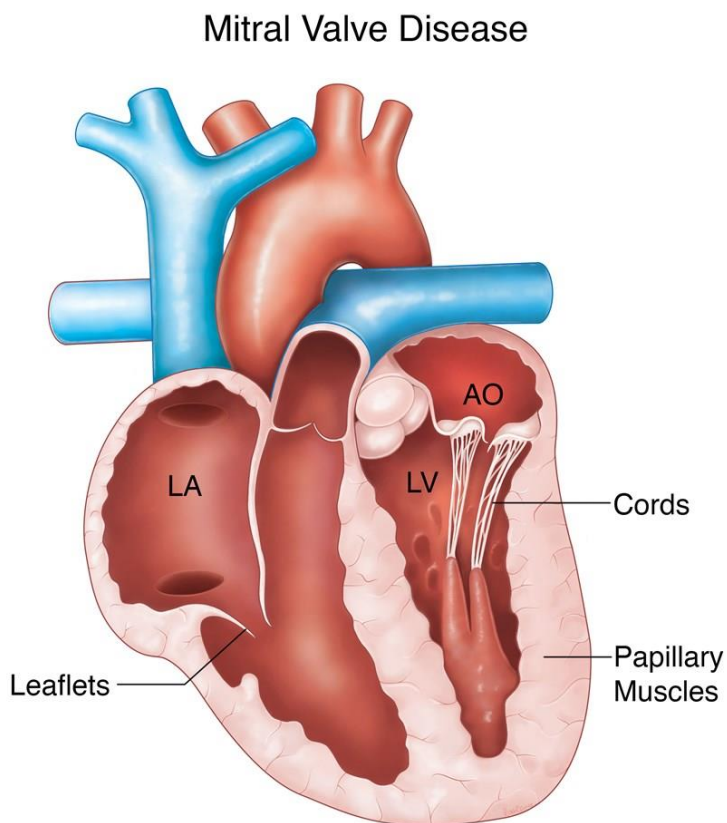
The mitral valve is anatomically and functionally complex: it changes shape and geometry according to the timing of the heart beat. Three main components make up the mitral valve:

## My Planned Care Patient Information Platform

1. The leaflets
2. The annulus
3. The subvalvar apparatus (including the chords, papillary muscles and the left ventricular muscle)

A good analogy for the function and anatomy of the mitral valve is a set of double doors. The leaflets are like the doors themselves, the annulus is like the doorframe and the subvalvar apparatus are like door restrictors.

According to which of these is affected, the treatments on the mitral valve can vary.



### Mitral regurgitation

Mitral regurgitation is where the mitral valve does not close properly as the blood is being ejected out of the left ventricle and forwards to the body through the aorta. In this case, some of the blood leaks backwards to the left atrium and thereby into the lungs where it was coming from.

This can cause the atrium to swell up with excess blood (dilate) and also reduces the amount of blood that the heart is sending round to the body.

Symptoms of mitral regurgitation:

- Breathlessness
- Palpitations
- Fatigue

## My Planned Care Patient Information Platform

Frequently mitral regurgitation will have no symptoms, even if it is quite severe. In such cases, your surgeon or cardiologist will discuss with you the options for treatment which may include monitoring for any signs of worsening / new symptoms or prophylactic treatment to prevent future problems.

### Mitral stenosis

If the blood cannot pass through freely, as occurs in mitral stenosis, the heart does not fill adequately with each beat and can be less efficient. In addition, the amount of blood that accumulates in the atrium can cause it to swell up or dilate, which can cause irregular heartbeats or palpitations. In addition, the blood further backlogs into the lungs where it can cause raised blood pressure in the lungs (pulmonary hypertension), water accumulation and breathlessness. Mitral stenosis is most often caused by Rheumatic Fever which may have been caught and recovered from many years beforehand.

Rheumatic Fever is an inflammatory disease that occurs in a small number of patients after throat infections caused by a bacteria called streptococcus pyogenes. Now that understanding of and treatments for this are better understood, it is rare to develop Rheumatic Fever in the UK.

Symptoms of mitral stenosis:

- Breathlessness
- Dizziness
- Fatigue
- Palpitations
- Angina (chest pains)

### Tricuspid valve disease

The tricuspid valve is not often diseased in isolation. It sits in a low-pressure system and is therefore able to tolerate changes to its environment usually fairly well. More often, the disease process that causes mitral valve disease causes increasing back-pressure on the lungs which in turn puts pressure on the right ventricle and causes the tricuspid valve to start leaking.

Other causes of tricuspid valve disease are anything that interferes with the leaflets: this might include artificial pacemakers that pass through the valve in order to get to the ventricle; or infections that have been transmitted to the tricuspid valve from elsewhere in the body.

Symptoms of tricuspid valve disease include:

- Ankle swelling
- Liver failure
- Abdominal bloating
- Breathlessness
- Signs of infection if this was a cause of the tricuspid valve disease

Treatments for tricuspid valve disease include medical management with water-tablets called diuretics which reduce the pressure on the heart or surgery.

# My Planned Care Patient Information Platform

## Pulmonary Valve Disease

The pulmonary valve is not often affected by disease in adults. Where there are problems, they are usually related to a long-standing childhood problem or an infection.

### What should I do if my health is deteriorating?

**If you have any change in your symptoms or other concerns whilst waiting for surgery, please contact one of the contacts below.**

#### Urgent Health Advice

For urgent health advice about physical or mental health, when it's not an emergency, please call 111 from any landline or mobile phone. You can also visit [www.nhs.uk](http://www.nhs.uk). The NHS 111 service is available 24 hours a day, seven days a week.

#### Life Threatening Emergencies

For something life threatening – severe bleeding, breathing difficulties or chest pains – please dial 999.

#### GP surgeries are still open

GP practice staff are also helping patients to manage their conditions at home while they wait for hospital appointments.

GP surgeries are still open and are working differently to how they did before the COVID-19 pandemic and GP practices continue to make best use of telephone, online and video consultations. Face-to-face appointments are still being given to those who need it.

When you phone or use an online form to contact your GP surgery to make an appointment, you will be asked some questions which are designed to help staff guide you to the most appropriate clinical person to help you with your condition. This could be a nurse, clinical pharmacist, physician's associate, GP or paramedic.

### Contact Us

Please contact the Hospital switch board on 0151 600 1616 for Appointment team or the Medical Secretaries