The Royal Wolverhampton
NHS Trust

Having Heart Surgery

Cardiothoracic Services

The prevention of infection is a major priority in all healthcare and everyone has a part to play.

- **Please decontaminate your hands frequently for 20 seconds using soap and water or alcohol gel if available**
- **If you have symptoms of diarrhoea and/or vomiting, cough or other respiratory symptoms, a temperature or any loss of taste or smell please do not visit the hospital or any other care facility and seek advice from 111**
- **Keep the environment clean and tidy**
- **Let's work together to keep infections out of our hospitals and care homes.**

Contents

Welcome

Welcome to the Heart and Lung Centre at New Cross Hospital, Wolverhampton. The Centre is a state-of-the-art integrated facility designed to provide both cardiology and cardiothoracic surgical care.

This booklet is intended to give you a clear view of what heart surgery at the centre will involve for you and your family. Please remember that it only provides a general guide of what is likely to happen - your care will be tailored to your own individual needs.

At the Heart and Lung Centre, we try to promote a patient-centred approach. This is delivered by a team that includes doctors, nurses, physiotherapists, cardiac rehabilitation nurses and many other practitioners, some of whom remain unseen. Each member of this team will be happy to answer your questions and to deal with any worries you may have.

Hopefully this booklet will begin to answer some of the questions you may have and help identify the most appropriate person to contact for further help and information.

Introduction

Heart surgery has come a long way in the last three decades as the technology that supports it has improved.

At the beginning of the 1900's heart surgery was considered to be out of the question. At that time it seemed that it would never be possible to operate on a human heart and keep blood flowing to the rest of the body. However in the 1950s heart-lung machines were simultaneously developed in Minnesota and London. The idea of these machines was considered so outrageous that no medical funding for continued development was forthcoming. Lord Nuffield, the famous Birmingham motorcar manufacturer, intervened and provided the money for research to continue and this opened the door to further development. Since then heart-lung machines have been refined and are now a standard piece of equipment.

Many of the innovations in cardiac surgery have been developed in the West Midlands. The first artificial heart valve and heart pacemaker were made in the United Kingdom by engineers at Lucas. At the Heart and Lung Centre we aim to continue this tradition of innovation and excellence in cardiac surgery.

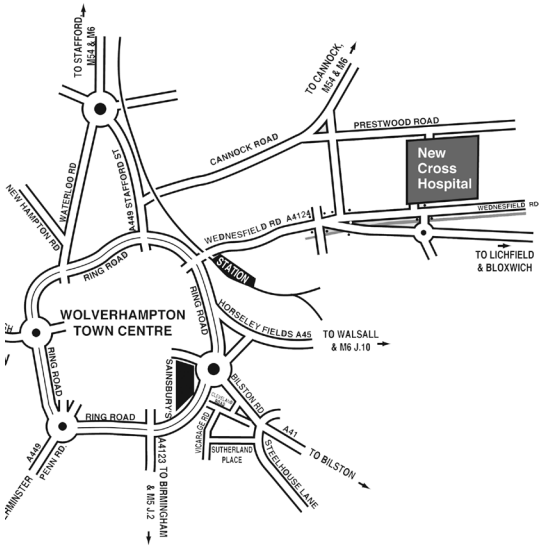
Getting to the Hospital

New Cross Hospital is within easy reach of Wolverhampton town centre. The site is serviced by a number of regular buses.

Wolverhampton has a regular main line train service with trains arriving from Birmingham approximately every 30 minutes. The Metro also serves Wolverhampton from Birmingham, Snow Hill, Handsworth, West Bromwich, Wednesbury and Bilston.

Information on how to reach the hospital by bus and rail can be found by telephoning:

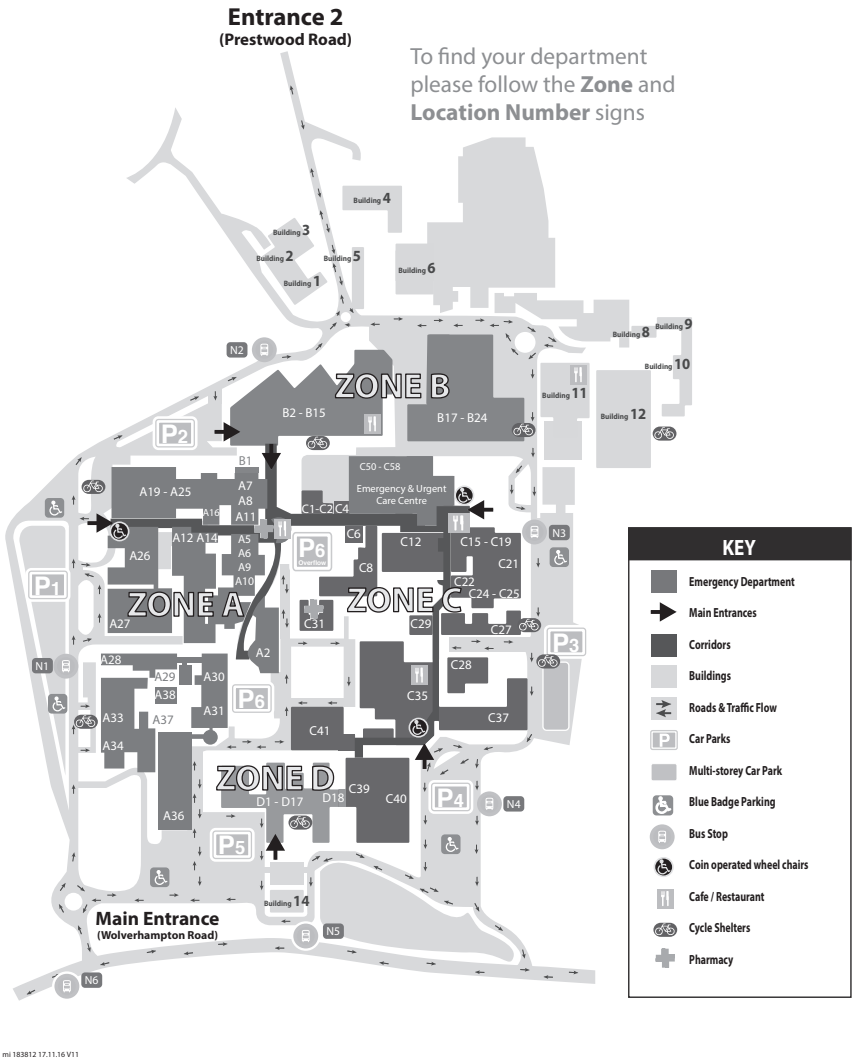
Centro	0121 2002787
National Rail Enquiries	03457 484950
ALBRO Taxis	01902 727272



Parking Facilities

There is a car park and drop off point outside the Heart & Lung Centre. The nearest alternative parking facilities are the East and West car parks. All car parks are "pay and display".

Car parking charges apply and current prices are available on request.



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Facilities

Greggs

On the hospital main corridor directly below the WRVS shop, Greggs serves hot and cold food and beverages 6.30am to 8.30pm Monday - Saturdays, 9am - 7.30pm Sundays. There is a seating area.

WHSmiths

Located on the main hospital corridor, opposite Greggs. WHSmiths sell Newspapers / Magazines / drinks / confectionery. Opening hours 8.30am-6.30pm Monday-Friday, 10.30am-4.30pm Saturday-Sunday.

Eastside Cafe

Located by the Urgent Emergency Care Centre (UECC).

Eastside cafe serves hot and cold food and beverages 7.30am - 8pm Monday-Friday, 8am - 8pm Saturday-Sunday.

North Lobby Cafe

Located in the Heart & Lung Building, ground floor. North Lobby Cafe serves hot and cold food and beverages 8am-4.30pm Monday-Friday.

Now you are on the waiting list

At your outpatient appointment your cardiac surgeon may have advised that you need surgery to correct your heart condition, and discussed the benefits and risks associated with the operation. If you agreed to have surgery you will have been placed on the waiting list. Further investigations may be required which can cause delays.

The length of time you will wait for the operation depends partly on the urgency of your condition. There are national standards for waiting times for heart surgery, and at present the maximum waiting time is about three months. You will be invited for a pre-op assessment before your planned admission (for more information see page 13).

There are times when for reasons beyond our control, your admission to the centre may not take place on the date originally planned. There are many reasons why this may occur, such as an unexpected increase in people requiring emergency surgery.

Common questions and answers about the waiting list

If I go on holiday and am called in, will I go to the back of the queue?
No, your place on the waiting list will not be affected, but please let us know if you are going away so that we can plan your admission appropriately.

What if my symptoms get worse while I am waiting?
Consult your GP, who will contact the hospital as necessary, or get in touch with the Surgical Co-ordinator.

What if I feel well and am unsure if I want my operation now?
You are entitled to change your mind at any time, but please make sure you discuss this with your GP, cardiologist or surgeon.

Will I go to the end of the list if I delay my surgery?
No, people choose to delay for many reasons such as family weddings, holidays, business and other commitments, or because they are just not ready to have the operation at that time.

How much notice will I get before my admission?
You are likely to be asked to attend the pre-admission clinic – this usually means your surgery is imminent. The surgical co-ordinator will contact you by letter or telephone a few days before your admission. However if we have a cancellation we may ask you to come in at short notice. You are perfectly entitled to turn this down, it will not affect your place on the waiting list.

Who's Who

Medical Staff
The Heart and Lung Centre has 6 consultant surgeons who specialise in cardiac surgery. Whilst you are in hospital one of these consultants will be responsible for your care together with a team of junior doctors and nurse practitioners. A member of your team will see you every day, usually during the morning ward round.

A team of cardiothoracic anaesthetists, including 9 consultants, work alongside the surgeons. An anaesthetist will see you before your operation to assess your general health and answer any concerns you have regarding the anaesthetic. The role of the anaesthetist is to put you to sleep for your operation, monitor your condition during it, and oversee your care whilst on the critical care unit after your operation.

Nursing Staff
The nursing staff will care for you before, during and after your operation. They will be able to answer any questions you may have regarding your stay. You will be allocated a nurse who will coordinate your care on a daily basis and help plan for your return home.

Physiotherapists
The physiotherapists will work with you after your operation by helping you with breathing and coughing exercises and with getting up and about again.

Surgical co-ordinator
The co-ordinator manages the running of the waiting list, maintains contact with you whilst you await surgery and arranges your admission. This is therefore the best person to contact if you wish to inform us about holidays etc or enquire about the timing of your operation. The contact telephone number is 01902 694211.

Cardiac Rehabilitation Team
You may meet members of the rehabilitation team at your pre-admission clinic appointment and receive pre-surgery education. After surgery the team will see you on the ward and arrange your subsequent rehabilitation programme.

Pharmacist
The pharmacist will visit you during your admission and answer any of your questions regarding your medication.

Social Worker
If you require any help or advice regarding benefits and help at home after discharge, your nurse will be able to refer you to a social worker.

Chaplain
The hospital chaplains cover all the major religious denominations, but their main interest is in you as a person and your emotions, hopes and fears. If you want to see a chaplain, please let the nursing staff know and they will arrange it.

Dietician
The nursing staff will discuss your diet and any special dietary needs you may have. They may refer you to the dieticians to discuss any specific nutritional needs.

Occupational Therapist

Whilst in hospital you may be referred to the Occupational Therapy Department. This may be because you are having difficulty getting 'back to normal' following your operation. The occupational therapist can assess you and also provide advice on whether you need any specialist equipment that may help aid your recovery and return home.

Ward Receptionists

These members of staff are vital to the smooth running of your stay in hospital. They can help you with sickness certificates, outpatient appointments and are often the first people you will come into contact with when phoning or visiting the hospital.

Coronary Artery Disease

The heart is a pump that circulates blood around the body through a system of arteries and veins. The muscle of the heart itself needs a rich blood supply to provide it with oxygen and nutrients. This blood is supplied through the coronary arteries, which run on the surface of the heart.

There are three main coronary arteries. They are normally smooth and hollow. However they can become narrowed by the build up of a fatty substance in the wall of the coronary artery. They can also become hardened. This is called coronary artery disease.

When the narrowing is severe, blood flow through the artery becomes limited, though it is still adequate at rest. However when the heart works harder during exercise or stress, the blood flow through the narrowed artery does not increase sufficiently, and the heart muscle becomes "starved" of oxygen. This causes chest pain, or angina.

If one of the coronary arteries suddenly blocks completely, the heart muscle it supplies is more severely affected and can become permanently damaged. This is called a heart attack.

Risk Factors

You are more likely to develop coronary artery disease if you have one or more of the following risk factors:

- Family history of heart disease
- Smoking
- High blood cholesterol
- High blood pressure
- Diabetes
- Being overweight
- Lack of exercise
- Stress

Treatment of Coronary Artery Disease

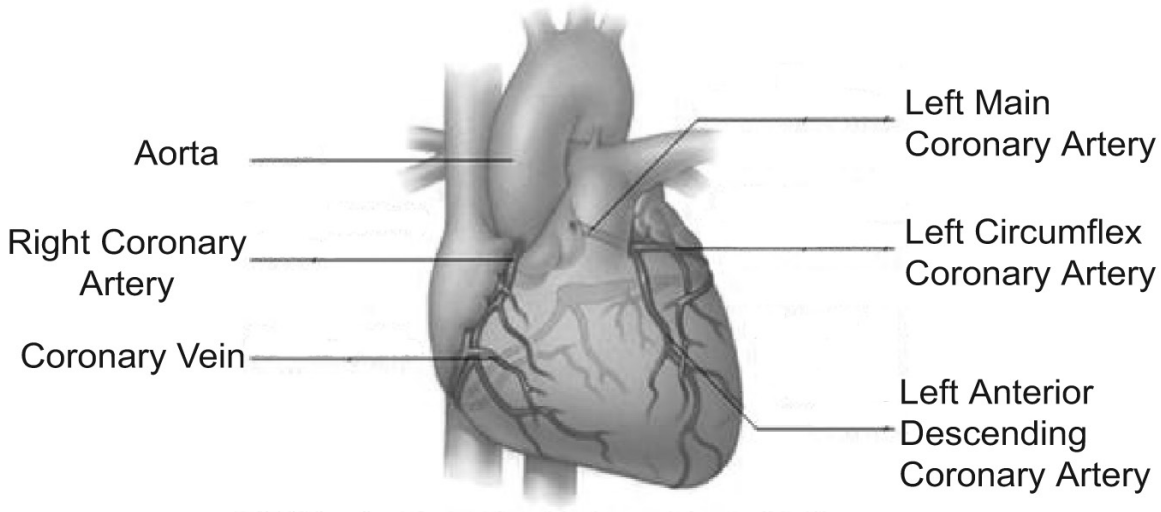
Treatment options include:

- Reduction of 'Risk Factors'
- Treatment of angina with medication
- Coronary angioplasty – sometimes narrowed or blocked coronary arteries can be opened with a balloon device and kept open with a stent
- Coronary artery bypass graft ("CABG") surgery

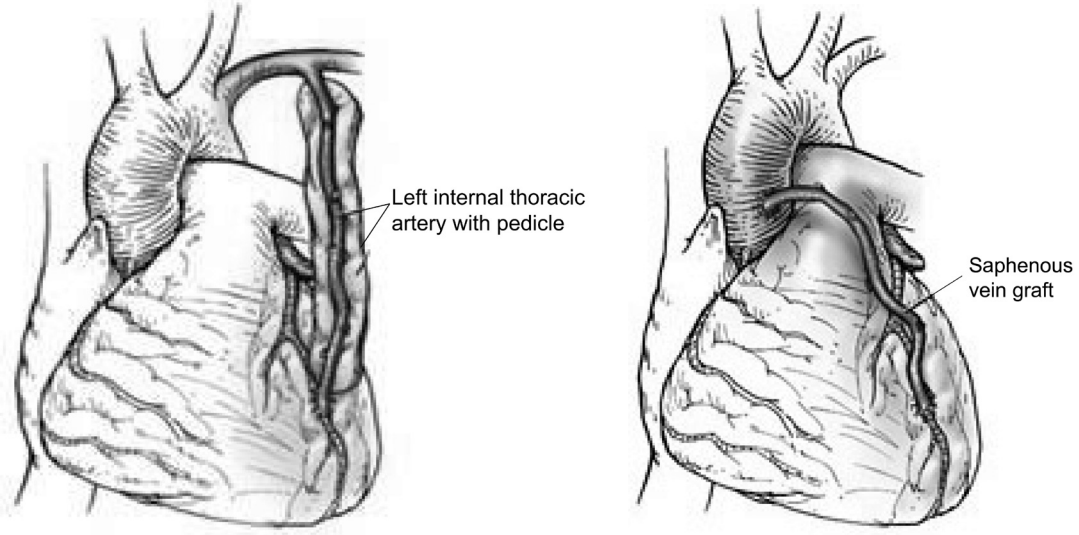
Coronary Bypass Surgery

Coronary bypass surgery is performed to improve your symptoms (angina / shortness of breath) and/or to prolong your life. For many patients, stable angina can be adequately controlled with medication. If not, bypass surgery can be considered as it is very effective in relieving angina. In addition, in some patients, even if the angina is well controlled with medication, surgery can prolong life.

The number and site of the arteries bypassed is determined by the findings of the coronary angiogram (cardiac catheter) you have probably already had. This gives the doctors a "road-map" of the anatomy of your coronary arteries and the extent and distribution of any disease in them.



During surgery a blood vessel taken from elsewhere in the body is connected to the coronary artery such that it carries blood beyond the narrowed segment – hence the term "bypass". A bypass graft can be created for each of the affected main coronary arteries and their branches. Although the surgeon has a good idea how many bypass grafts will be done prior to the surgery, the final decision is made during the operation



The blood vessels used as bypass grafts can be taken from:

- Inside the chest, behind and to the left of the breastbone (the internal mammary artery)
- The forearm (the radial artery)
- One or both legs (saphenous vein)

Removing these vessels does not usually have any effect on the function of the limb they are taken from although sometimes there may be temporary small areas of numbness or minor swelling beyond the incision.

What are the alternatives to having bypass surgery?

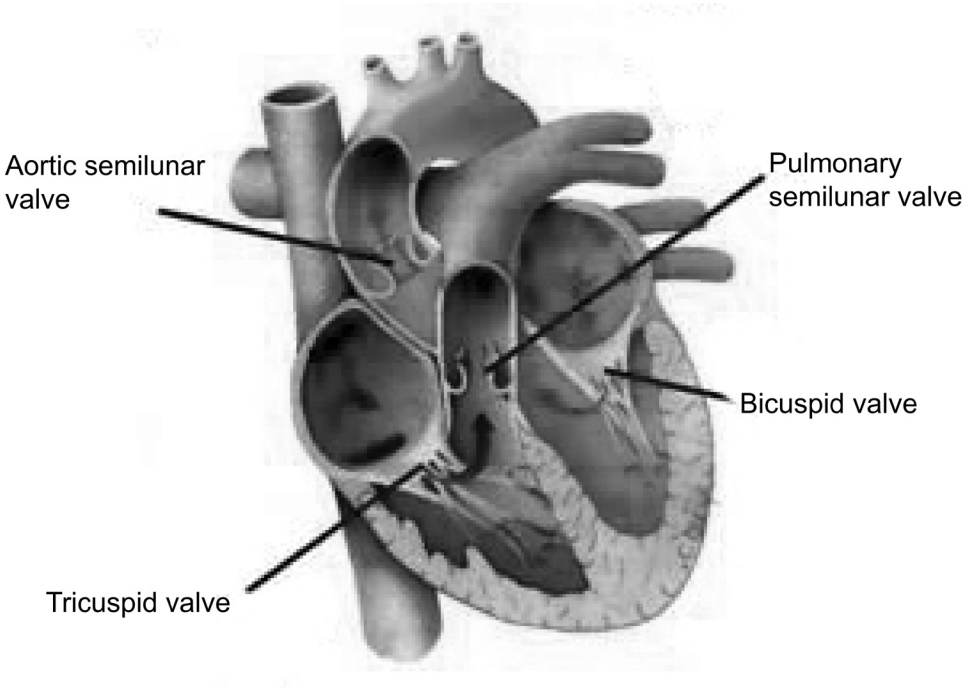
You will have been offered bypass surgery because your doctors consider that you will benefit in terms of relief of symptoms and possibly how long you live. This recommendation is usually made by a panel of cardiologists and surgeons, who review the results of all your tests and determine whether the best treatment for you is angioplasty (stents), bypass surgery or continued treatment with medicines alone. You are, of course, entitled to decide not to have surgery, in which case, you will be offered the "next best" treatment by your GP and cardiologist to relieve your symptoms as best as possible.

Many drugs work well for angina. You might be on a beta-blocker, which makes the heart work less so it needs less oxygen, or drugs such as nitrates which temporarily widen the arteries and help more blood to flow through them. These drugs treat the symptom of angina but not the underlying cause. Coronary artery bypass surgery works better than drugs at reducing angina. Aspirin helps prevent heart attacks by stopping blood clots forming and blocking coronary arteries. Drugs that reduce the amount of cholesterol in the blood (such as statins) help to slow down progression of coronary artery disease.

Valve Surgery

Like most types of pumps, the heart has valves in it which ensure that blood flows forward in one direction through it. The valves are made of thin membranes. They open and close every time the heart beats, that's an average 80 million beats per year and as many as 6 billion beats in a lifetime. There are four heart valves in total:

1. Tricuspid valve
2. Pulmonary valve
3. Mitral valve
4. Aortic valve



There are two types of problem that can occur when a heart valve stops working properly:

- Failure to open fully, causing an obstruction to the flow of blood (stenosis)
- Failure to close properly, causing blood to leak back in the wrong direction (regurgitation or incompetence)

Stenosis is often caused by a degenerative process which results in hardening of the valve tissues as we grow older.

It can also result from an abnormality in the valve structure from birth or from damage caused by rheumatic fever or infection. Whatever the cause, narrowing of the valve results in the heart having to work harder to get blood through it.

Regurgitation can be caused by a degenerative process, rheumatic fever, infection, coronary artery disease and other less common causes.

With both stenosis and regurgitation, the heart is put under extra strain. As well as the heart having to work harder, the pressure of blood "behind" the valve is increased – this is called "back pressure". This causes a build up of fluid either in the lower part of the body or in the lungs depending on the valve involved.

Benefits of treating Valve Disease

Valve surgery is performed to improve your cardiac symtoms and to prolong your life Many people need little or no treatment for valve disease, but will benefit from regular checkups to monitor any progression.

Some people will need medication to help relieve any symptoms they may be experiencing. These may include:

- Diuretics – (water tablets) these increase urine production and reduce the build up of fluid in the body and in the lungs
- Drugs to stabilise the heart rhythm such as digoxin and amiodarone
- ACE inhibitors – such as Ramipril, these drugs help the heart by reducing its workload

If the symptoms are not controlled or if the heart is showing signs of excessive strain, surgery to repair or replace the valve may be necessary.

Valve Repair

When possible the diseased valve is repaired surgically. The heart works better with its own valve in place, and results of surgery are better in the short as well as the long term.

Valve Replacement

If it is not possible to repair the diseased valve it is replaced with an artificial one. The two basic types of replacement valves are:

- Mechanical Valves (manufactured valves) - these are made of synthetic materials. They are very durable, but can form clots on them and so it is necessary to take a medicine (usually Warfarin) to "thin" the blood
- Tissue Valves (biological or animal valves) - these are made from animal tissue. They are less durable than mechanical valves but don't always necessitate having to take Warfarin

	Mechanical Valve	Tissue Valve
Advantages	Potentially last a lifetime.	Lower risk of blood clots forming. No long-term anti clotting treatment necessary.
Disadvantages	Require long-term anti-clotting treatment. Some valves are audible – a clicking noise can be heard	Do not last as long as mechanical valves.

In general, mechanical valves are recommended to patients under 65 years of age and tissue valves to those over 70. Your surgeon will discuss the choice of valve best suited to you and take your views into account.

What are the risks of my operation?

Heart surgery is now very common. In the NHS alone over 35 thousand operations are performed every year. The results in the UK are as good as anywhere in the world.

Most people undergoing heart surgery have no major complications and recover from their operation with an improved quality of life. However, as with most things in life, there are some risks attached and it is important to be aware of their frequency and nature.

Complications or risks are often expressed as percentages. A risk of 1% means that it will occur in one person in every hundred undergoing the same procedure.

Complications occurring in upto 30% of patients (1 in 3)

1. ***Chest infections***
   It is not unusual to have a chest infection following heart surgery. It occurs in around 12% of patients. It may be so mild that you do not notice it or you may have mild symptoms such as shortness of breath, a productive cough or a temperature. Chest infections often get better on their own, or can be treated with physiotherapy and antibiotics. The likelihood of getting a chest infection is increased by smoking or having a cough or cold in the days before your surgery, and can be reduced by deep breathing exercises and getting up and about ("mobilizing") as quickly as possible after surgery. In some cases patients will need to return to the cardiac critical care unit for closer monitoring and treatment.

   Irregular heart beat
   About one in three people undergoing heart surgery develop an irregular heart rhythm. The most common of these is atrial fibrillation ("AF"), which usually occurs on the second or third postoperative day.

   Most people cope well with AF, but some may feel unwell and experience palpitations. The rhythm often reverts to normal on its own. Otherwise drugs such as magnesium, potassium, beta blockers or amiodarone are given. Drugs that reduce the ability of blood to clot may also be started. If drug therapy does not work then cardioversion may be considered. This is when, under general anaesthetic, a small electrical "shock" is applied to the heart to help re-synchronise it.

   Atrial fibrillation is more common in older patients and those who have undergone mitral valve surgery.

2. ***Nausea (feeling sick)***
   This can be caused by some of the drugs you may have been given during and after your operation. It is very common and can last 2 to 3 days. It is treated with drugs which will help to reduce the nausea and improve your appetite.

3. ***Wound infections***
   A minor amount of redness or discharge from surgical wounds is fairly common and does not necessarily mean that there is infection. Most infections that do occur can be easily treated with antibiotics and dressings. About 4% of wounds become infected during the hospital stay. Infection rates are carefully monitored, and are reported to and published by the Health Protection Agency.

Wound infections are more common in the leg (around 10%) than elsewhere, because the blood supply to the skin here is less good and also because movement at the ankle and knee joints slows down healing. Rarely (in less than 2% of patients), deep infection of the chest wound can occur, resulting in failure of the breastbone to heal, or spread of the infection into the space around the heart, or septicaemia, which means spread of infection in the bloodstream.

Problems with the wounds following discharge from hospital are managed by your GP, district nurses and a wound clinic run in our outpatient department please contact our Wound Clinic Specialist Nurse on 01902 696731 or the ward on 01902 694306/07 to report any wound concern.

Complications affecting about 5% of patients (1 in 20) or less

The problems below are generally regarded as more serious but less frequent than those described above.

1. Bleeding

Due to the nature of cardiac surgery, some bleeding is expected afterwards. Two or more tubes ("drains") are left in place during the operation to allow the blood to come out rather than collecting around the heart.

The nurse looking after you on the critical care unit will constantly observe and record this drainage. If the bleeding is excessive or we suspect that blood is collecting around the heart and compressing it, your surgeon may decide to take you back to theatre to make sure everything is okay. This usually occurs before you have been woken up from your anaesthetic.

Excessive bleeding is more common following complex operations or when the patient has been taking medication such as aspirin, clopidogrel or Warfarin up to the time of surgery. Re-opening the wound slightly increases the risk of chest and wound infections.

In the 3-year period April 2013 to March 2016, 6.3% of patients undergoing heart surgery at the Heart and Lung Centre were returned to theatre because of bleeding.

2. Kidney failure

The kidneys normally get rid of excess water, waste products and toxins from the body as urine. In kidney failure urine production slows down or stops, and waste products accumulate in the blood stream.

After your operation you will have a catheter inserted into your bladder; this allows us to monitor how much urine your kidneys are producing. In about 5% of patients, the kidneys temporarily stop working and a type of dialysis machine or "filter" has to be used to do their job. Usually the kidney function recovers after a few days, but in a very small proportion of patients long term dialysis may become necessary.

Kidney failure is more common in older patients, after long complex operations and in patients who start off with reduced kidney function.

3. Stroke

Stroke is the name given to damage to the brain resulting in, for example, inability to use part of the body or loss of vision or speech. Fortunately stroke is uncommon, occurring in less than 3% of patients, and the disability it causes often improves with time.

The risk of stroke increases with age, with complexity of surgery and with widespread presence of narrowings in arteries that can occur in patients who smoke or have diabetes.

During the 3-year period April 2013 to March 2016, 0.6% of patients undergoing heart surgery at the Heart and Lung Centre had a stroke.

Pacing

Most patients have temporary wires connected to the heart during surgery to allow reliable and easy control of the heart rate. The wires are usually removed 3 to 4 days later. In a few patients, particularly after valve surgery, a permanent pacemaker has to be fitted because of slow heart rate. This is usually placed under the skin below the left collarbone under local anaesthetic.

During the 3-year period April 2013 to March 2016, 1.3% of patients undergoing heart surgery at the Heart and Lung Centre required insertion of a permanent pacemaker.

4. Blood transfusion

A great deal of effort is made to minimize the need for you to have a blood transfusion following your surgery. However, approximately half of all patients do end up needing a transfusion. This carries a small risk of allergic reactions and very small risk of transmission of infection despite the strict checks and controls that are in place.

Are blood transfusions safe?

Yes, the risk that a blood transfusion will make you ill is very low. Blood samples will be taken to ensure the correct blood group is given to you

You must be correctly identified at each stage of the transfusion to make sure that you get the right blood, including when blood samples are taken before the transfusion. If you are an in-patient, wearing an identification band with your contact details is essential. You will be asked to state your full name and date of birth, and this will be checked against your identification band. If you have your blood samples taken as an out-patient, you will not usually be given an identification band to wear, but it is still important that the staff ask you your full name and date of birth to confirm they are taking the samples from the right person. It is alright to remind your nurse or doctor to ask you for this information.

If you have previously been given a card which states that you need to have a blood of a specific type, please show it as soon as possible to your doctor, nurse or midwife and ask them to tell the hospital transfusion laboratory.

Compared to other everyday risks, the likelihood of getting an infection from a blood transfusion is very low. All blood donors are unpaid volunteers and the risk of viral infections has almost been eliminated as a result of careful donor selection and testing.

It is calculated that hepatitis B might be passed on by fewer than 1 in 1.3 million blood donations. To put this in perspective, you are more likely to die in a gas incident (fire, explosion or carbon monoxide poisoning) than to get hepatitis B from a blood transfusion (Health and Safety Executive, 2010 http://www.hse.gov.uk/education/statistics.htm#various). The risk is many times smaller for HIV (1 in 6.5 million) and hepatitis C (1 in 28 million) (figures published October 2012).

The risk of getting variant Creutzfeldt-Jakob Disease (vCJD) from a blood transfusion is extremely low. Each year, approximately 2.5 million units of blood components are transfused in the United Kingdom and there have been only a handful of cases where patients are known to have become infected with vCJD. More information on variant CJD can be found here:
http://www.nhs.uk/conditions/Creutzfeldt-Jakob-disease/Pages/Introduction.aspx.

5. Mycobacterium Chimaera Infection

Your heart surgery may require the use of the heart lung bypass machine during your operation. The surgical team will discuss the risks and benefits of your proposed surgery with you and your family and these are detailed in the consenting process. This provides you with information, in line with the new NHS duty of candour, on the risk of infection associated with your planned surgery. Although the overall infection risk remains unchanged, all hospitals have been informed by Public Health England (PHE) of an infection risk associated with all heart surgery that requires the use of a cardiopulmonary bypass machine.
This risk is thought to be small. Approximately [1-2 in 10,000] patients having this type of surgery might be affected. More specifically, the risk is currently as follows:

Cardiac valve repair/replacement
Between 2007 and 2015 approximately 130,000 patients underwent valve repair or replacement surgery in the NHS in England according to Hospital Episode Statistics, which means an estimated risk of 2 cases of M. chimaera infection per 10,000 patients (or 1 in 5,000).

Coronary artery bypass graft (CABG)
Between 2007 and 2015 approximately 186,000 patients underwent CABG surgery in the NHS in England, translating to an estimated risk of <1 case of M. chimaera per 100,000 patients, substantially lower than for cardiac valve patients.

This level of risk is so small that surgery should not be delayed, as the risks of delaying surgery are greater than proceeding.

Additional information:

- During heart (and some lung) operations the body is cooled and warmed by the heart lung machine (cardiopulmonary bypass machine). To do this the bypass machine is connected to a heater / cooler unit, which is kept in the operating theatre
- Tests on these heater/cooler units in Europe and the UK have revealed a growth of a non-tuberculous Mycobacterium species (which is a type of bacteria that is common in the environment but does not frequently cause human infections), with the potential for growth of other organisms. There have been reports of a particular organism called Mycobacterium chimaera causing serious infections in a very small number of patients having operations on their heart valves, in some cases several years after the operation. In the UK a small number of such infections have been reported since 2007. Given that around 35,000 heart operations on bypass are performed each year of which approximately 15,000 have been heart valve operations, this represents a very small risk
- All cardiothoracic centres have now increased their cleaning and disinfection procedures for HCUs used in all heart and lung surgery. All centres are testing their heater/cooler units for evidence of growth of micro-organisms
- There is no evidence that extra antibiotics during surgery, in most cases, will give any further protection. Your surgical team will discuss with you whether additional antibiotics would be required in your particular case

- Your recovery will be monitored as part of our routine care.
- If you have any further concerns or questions please speak to your consultant

Further information is available at: https://www.gov.uk/government/collections/mycobacterial-infections-associated-with-heater-cooler-units

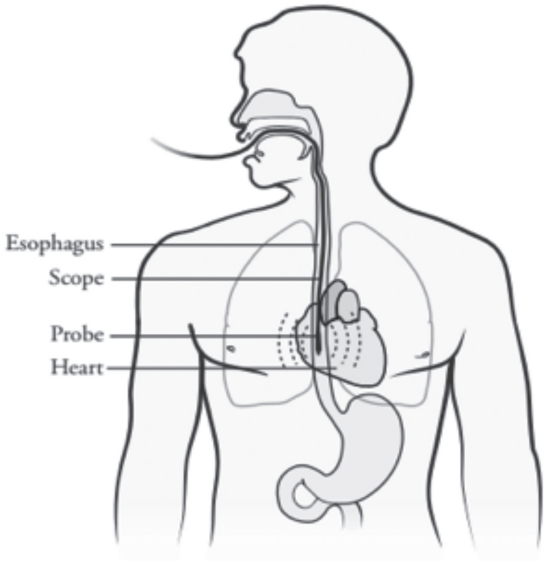
8. Death from surgery

The risk of dying after heart surgery has steadily reduced over the years but can never be totally eliminated. The table below gives the death rates at the Heart & Lung Centre for the commonest types of heart surgery undertaken during the 3-year period April 2013 to March 2016. However, every patient is different, and your surgeon will discuss your personal risk of death with you.

Coronary bypass surgery alone	0.6%
Aortic valve replacement alone	0.4%
Coronary bypass surgery with aortic valve replacement	2.6%
Mitral valve repair alone	1.1%

Survival rates for UK, for different hospitals and for individual surgeons can be found on the website of the Care Quality Commission (www.heartsurgery.cqc.org.uk).

Transoesophageal Echocardiography



What is a Transoesophageal Echocardiogram (TOE)?

A Transoesophageal Echocardiogram (TOE) is a heart scan that uses ultrasound (sound waves) to produce images of the heart. The test does not use radioactivity. The images are taken from inside the oesophagus, (gullet) which lies directly behind the heart. This is done using a soft and flexible tube that is inserted into the oesophagus. This scan gives much clearer images of the heart than the regular heart scan, (Transthoracic Echocardiography, TTE) which uses a probe on the front of the chest. The TOE allows acquisition of images during the heart operation when the front of the chest is not accessible.

The examination is performed under general anaesthesia during your heart operation to help make decisions on the best treatment for your heart. Further examinations may be required during your recovery phase in hospital from heart surgery.

What are the Benefits of having a TOE?

This examination provides very detailed images of the heart, which can be used in the following ways for your heart operation:

- Assessment of the function of the heart and its structures
- Assessment of the heart valves to further describe any abnormality and guide the operation for repair or replacement of the affected valve(s)
- Assessment of heart valves before and after surgery to the valves

- Detecting the presence of a blood clot (thrombus) in the heart chambers
- Detecting the presence of blood in the sac enclosing the heart
- Infection of the heart valves (endocarditis)

How is the TOE performed?

The TOE is usually performed in the theatre whilst you are under general anaesthesia for your heart operation or after surgery while you are in the Intensive Care Unit.

The examination is performed by the Cardiac Anaesthetist, who is a Consultant Doctor.

A flexible tube (scope) is passed down your throat and into your oesophagus (gullet).

A small mouth guard is inserted into your mouth to protect your teeth and the probe from damage.

Sound waves are sent out from the tip of the probe and are received in a way that produces detailed images of your heart on a monitor.

The probe and the mouth guard are removed at the end of the examination.

What are the Risks of having a TOE?

The TOE scan is a very safe procedure, but there are some risks associated you need to be aware of:

- It is not uncommon to have a sore throat after the procedure. This may last for a day or two
- Occasionally the throat may bruise or bleed slightly (0.1% or 1 in 1000)
- There is a small risk of trauma to the lips and teeth (0.03% or 3 in 10,000)
- Disturbance of your heart rhythm. This is very temporary and occurs usually if there is existing heart rhythm disturbance
- The incidence of major complications is 0.05% (1 in every 2000) with an extremely small mortality rate of 0.01% (less than 1 in 10,000). The nature of this risk includes damage the gullet and major structures in the throat. In extreme circumstances this may require an operation to repair the damage. This risk can be reduced further if we are aware of any problems that you may have, for example, with swallowing, any previous surgery or radiotherapy to your gullet or any other abnormalities you might be aware of
- There is a very small chance (0.03% or 3 in 10,000) that the breathing tube could be displaced during manipulation of the TOE probe. The chances of this being unrecognised during your heart operation are even smaller

What happens if I decide not to have this procedure?

Your doctor has recommended this investigation to obtain detailed information about your heart condition, which can not be gained from the current tests you have had. The information will help guide the decisions made by your surgeon and anaesthetist during your heart operation. Without this information, it may not be possible to deliver the appropriate treatment and surgery.

What preparation is needed?

- The procedure will be performed during your operation or while you are in the Intensive Care Unit and will not require any change to the instructions that you have been given for your heart surgery

- If the procedure is performed during the recovery phase of your hospital stay, you will receive direction from the ward nursing and medical staff

In Summary

- This is a live scan of your heart during or after the operation
- It is essential for all valve operations
- There is a small chance of bruising your lips
- There is an extremely small chance of serious oesophageal (gullet) damage

Preparing for your operation

Living a healthier lifestyle

If you have been found to have coronary heart disease and have not already taken steps to change your lifestyle, it is important to start now - it's never too late! By altering some of the things you do, not only will you be preventing progression of heart disease, you will also be increasing the speed of your recovery from the operation and maximizing its benefits.

1. Smoking

If you have not already stopped smoking, stop now!!!
If you continue to smoke your angina will continue to get worse and you increase the risk of having a heart attack.

Smoking before the operation will increase the risk of developing complications after, such as severe chest infections. It will also reduce the long-term benefits of your heart surgery and if you continue to smoke after the operation then you may have gone through the procedure for nothing.

Complications caused by smoking may also increase the length of time you stay in hospital. If you are finding it difficult to give up then please seek help from your GP for advice and support. You may be able to attend a smoking cessation clinic.

2. High blood pressure (hypertension)

Having high blood pressure increases the workload of your heart. Before your operation you must:

- Continue to take your medication as prescribed
- Continue to go to your GP / practice nurse for your regular checkups to make sure your blood pressure is well controlled

3. Weight

Being overweight:

- Increases the workload of the heart
- Increases the chance of complications following surgery, such as wound problems and chest infections

Before your operation you should:

- Eat a healthy balanced diet
- Avoid fatty foods such as fried foods and full fat dairy products. These increase your cholesterol levels and so speed up the rate at which your coronary arteries fur up
- Eat low fat foods such as fruit, vegetables, chicken and fish

You may need help and advice to lose weight. Your GP will help and may refer you to a dietician; organisations such as Weight Watchers and Slimming World can also offer good advice.

Being significantly underweight or malnourished also increases the risks of surgery. Again dietary advice is available.

4. ***High cholesterol***
   If you have high cholesterol, follow the healthy diet advice and continue to take your cholesterol lowering drugs.

5. ***Diabetes***
   If you are a diabetic continue to be careful what you eat, exercise regularly and take your medication if you are on any. Continue to go to your regular checkups to make sure your blood sugar is well-controlled.

6. ***Stress***
   Experiencing prolonged periods of stress can be harmful not only for your heart but also for your general health. Being stressed increases your blood pressure and heart rate. Try to identify what makes you stressed and try to avoid those situations.

7. ***Exercise***
   The heart is a muscle and like all muscles it needs to be exercised to help it remain healthy. Try to do some form of exercise each day. If you do suffer from angina remember to take your Glycerine Trinitrate (GTN) spray with you.

8. ***Alcohol***
   A little alcohol may help to prevent heart disease, however drinking too much can contribute to ill health.

   There is no need to stop drinking prior to your operation, as long as you remember to stay within the recommended units of alcohol per week:

   - 14 units per week
   - Further advice and support is available from the Cardiac Rehabilitation Team before as well as after your operation

Patient Support Groups

Support groups are valuable and beneficial in providing advice and support for people who are awaiting or have had heart surgery. The majority of these groups are held informally and are often run by people who themselves have had heart surgery. Many patients, their partners and family members have found that speaking to others who have had similar experiences can be of help. Further details of local and national resources are given at the back of this booklet.

The Pre-operative Admission Clinic

The Pre-operative Admission Clinic is a nurse led Clinic that has been set up to help you. You will be asked to attend it a week or two before your surgery. The nurse who sees you will carry out a review of your health, particularly to check whether things have changed since you were put on the waiting list. This is also a good time to ask questions you may have. A number of tests will be carried out to get you ready for your operation, including:

- Chest X-ray
- ECG - a recording of your heart rhythm
- Blood tests - to assess things like your blood count, kidney function and blood group
- Swabs - to look for the presence of certain bugs that are sometimes carried by people on their skin, such as MRSA, MSSA, CPE (carbepenase-producing organism) and COVID-19
- Lung function tests - these are sometimes done to look for lung problems

Planning your discharge

Even at this early stage it is important to start thinking about your discharge from hospital. Following heart surgery it is important that you are discharged home safely with the appropriate amount of support and assistance needed to enable you to have a safe and speedy recovery.

It is important to have someone available to support you in the first 1 to 2 weeks at home. This person will need to stay overnight and be available during the day to assist you with things such as cooking, housework and shopping. If this is a problem you will have the opportunity to discuss this further at the pre-admission clinic.

Admission and surgery

Your initial admission will be to the Cardiothoracic Surgical Ward, which is on the first floor of the Heart and Lung Centre at New Cross Hospital. You will need to phone the ward on 01902 694306 at 12.00 midday on the day of admission to make sure that a bed is available.

Visiting Times on the Ward and Critical Care

Visiting time will be confirmed on admission for Ward B8 and ICCU

How long will I be in hospital?

The length of time needed for people to stay in hospital after heart surgery varies. This can be due to many reasons such as your age, the type of operation that has been performed, the condition of your general health and how well you recover from the operation. Most patients go home 4 to 7 days after their surgery.

What do I need to bring into hospital?

We recommend that you bring a minimal amount of belongings with you. Here is a guide of what you may need while you are in hospital.

- Night wear
- Toiletries
- Dressing gown
- Book, magazine etc.
- Towel
- Slipper
- Loose change
- Drinks
- Medication
- Spectacles
- Hearing aid
- Dentures
- Ladies non-wired supportive bra

Please do not bring any valuables with you. Please bring minimal belongings with you on the day of admission due to limited storage whilst on intensive care. Your family / friends can bring in extra belongings once you have returned to the ward post surgery. We encourage patients to dress in day clothes post-surgery.

Arrival at the hospital

Occasionally there are unavoidable delays in getting your bed ready for you on the day you arrive, and we apologise for this.

A nurse will take your details and also give you the opportunity to ask any questions you may have at this time. If you have any allergies, it is important to tell us about them. You will be fitted with a wristband with your details on it. It ensures that staff can identify you correctly at all times. It is important that you do not remove it until you go home. You may need to have some routine tests if they have not already been done in the pre-operative admission clinic:

- Blood Tests
- A recording of your heart (ECG)

- A chest X-ray
- Weight and Height
- MRSA / MSSA / CPE / COVID-19 swabs

You will have time to meet other patients on the ward. You may find it very helpful and reassuring to talk to others waiting to have their operation or those who have already had surgery.

All patients admitted to the ward are screened for MRSA. This bacteria is sometimes present on people's skin or in their noses without causing any infection. However, if it gets into a wound or in the blood stream it can cause an infection that needs treatment with antibiotics. For this reason, if MRSA is found pre-operatively it is treated with creams that are applied to the skin and nose.

Before your operation

Hair removal:
Immediately before the operation, the nurse will need to remove body hair from specified areas with electric clippers.

Eating and drinking:
On the day of your operation, you must not eat anything for six hours prior to surgery. You may drink water up to two hours prior to the operation. Your anaesthetist may give you slightly different specific instructions.

Hygiene:
You will need to shower the day before and on the morning of the operation with an antiseptic soap. You will then be given a clean hospital gown. You will also be asked to use an antiseptic mouth gel. These measures are designed to minimize the chances of you developing an infection after your surgery.

Consent and pre-medication:
You will be seen by your surgeon and anaesthetist, who will ensure you have all the information you want about the operation and obtain your consent. This is an ideal opportunity to ask those last minute questions. You may be given "pre-medication" an hour or two before the operation, which will help you to relax and perhaps feel a little sleepy. After taking this you will need to stay in bed until you are transferred to theatre.

Theatre

You will be taken to the operating theatre on your bed, accompanied by a nurse from the ward. Your family or friends can only go as far as the entrance to the operating theatres. On arrival you will be taken into the anaesthetic room where you will be met and checked in by your anaesthetist and other members of theatre staff. Various monitoring devices will be connected to your skin and lines or "drips" will be placed in your artery and vein. You will be given oxygen through a facemask for a couple of minutes before being given the drugs that will make you go to sleep. Once you are deeply asleep a breathing tube, other intravenous lines and a urinary catheter will be inserted before surgery starts.

Cardiothoracic Critical Care

This is a specialised area next door to the Cardiothoracic Surgery ward, where your initial recovery takes place after heart surgery. It can be a noisy and busy place. However the nurse responsible for your care will try to reassure you and explain what is happening to you at all times.

All patients arrive back from theatre with an array of unfamiliar equipment, drips, tubes and drains. This is entirely normal and does not mean that anything is wrong but enables the team looking after you to monitor your progress.

After your operation you will remain connected to a breathing machine (ventilator) by a tube that goes into your lungs via your mouth. As soon as you are settled and your condition is felt to be stable you will be slowly woken up from the anaesthetic and you will start breathing for yourself. When you are ready, the breathing tube will be removed. Once the breathing tube is out you will be given oxygen via a face mask and later via your nose until you are able to manage without additional oxygen.

At the end of your operation your surgeon will have placed a number of chest drains (usually 2 or 3) around the heart and lungs. The purpose of these is to allow any blood from inside the chest to drain out – otherwise, it would collect and compress the heart and lungs. These chest drains will be removed as soon as bleeding is minimal.

Other equipment includes:

- Arterial line – This is a special line, usually located in the wrist, which gives a continuous and accurate reading of your blood pressure, and from which blood samples are regularly taken for analysis
- Central line – This is situated in a major vein on the side of your neck, and gives access for the delivery of fluids and drugs
- Infusion pumps – These are machines that deliver controlled amounts of drugs and fluids to you through the central line
- Monitor – This is to provide a constant read-out of your heart rate, blood pressure, oxygen saturation and temperature. It has a number of different and necessarily noisy alarms that assist the nursing staff, who continually assess the information it provides
- Ventilator – This helps you breathe when you are unable to do so for yourself. This machine also has a number of different alarms
- Urinary catheter – The catheter is used to drain urine from the bladder into a collection bag for measurement
- ECG "dots" – These are sticky pads that are placed on your chest, which are connected via leads to the monitor where your heart rate and rhythm are displayed
- Temporary pacemaker – This is a box that is connected via thin wires to your heart. It allows reliable control of your heart rate which is sometimes slow initially after surgery

All these drips and drains will be gradually removed in the days following your operation. Your level of care will be reduced from a ratio of 1:1 (one nurse to each patient) to 1:2 (one nurse to two patients) as your condition improves and you become more independent.

Recovering after the operation

Pain

It is important that after your operation you remain as pain free as possible so that you are comfortable, able to deep-breathe and cough, and get up and about as early as possible. If you are experiencing pain you should inform the staff looking after you, who will do their best to relieve your pain with appropriate medication.

Physiotherapy

Your physiotherapist and the nursing staff will advise and assist you with your recovery. You may be surprised how quickly you will be able to get up and walk after the operation, and this activity is key to you regaining your strength and independence. In most cases, you will be helped to get out of bed, take a few steps around the bed and sit in a chair on the first day after your operation.

By the second day, you should be able to take short walks around the ward with some assistance.

By the third day, you can usually walk around the ward independently. Your physiotherapist and nurse will be guiding you to make sure that you are walking enough to increase your strength, without overdoing it.

On the fourth or fifth day, you should be able to climb a flight of stairs. This may sound daunting, but it does get easier every day and early activity does reduce the risk of postoperative complications.

You will also be shown some exercises to practice, in order to get your shoulders, chest and back moving freely after the operation.

Eating and Drinking

You may lose your appetite for a while after the operation, which is quite normal and should improve gradually over time. You will be offered your first meal within a day of the operation.

Wound Care

Your wound will be dressed for a minimum of four days.

If you are assessed as higher risk of wound infection you may be fitted with a special dressing post surgery attached to a portable pump (Incision Management System) which may stay in place up to day of discharge.

Male patients may also be fitted with a sternal support and female's with a supportive bra. You will be advised on how use to them

Transfer to the ward

As soon as you are well enough you will be transferred from the cardiothoracic critical care unit back to the cardiothoracic surgical ward. This is usually within 1 to 2 days of the operation.

Discharge from hospital

Your recovery will continue on the cardiothoracic surgical ward with decreasing need for monitoring and increasing independence. Before discharge from hospital most patients are able to:

- Walk around the ward with minimal assistance
- Wash and dress with minimal assistance
- Safely undertake a flight of stairs

You will usually be informed at least 24 hours in advance of the possibility of being discharged home. However the final decision will depend on up to date results of blood tests, ECGs and so on. On the day of discharge you will probably be told in the morning that you are fit to leave hospital.

Leaving hospital can be an anxious time; many feel a little apprehensive and insecure. It is natural to feel like this so the aim of the following information is to provide advice and support for you, your family and friends.

Before you leave hospital

You will have:

- A supply of tablets

- A discharge notification for your GP
- Attended a discharge talk, or discussed any questions you may have with a member of staff
- The time and date of your next blood test, if you are taking Warfarin
- A photograph taken of your sternal wound

You must carry on taking the tablets you are sent home with until advised otherwise. You should obtain a prescription from your GP before the supply you are sent home with runs out.

Answers to some frequently asked questions

Now that I've had heart surgery, will I have to continue my heart medications?

Continue taking all the medication you are given at discharge. Check with your doctor before changing or stopping any medications.

Why do I feel palpitations?

It is normal to feel a few irregular beats, or palpitations, after heart surgery. With time, the rhythm should return to normal, and the irregular beats should stop. If you feel frequent or sustained palpitations, or if they are accompanied by dizziness, shortness of breath, or fatigue, notify your doctor immediately.

Wound care

If you notice any oozing from or inflammation around any of your wounds you should contact the ward as soon as possible and they will advise you what to do. It is important that any infection is detected and treated promptly.

It is safe to have a bath, but showers are preferable. Avoid using bath salt or oils. Don't rub soap directly onto any wounds until they are well healed and avoid using talcum powder. There is no need to use dressings unless specified.

As you are aware, wires are used to secure your breastbone. They usually cause no problems and remain in place permanently. They will not set off airport security alarms!

The stitches in your main surgical wound will dissolve on their own over a few weeks. Any other stitches will either have been removed before you go home or arrangements will be made for their removal.

Resuming mobility

Your aim over the next couple of months should be to increase your activity week by week. This will improve your well being and aid your recovery.

What can I do during my first two weeks at home?

Spend your first 2 to 3 days adjusting to being at home, and then start taking regular walks. See the walking plan in your Cardiac Rehabilitation Services booklet.

Planning your daily walks

- Make sure that you plan your walks realistically
- Wrap up warm if the weather is very cold or windy

- Take someone with you until you become more confident
- Do not take walks after a heavy meal, if you are tired or are feeling unwell

You must not do any of the following for at least two to three months after your operation.

- Lift any heavy or awkward objects such as shopping bags, laundry baskets, luggage or children
- Undertake heavy gardening
- Decorate
- Vacuum, or move house furniture
- Undertake active sports, such as football or rugby
- Do not walk your pet if they are likely to "pull", as this can place excessive strain on your chest wound

Support Stockings

These stockings are worn to help prevent blood clots from developing (deep vein thrombosis) whilst you are less mobile than usual. It is important that these stockings are put on correctly, wrinkle-free and clean. Due to the physical effort needed to put them on, it's advisable for you to have someone to help you with this.

Eating and drinking

If your appetite has not returned to normal by the time you return home, try to eat small amounts of nourishing foods often. This will promote your recovery and aid wound healing. You should expect your appetite to return to normal within one month of your operation. Once your appetite has returned, you should aim to eat a healthy well balanced diet.

Alcohol

Keep within the maximum recommended limits. Don't save all your units to drink on one occasion.

If you are taking Warfarin you can drink alcohol but keep within the maximum recommended limits. Drinking in excess can seriously affect the action of Warfarin, which can cause serious side effects.

Avoid constipation

Following surgery you may develop constipation. Aside from the discomfort, this can put excessive strain on your heart and chest wound. A few tips to help prevent constipation are:

- Eat a high fibre diet with plenty of fruit and vegetables
- Drink lots of fluids
- Keep active by taking regular walks

Some painkillers can cause constipation. Do not stop taking them if you are still in pain. Constipation can be remedied with the use of mild laxatives. Please speak to your pharmacist or GP for advice.

Pain

When you leave hospital, you will be given a supply of painkillers. Keep taking these painkillers until you feel that the pain is easing and then slowly reduce them. You may still be taking the odd dose after six weeks and this is perfectly okay.

Leg pain

If you have had vein grafts taken from your legs you may find that you experience discomfort and swelling in your legs and ankles for a few weeks. Taking painkillers, putting your legs on a stool while sitting and not crossing your legs will help relieve this.

Moods and emotions

During the first few weeks you may feel emotional and unusually irritable. This may also affect other members of your family, especially your partner. These feelings will usually pass after a few days, so don't be alarmed! You and your family have been through a particularly stressful experience so patience, understanding and consideration for each other will be essential. Discuss your feelings with your partner and be honest.

Other symptoms that can occur following heart surgery include:

- Strange taste in the mouth
- Blurred vision
- Increased or lost sense of smell
- Loss of concentration
- Sweating
- Muffled hearing
- Alternating between feeling hot and cold
- Hoarse voice
- Disturbance of sleep pattern
- Hair loss

Again, these are usually temporary and go away after a few days or weeks. However, if you continue to have problems or are feeling unduly depressed, let your GP know. Alternatively you could inform your cardiac rehabilitation nurse.

Your sex life

Starting to have sex again following heart surgery can be fraught with worries and concerns from both the individual who had the operation and their partner. Sexual intercourse is a form of physical exercise that does not place a dangerous strain on your heart. As with any form of exercise, do only what you can manage.

If you are tired and tense, treat sex as you would other activities and wait until you feel better. If you find that certain positions cause discomfort, try different ones.

If you feel uneasy about resuming sex, allow more time for hugging, caressing and getting to know each other again. You may simply need to overcome the physical distance that is created by having surgery.

Driving and insurance

You should not drive for at least one month after your surgery. You do not need to inform the DVLA about your operation unless you hold a LGV or PSV licence.

You are strongly advised to inform your insurance company about the surgery. This will avoid problems with any claims that you may make in the future.

The British Heart Foundation can be contacted for an up to date list of insurance companies that are sympathetic to those with heart problems.

Flying

It is safe to fly to any destination 10 days following surgery provided that you have had no complications. It may be best not to go on holiday during the first six weeks or so, as you may not be able to get the most out of it.

Returning to work

Many factors influence when you return to work. You should discuss this in detail with your GP and with your surgeon. It may be that you can return to work within 6 to 12 weeks. A major consideration will be the type of work you do.

Keeping well

Cardiac Rehabilitation Programmes

Many hospitals run cardiac rehabilitation programmes for people recovering from heart surgery and it is now known that these programmes are very beneficial in aiding recovery. Each rehabilitation programme will be different but will usually include an exercise programme, relaxation sessions and talks about health and stress. The exercise is graduated, which means that you start off gently and gradually increase the amount you can do. People who have been on the rehabilitation programme say that the main benefit is that they feel more confident about coping with everyday life. They also find that the exercise programme helps them to increase their level of fitness and to recognise any limitations they may have and how best to deal with them.

Non-Wolverhampton residents and rehabilitation

On the day that you leave the hospital the cardiac rehabilitation nurse will write to your nearest hospital and let them know that you have had the surgery. They will then contact you and discuss rehabilitation with you. If you do not hear from your rehabilitation centre, please call the cardiac rehabilitation nurses based at The Heart and Lung Centre and they will do their best to help you out.

If you or your relatives have any questions or worries about your recovery once you get home, telephone the cardiac rehabilitation nurses on: 01902 694226.

Outpatient Appointment

This is usually 6 to 8 weeks after your operation and will take place in the Heart and Lung Centre. The date and time of your appointment will be posted to you after your discharge home. If your wound needs specialist attention, you may be asked to attend the wound clinic.

Heart Valve Surgery

Anti coagulation therapy – people who have had an operation to valves of their heart may require either short or long-term anticoagulation treatment such as Warfarin.

If you are on Warfarin you should never miss a dose. If you accidentally forget to take your medication you should never take a double dose, but do tell the doctor at your next appointment. If more than one dose is missed, contact your GP as soon as possible.

You may be asked to return regularly to the cardiothoracic ward after your discharge home for blood tests to be done until the Warfarin effect has stabilised and you have been accepted by your local clinic.

Other medicines such as antibiotics can alter the effect of Warfarin. DO NOT TAKE these unless prescribed by your doctor, who should be made aware you are taking Warfarin.

In the event of severe bleeding, bruising or illness, contact your GP, NHS Direct or local Emergency Department as appropriate.

Further information - Post-operative

Infective endocarditis

Endocarditis is uncommon. In the UK it occurs in about 20 in a million people each year. It can occur in anybody, but the risk of developing it is slightly increased in people who have:

- Heart valve problems or an artificial heart valve. Heart valves that are already damagedor abnormal are more likely to become infected
- Had surgery to a heart valve
- Certain congenital heart defects (you are born with heart abnormalities)
- Had a previous episode of infective endocarditis
- Been injecting street drugs such as heroin, with dirty or contaminated needles
- A poor immune system

In many cases the infection develops quite slowly. This is sometimes called subacute bacterial endocarditis (SBE). Symptoms can develop gradually, over weeks or months (or occasionally years), and can be vague at first. You tend to feel generally unwell and may have general aches and pains, tiredness, and be off your food. A fever (a high temperature) develops at some stage in most cases. As these first symptoms can be caused by a lot of other conditions, the cause of the symptoms may not be diagnosed for some time. If you do develop the above symptoms after a valve operation, then it is important that you seek medical advice and are reviewed by your doctor (GP, Cardiologist or cardiac surgeon).

Mycobacterium Chimaera infection

Anyone who has had open heart surgery is at risk, including people who had their operation outside the UK. The risk of infection has been linked to a device used to heat and cool the blood during some types of heart surgery.

If you're feeling well, you don't need to do anything straight away. The symptoms can take up to five years to appear and you can't be tested to see if you will develop symptoms in the future. When you next visit your GP, make sure they know you've had open heart surgery and ask them to check that your medical record includes this information. Also make sure you're aware of the symptoms of a Mycobacterium chimaera infection and see your GP if you develop any of these.

Symptoms include:

- A fever – including feeling hot and shivery or having a temperature of 38C (100.4F) or above
- Unexplained weight loss
- Increasing shortness of breath
- Waking up with bed sheets showing signs of sweating (night sweats)
- Joint or muscle pain
- Feeling sick or vomiting
- Stomach (abdominal) pain
- Feeling unusually tired
- Pain, redness, warmth or pus around where you had your operation

See your GP if you experience any of these symptoms.

There is no need to seek emergency treatment, as these symptoms can have many different causes and are very unlikely to be due to a Mycobacterium chimaera infection.

Dental Care

If you have had valve surgery, regular dental check ups are very important. This is because bacteria from the teeth and gums can enter the blood stream and infect heart valves. It is important that your dentist knows what type of surgery you have had and whether or not you are on Warfarin.

The dentist may give you antibiotics prior to the treatment if it is for a dental infection.

We hope this information is useful and answers most of the questions you may have. However if you have any unanswered questions, please make a note of them to remind you when you visit the Heart and Lung centre.

How to contact us:

Cardiothoracic Ward and 24 hour helpline	01902 694306
Cardiothoracic Critical Care 24 hour	01902 694260
Cardiac Rehabilitation 9:00am - 4:00pm Monday - Friday	01902 307999 Ext 84226
Surgical Co-ordinator 9:00am - 4:00pm Monday - Friday	01902 694211 01902 694592

Additional Information is available from:

www.givingupsmoking.co.uk

NHS Smoking Helpline (freephone) 0800 0224332

www.patient.co.uk
Provides information leaflets on heart disease and treatments.

Patient Advisory and Liaison Service (PALS)
New Cross Hospital
Telephone: 01902 695362
Mobile Number: 07880 601085
E-mail: rwh-tr.PALS@nhs.net

Age Concern Wolverhampton
Based in New Cross Hospital
Supportive discharge service for anyone aged 50 or over.
Telephone: 01902 695517
Mobile: 07753 718929

British Cardiac Patient Association
15 Abbey Rd,
Bingham,
Nottingham NG13 8EE
E-mail: admin@bcpa.co.uk
www.bcpa.co.uk
Telephone: 0122 3846845

British Heart Foundation
Greater London House
180 Hampstead Rd
London
NW1 7NW
Telephone: 0207 5540000
Heart Info Line 0854 0708070

Cardiothoraic Wound Clinic reception 01902 696731
9:00am - 4:00pm Monday - Friday

Patient support groups (local)

Wolverhampton
www.have-a-heart.co.uk
Wolverhampton Coronary Aftercare Support Group
Telephone: 01902 755695
E-mail: WCAS79@gmail.com

Sandwell Cardiac Club
Stoney Lane Centre for Disabilities
Stoney Lane
West Bromwich
Telephone: 0121 5594006 / 0781 2483265

Heart Care Family Support Group
Walsall Cricket Club
Gorway Road
Walsall
WS1 3BE
Tel: 01922 725050
E-mail: Heartcare@walsall.nhs.uk

Action Heart (Patient & Family Support Service)
Block C
Russells Hall Hospital
Pensnett Road
Dudley
West Midlands
DY1 2HQ
Tel: 01384 456111 (Ext. 1470)
E-mail: info@actionheart.com
Website: www.actionheart.com

Write to:
Action Heart, 5 Baird House, Dudley Innovation Centre
Kingswinford, West Midlands
DY6 7YA
Tel: 01384 292233

Patient Lead Representative:
Harry Bloomer
Tel: 01384 635969
E-Mail: homerhillhouse@hotmail.com

English

If you need information in another way like easy read or a different language please let us know.

If you need an interpreter or assistance please let us know.

Lithuanian

Jeigu norėtumėte, kad informacija jums būtų pateikta kitu būdu, pavyzdžiui, supaprastinta forma ar kita kalba, prašome mums apie tai pranešti.

Jeigu jums reikia vertėjo ar kitos pagalbos, prašome mums apie tai pranešti.

Polish

Jeżeli chcieliby Państwo otrzymać te informacje w innej postaci, na przykład w wersji łatwej do czytania lub w innym języku, prosimy powiedzieć nam o tym.

Prosimy poinformować nas również, jeżeli potrzebowaliby Państwo usługi tłumaczenia ustnego lub innej pomocy.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਰੂਪ ਵਿਚ, ਜਿਵੇਂ ਪੜ੍ਹਨ ਵਿਚ ਆਸਾਨ ਰੂਪ ਜਾਂ ਕਿਸੇ ਦੂਜੀ ਭਾਸ਼ਾ ਵਿਚ, ਚਾਹੀਦੀ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

ਜੇ ਤੁਹਾਨੂੰ ਦੁਭਾਸ਼ੀਏ ਦੀ ਜਾਂ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

Romanian

Dacă aveți nevoie de informații în alt format, ca de exemplu caractere ușor de citit sau altă limbă, vă rugăm să ne informați.

Dacă aveți nevoie de un interpret sau de asistență, vă rugăm să ne informați.

Traditional Chinese

如果您需要以其他方式了解信息，如易读或其他语种，请告诉我们。

如果您需要口译人员或帮助，请告诉我们。

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