Royal Papworth Hospital
NHS Foundation Trust

Cardiac surgery

A patient's guide and consent form

Important - please bring this booklet into hospital on admission

This document contains a consent form which your surgeon will go through with you and ask you to sign if you are willing to proceed. You will be given this booklet which will include a copy of the consent form.

Compassion
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This information booklet has been prepared to help you and your relatives understand more about your cardiac surgery. It also gives you general information about what to expect from the time of your admission to your discharge from Royal Papworth Hospital, and some practical advice on what to do when you get discharged.

Contents

Your heart and how it works

The heart is a muscular pump, which continuously pumps blood to the rest of the body your whole life. It has two sides, the right and the left.

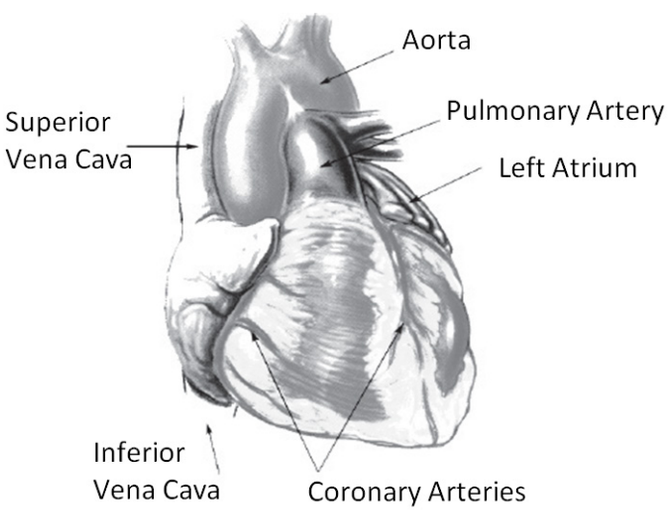
Each side is made of two chambers, an upper receiving chamber (atrium) and a lower pumping chamber (ventricle).

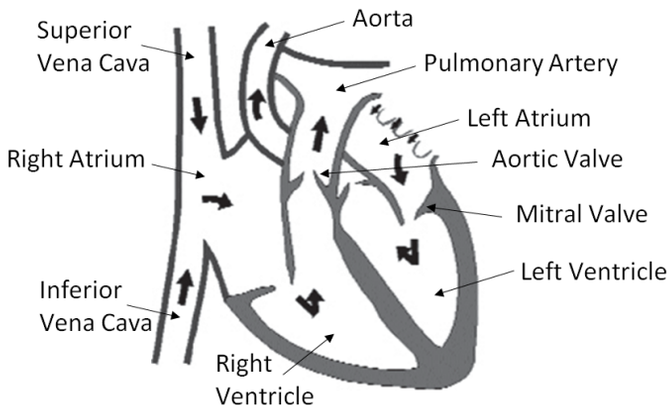
Blood from around the body drains through veins back to the right side of the heart into the right atrium. From here the blood passes to the right ventricle, which pumps the blood around the lungs through a large artery called the pulmonary artery.

In the lungs, oxygen passes from the air you breathe into the blood. This oxygenated blood then returns to the left side of the heart into the left atrium. This passes to the left ventricle, which pumps the blood around the body through a large artery called the aorta. This supplies oxygenated blood to all the organs, including the heart itself.

The direction of blood flows through the different chambers and the large arteries are controlled by four valves.

Different parts of the heart can be affected by different diseases, some of which may need surgery to correct. These will be mentioned below.





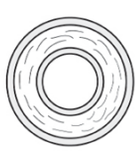
Reasons for needing cardiac surgery

Coronary artery disease

The heart muscle receives its blood supply from the coronary arteries, which come from the aorta. There are three main coronary arteries:

- Right coronary artery
- Left anterior descending artery
- Circumflex artery

Sometimes these arteries can become narrowed by a disease process known as atherosclerosis. This is when fatty deposits are gradually laid down inside the vessel wall causing the artery to become narrowed over time.



Cross section of a normal artery

Narrowed coronary artery

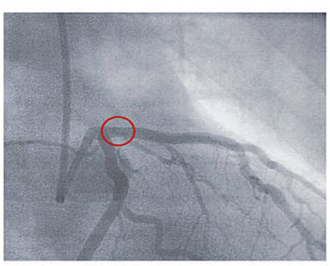
The risk factors for coronary artery disease include high blood pressure, diabetes, smoking, high cholesterol and being overweight. Having a strong family history of coronary artery disease can also be a strong contributor.

The narrowing of the coronary arteries reduces the blood supply and the oxygen delivered to the heart muscle. When the demand for oxygenated blood is greater than the supply, patients may develop chest pain or other symptoms, which is known as angina. Occasionally, some people may not get any symptoms. If a coronary artery becomes

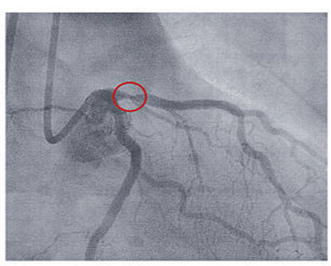
completely blocked, usually by a blood clot occurring at the site of the narrowing, it results in a heart attack (myocardial infarction). This causes damage to the heart muscle.

If treated early, the blood supply to the heart can be restored. If not treated, the damage to the heart muscle will be irreversible, reducing the function of the heart.

A coronary angiogram is an investigation performed by your cardiologist, which will provide a clear picture of the arteries and show any narrowings in order to help plan the surgery.



Angiogram with normal appearance of the coronary artery



Angiogram with severe narrowing of the coronary artery (circle)

How is coronary artery disease treated?

- **Medical management** – treatment using oral medication, where the aim is to improve the symptoms of angina. However, this will not make the narrowings better. This is usually used in patients too unwell to have another treatment.

- **Angioplasty** – treatment using balloons and stents inserted into the coronary arteries through an artery in your arm or leg to try and open the blocked coronary arteries and reduce the symptoms of chest pain.

- **Surgery** – treatment to bypass the narrowings and blockages and provide a new blood supply to the heart using other blood vessels.

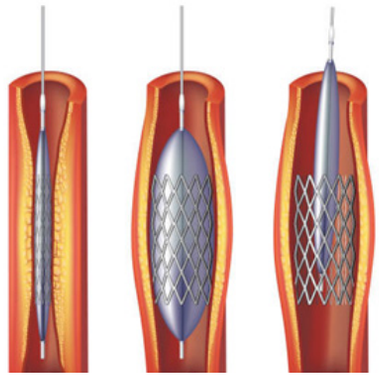


Diagram showing deployment of a stent to open a blocked artery

The treatment offered to you will depend on the disease and your general health. These options will be discussed with you by your surgeon.

What is used to create the bypass?

The coronary artery bypass graft operation uses other blood vessels from around the body to 'bypass' the narrowed area and provide a new blood supply to the heart muscle. These are sewn to your coronary artery beyond the narrowings and to the aorta in order to provide a new supply of blood.

Several blood vessels are commonly used for performing these.

- **Internal thoracic arteries** – these are arteries that run down on either side of the breastbone. The left internal thoracic artery is one of the most common bypass grafts, as they have been shown to have the best long-term results. These can safely be removed from the chest wall, as there is enough supply from other arteries. However, some people describe some numbness across that side of the chest.

- **Radial artery** – there are two arteries in your forearm that provide blood supply to the hand - the radial and ulnar arteries. In most people, the radial artery can be safely removed, and the ulnar artery provides enough blood to not cause any problems. Occasionally, some people may experience some temporary numbness or weakness of the hand. Long-term effects are not common. Very rarely, there could

be complications with the blood supply to the hand.

- **Saphenous vein** – this is the longest vein in the body and one of the most commonly used for coronary artery bypass surgery. It runs from the inside of the ankle to the groin. This is removed from the lower leg, usually through a long cut along the vein. Depending on how much vein is needed for your surgery, the length of the scar varies.

When suitable, we may occasionally be able to remove the vein through multiple small incisions along the leg, or by using endoscopic vein harvest (keyhole) – where a small incision is made below the knee and at the groin. The vein is removed using a camera and specialist equipment called an endoscope.

The decision on which approach to use will be made by your consultant surgeon at the time of your operation. Both bridging and endoscopic vein harvest techniques can potentially proceed to open technique, if it is not possible to remove the vein satisfactorily.

Coronary artery bypass grafting has many benefits:

- Stopping or reducing your chest pain
- Increasing your chances to live longer
- Reducing the risk of having a heart attack
- Improving the heart function
- Improving the quality of life

After surgery you will continue to need to take medications which aim to improve long term survival including:

- Blood thinning medications like aspirin and/or clopidogrel
- Drugs to lower cholesterol like statins
- Drugs to control blood pressure and improve heart function like beta blockers and/or ACE inhibitors

It is important to be aware that surgery does not completely 'cure' your disease and you should still aim to reduce the risk factors mentioned above.

Heart valve disease

The heart is responsible for pumping blood around the body. There are four valves within the heart that ensures blood flows in the correct direction through the heart. In patients with heart valve disease, one or more of these valves is malfunctioning.

There are two types of malfunction:

- **Stenosis** – where the valve does not open fully or correctly. This puts pressure on the chamber pumping blood through the valve.
- **Regurgitation/incompetence** – where blood can leak back through the valve which does not close correctly. This leads to the heart chamber before the valve becoming overloaded.

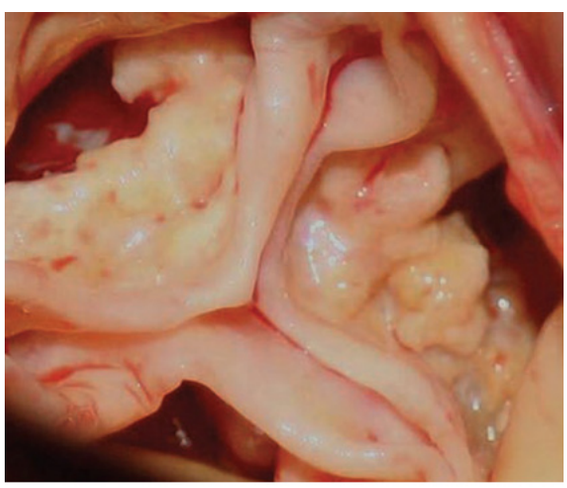


Photo of a stenotic aortic valve with thickened and hard leaflets

Both types of malfunction will eventually lead to the development of symptoms, such as shortness of breath, chest pain and light headedness, and will eventually lead to irreversible heart failure.

When a doctor uses a stethoscope to listen to the heart, these conditions can be detected as heart murmurs. A heart murmur is caused by turbulence of blood flow due to valve malfunction.

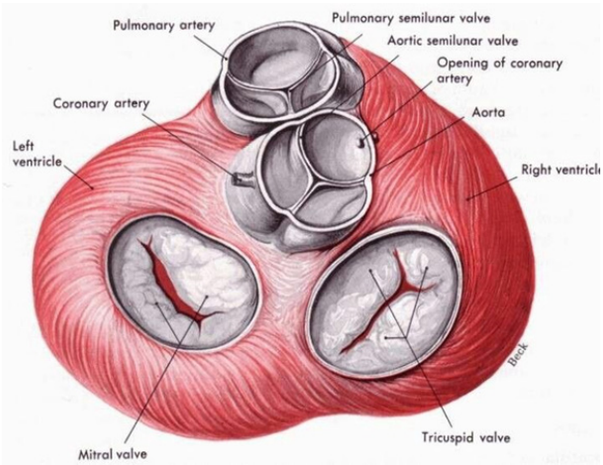


Diagram showing the four heart valves

Aortic valve surgery

The aortic valve lies between the main pumping chamber of the heart and the rest of the body. The most common treatment for aortic valve disease is aortic valve replacement. In this procedure, the old aortic valve is removed, and a new valve prosthesis is sewn in its place. In rare circumstances, it may be possible to repair the aortic valve.

An alternative, less invasive procedure is transcatheter aortic valve implantation (TAVI), where a new valve is implanted through catheters placed via blood vessels in the groin. It may be considered appropriate in some patients who are considered high risk for standard surgery.

Mitral valve surgery

The mitral valve lies upstream of the main pumping chamber of the heart. In many patients, a malfunctioning mitral valve can be repaired using a variety of techniques, which helps to avoid some of the complications associated with prosthetic valves (see diagram).

If it is not possible to repair the mitral valve, it will need to be replaced with a new valve prosthesis.

An alternative, less invasive procedure is Mitraclip, which may be considered in some patients with mitral regurgitation who are considered high risk for standard surgery.

Diagram of a mitral valve repair with a supporting ring

Tricuspid valve surgery

Similar to the mitral valve, the tricuspid valve may be repaired or replaced depending on the nature of the malfunction.

Example of a ring used to support repair of the tricuspid valve

Types of valve prosthesis

There are two main types of valve prosthesis: mechanical and tissue.

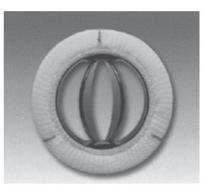
Choosing the right valve type for you is an important decision and your surgeon will spend time discussing this with you.

There are important differences:

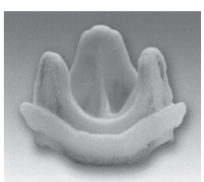
- **Mechanical valves** – a mechanical valve will usually last forever. However, because it is made of metallic material, blood clots will form on the valve unless the patient is treated with a blood thinner. Hence, all patients with mechanical valves will require lifelong treatment with the blood thinner warfarin. This drug requires

careful monitoring with regular blood tests and there are associated bleeding or clotting risks, if the optimal thinness of blood is not achieved. Warfarin also interacts with a number of medications, antibiotics and also alcohol. Some patients also notice the regular clicking of the mechanical valve.

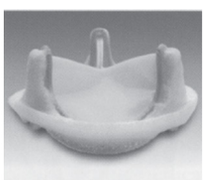
- **Tissue valves** - a tissue valve is produced from animal material. The common types include pig valves, or valves constructed from material around a cow's heart (pericardium). Patients with a tissue valve do not require lifelong treatment with the blood thinner warfarin but will be placed on aspirin. Tissue valves, however, will degenerate over time. The longevity will vary between patients and your surgeon will discuss this with you further.



Mechanical valve



Tissue valve (Pig)



Tissue valve (Cow pericardium)

Atrial fibrillation surgery

Atrial fibrillation (AF) is an abnormal heart rhythm where the heartbeat is irregular. This becomes increasingly common with age. AF is particularly important because it is associated with the development of blood clots within the heart that can cause strokes, and most patients with AF are treated with blood-thinning medications.

In certain patients undergoing heart surgery who have AF, additional procedures may be offered if deemed appropriate by your surgeon:

- **Atrial fibrillation ablation** – this operation aims to restore a normal regular heart rhythm by preventing the abnormal electrical activity responsible for the irregular heart rhythm.

- **Left atrial appendage exclusion/excision** – this operation aims to exclude or remove the left atrial appendage which is thought to be the commonest site of blood clot development within the heart responsible for causing strokes.

Aortic aneurysm surgery

The aorta is the largest blood vessel in the body responsible for delivering blood from the heart to the rest of the body. In some patients, the first part of the aorta (ascending aorta) can enlarge – forming an aneurysm. To prevent the aneurysm from tearing or bursting, the aneurysmal part of the aorta will be removed and replaced with a graft made from polyester. It is a durable material and will usually last a lifetime.

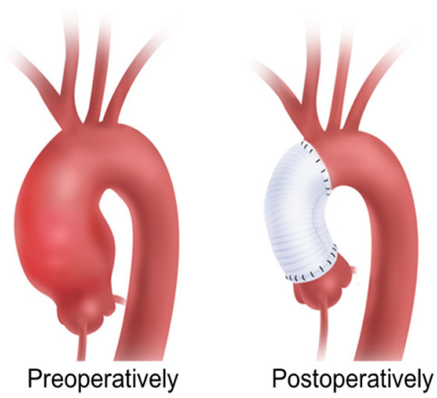


Diagram showing an ascending aorta aneurysm preoperatively and after repair

Other procedures

- **Cardiac tumour surgery** – In some patients with a tumour on or in their heart, an operation may be offered to remove the tumour either fully or partially.

- **Closure of a patent foramen ovale (PFO) or atrial septal defect (ASD)** – occasionally, a PFO or ASD, which represent a 'hole in the heart' may be discovered on echocardiogram. This will have been present from birth but is associated with some complications. In patients undergoing heart surgery in whom a PFO or ASD is discovered, this may be closed either by sewing the hole or using a patch to cover the hole.

- **Pericardiectomy** – The pericardium is the sac which contains the heart. In some

patients the sac can become abnormal and constrict the heart. During a pericardiectomy, the sac will be partially removed to allow normal heart function.

- **Septal mymectomy** – An abnormally thickened muscle in the area between the pumping chambers (septum), can obstruct blood flow out of the heart and cause symptoms. In this operation, the excess muscle can be removed.

Redo procedures

Some patients require a second heart surgery having had a previous operation in the past. Subsequent heart surgeries (termed 'redo' procedures) are more challenging because of the scar tissue that forms following the earlier procedure. This means that the heart can be stuck against the breastbone which makes entering the chest riskier with a chance of bleeding.

As a result, the operations will take longer and may require additional steps compared to the initial surgery. This leads to redo procedures being associated with a higher risk of complications.

Risks of cardiac surgery

All cardiac surgery operations are considered 'major surgery'. Like all operations, there is a risk of developing complications. The risk of complications varies between individuals and depends on a range of factors including:

- Age and sex
- Weight/height BMI
- Other illnesses, for example: diabetes, lung disease, kidney disease, previous strokes
- Smoking status
- Urgency of the operation
- Condition of your heart
- Number of procedures you need
  Your surgeon will take into consideration the above factors when assessing your individual risk of complications

Risks and complications

Possible complications of cardiac surgery include:

- **Death**
- **Stroke** – which may be temporary or permanent.
- **Bleeding** – you may need to be taken back to theatre to treat excessive bleeding. Also, it may be necessary to give you a blood transfusion. If there is any reason you would not want to receive a blood transfusion please let your surgeon know.
- **Irregular heartbeat** – this occurs in one-in-three patients and usually resolves in hospital with medication.
- **Infection** – this may involve any of the wounds, the lungs or the urinary tract, and will be treated with antibiotics.
- **Infective endocarditis** – this is an infection of the heart valves which can occurs following heart valve surgery, particularly in patients with underlying immunosuppressive conditions. Treatment may require a prolonged course of intravenous antibiotics or a second operation.

  To help reduce the risk of infective endocarditis we recommend that patients with valve implants (undergoing valve replacement or repair) take prophylactic antibiotics if undergoing invasive dental procedures.

  The risk of infective endocarditis is increased in patients with ongoing infection, conditions that reduce the effectiveness of the immune system and those with artificial material in the heart/circulation (such as a valve prosthesis).
- **Heart attack** – on rare occasions during surgery, the heart can suffer a heart attack.

- **Permanent pacemaker** - all patients following cardiac surgery will require temporary pacing wires which allow the intensive care team the ability to control the heart rate. In a small percentage of patients, a permanent pacemaker is required following cardiac surgery to support the electrical conduction system of the patient's heart.

- **Kidney problems** – surgery can impair kidney function which is usually temporary.

- **Repeat cardiac surgery or intervention** - a small percentage of patients will require a repeat intervention on their coronary arteries or valves following their initial cardiac surgical procedure due to infection, clotting or longevity of their valves or bypass grafts.

- **Prolonged stay in intensive care unit** - some patients will require a longer stay in the intensive care unit due to the increased complexity of their surgery. In these patients a number of the vital organs may need to be supported temporarily, including the:

  1. **Heart** - using special devices or certain drugs

  2. **Lungs** - using artificial mechanical ventilation (breathing machine) or even a tracheostomy (tube in the windpipe)

  3. **Kidneys** - using a dialysis machine

- **Memory** - many patients notice that their short-term memory and thinking processes are rather slow to begin with, but usually this returns to normal within two months.

Dental hygiene and heart surgery

A dental review before your heart surgery, particularly heart valve surgery, is essential. Your mouth is home to various bacteria, which occasionally can pass into your blood and pose a risk of infecting your new heart valve or even existing diseased valves.

Infection of the heart valves or inner lining of the heart is called infective endocarditis. Although endocarditis is rare, it is, however, a life-threatening condition that can be challenging to treat. Management may include prolonged intravenous antibiotics and surgery.

Your dentist will rule out any dental abscesses, dental infections, or gum disease which may pose a risk of future infection

Some signs that you may have dental disease include: sore teeth or gums, bleeding gums or teeth following brushing or flossing, any swelling or pain in your gums, your gums appearing to be receding from the teeth, and loose or broken teeth.

Before your valve surgery

Arrange a dental review as soon as possible when you know that you are going to have surgery - making sure to emphasise that you are due to have heart surgery as this will influence their assessment and treatment plan. If your dentist recommends any treatment, this should ideally be done at least four weeks before your surgery. This is to ensure that you have enough time to recover from any infection or complications from your dental procedures. This will reduce the risk of delaying your surgery.

After your surgery

It is essential that you continue with good dental hygiene following your surgery. You should aim to get regular dental review every six months. Should you need any dental procedures in the future please inform your dentist that you have heart valve disease or that you have had heart valve surgery, as you may need antibiotic prophylaxis depending on the invasiveness of the treatment required.

Live well

Good nutrition is always important but it becomes even more vital before and after surgery. A healthy balanced diet will provide your body with all the nutrients it needs to fight infection and repair tissues. Studies have shown clearly that people who are underweight, malnourished or overweight have more complications after surgery.

Prior to surgery your nutritional state will be assessed. If you are identified as malnourished or at risk of malnutrition (this means you are eating and drinking too little or have unintentionally lost weight) you will be provided with some written dietary information to help you to improve your nutrition before surgery. You may also be prescribed supplement drinks and referred to a dietitian for further advice.

If you are found to be overweight, you should try to take steps to lose weight before surgery as this will reduce your risk of complications (particularly breathing and wound problems). You should do this sensibly by continuing to eat a healthy balanced diet.

It is important that you continue to eat regular meals but you could cut down on food and drinks high in fat and sugar and reduce your portion sizes. If you need to snack between meals, choose healthy snacks such as fruit and low-calorie yoghurts.

If your BMI is elevated, then we may invite you to be part of our optimisation/weight management program whilst you are waiting for surgery.

Stay active

While waiting for your cardiac surgery it is important to remain physically active. The stronger and fitter you are before the operation, the quicker you can recover.

Physically active means any activity not sitting still or lying down. Try to keep doing the activities you would do in your normal daily life, as much as your symptoms allow. If your symptoms include chest pain, tightness or shortness of breath it is important to discuss your level of activity with the doctor or nurse you see in clinic. Walking is a great way to remain active, whether you can walk a few steps or a few miles.

There are some flexibility exercises for you to do whilst you are waiting for your surgery. You can find these on page 13.

Keep Your Move in the Tube: perfect your technique prior to surgery

After cardiac surgery most patients have a wound down the centre of their chest over the breastbone (sternum). An important part of wound and bone healing is limiting the activities you do with your arms after the operation. This is because certain activities put a lot of stress on the bone that is trying to heal.

This will affect how you get out of bed, stand up and sit down in a chair, carry shopping bags and general everyday living activities within the home.

The precautions to follow are known as **Keep Your Move in the Tube**. Imagine there is a tube around your body, and you need to keep your arms within this imaginary tube. See the diagram for more information.

- **Getting in and out of bed.**
  It's a good idea to practice the best technique beforehand. We advise you to roll onto one side and gently lower your legs off the edge of the bed, then push down through the elbow you are leaning on and come up into a sitting position on the edge of the bed. For lying down the same process is followed in reverse.

- **Getting in and out of a chair.**
  Sit on the edge of the chair with your arms by your sides with your elbows tucked in close to your body. Then with your feet firmly flat on the floor, rock gently backwards and forwards three times with your nose coming forward over your toes. On the third rock forward push up strongly through your legs and come up into the standing position.

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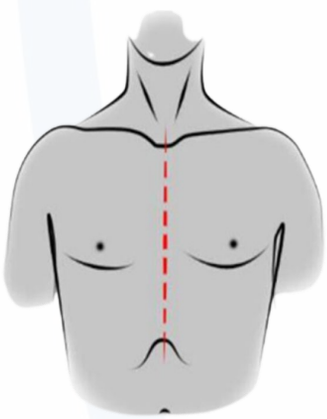
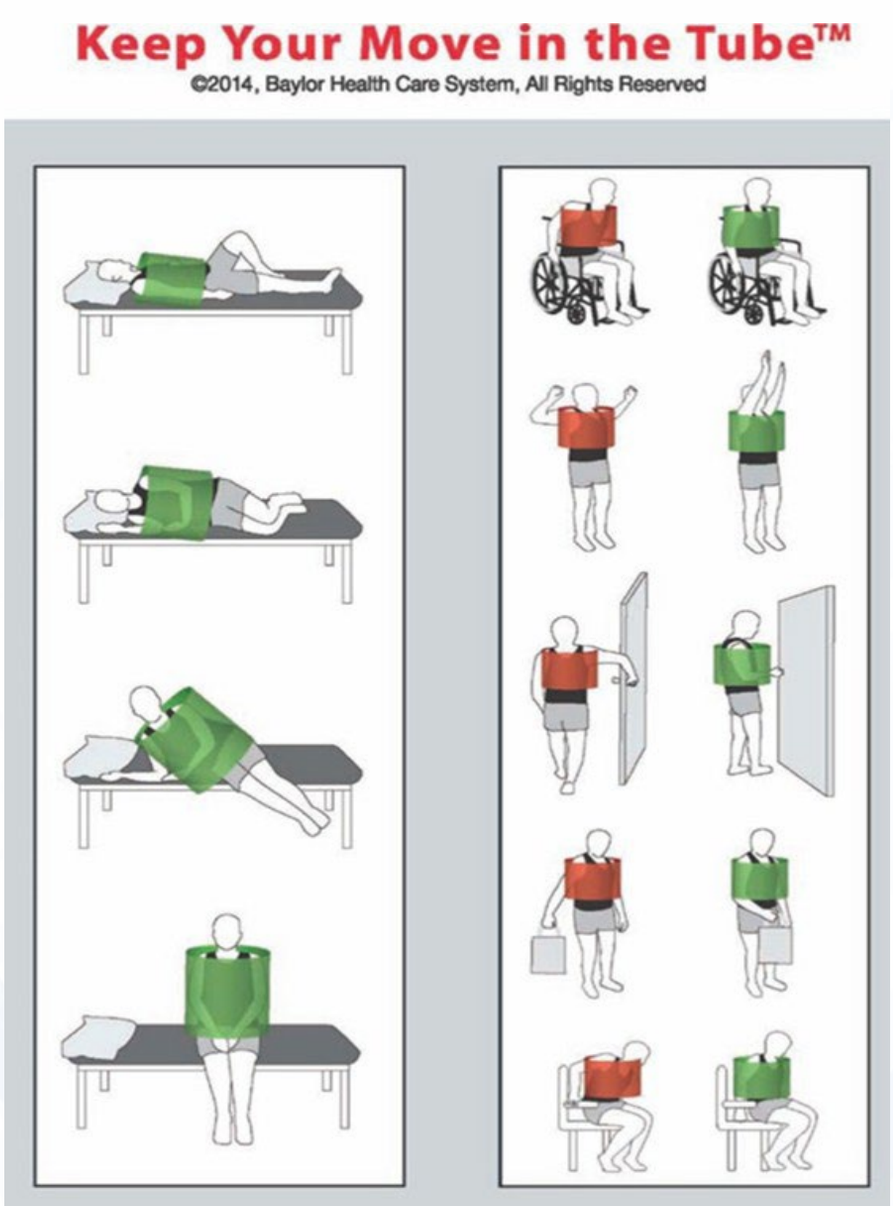
Keep Your Move in the Tube: sternal precautions

Your sternum (breastbone) will be opened during surgery. The bone is then pulled back together and held with wires. It takes time for that bone to heal.

Below there are some precautions you need to follow:





Goal:

To keep your sternum stable and pain free.

Top tips:

- Keep your elbows tucked in when putting weight through your arms e.g. pushing from a chair or lifting heavier objects.
- There are no strict weight limits – listen to your body, **if it causes pain, stop.**
- You are allowed to move your arms freely in any direction when you are not putting weight through them.

If you are unsure, don't risk it - speak to a healthcare professional for further advice.

Version 01, March 2024

Getting ready to come into hospital

Start to make plans for going into hospital and coming home after your surgery.

- Think about how you will travel to the hospital. It might involve an early start so try to get some rest the day before.

- Think about what you will take into hospital. Bring comfortable shoes and loose clothing to avoid the use of hospital gowns. If you normally use a walking aid or have glasses, dentures or hearing aids, then make sure you bring these with you.

- Think about how you will get home from hospital. You will be given the date that we expect you to be discharged. Make sure your friends and family know when this will be so they can pick you up. Hospital transport home is not readily available.

- Check that you have enough support in place for when you get home, as you might need extra help. If you live alone you may want a family member or friend to stay with you for a short period.

- Before going into hospital, think about stocking up your freezer so you don't have to worry about shopping immediately after you are discharged.

- If you are finding it difficult to manage at home prior to your operation, or you cannot get up out of a chair easily without using your arms, do mention this to the nurse at pre-admission clinic. You will be given an 'All About Me' booklet to fill in and bring with you. This includes measuring heights of furniture around your home. You may also be referred to the occupational therapist team at pre-admission clinic to avoid delaying your discharge home.

If you are the carer for someone else, think about how this person will be looked after while you recover from your operation.

Cancellations

On occasion it may be necessary to cancel your operation at short notice due to emergencies, though we do our best to ensure this doesn't happen. Your doctor and nurse will come and speak to you about what happens next if this occurs, and will endeavour to reschedule your surgery as soon as possible.

Flexibility exercises

These exercises will help to keep your body and shoulders flexible; do them slowly, five times in each direction. Start these exercises by sitting on an upright chair.

Shrug shoulders up and down.

Keeping hips and feet facing straight forwards, turn your head and trunk as far as you can comfortably go, first to the right and then to the left.

Breathe out and slowly slump down. Slowly straighten up whilst taking a breath in.

Strengthening exercises

Warm-up exercise: sitting on a bed or chair, pump your feet up and down. This helps the movement in your ankles and the blood flow in your legs. Aim: to strengthen your thigh muscles

Inner range

Lying or sitting on a bed, place a rolled up towel under knee, pull your foot up towards you.
Lift foot to straighten knee. Count to five. Relax down. Repeat using other leg.

Progression - Increase number of repetitions. Add a weight to the ankle (reduce repetitions at first).

Straight leg raise

Lying or sitting on a bed - pull your foot up towards you.
Keeping your knee straight, lift leg six inches. Count to five. Relax down. Repeat using other leg.

Progression - Increase number of repetitions. Add a weight at the ankle (reduce repetitions at first).

Middle and inner range

Sitting on a chair or over edge of the bed, lift your foot to straighten knee. Count to five. Relax gently down. Repeat using other leg.

Progression - increase number of repetitions. Add a weight at the ankle (reduce repetitions at first).

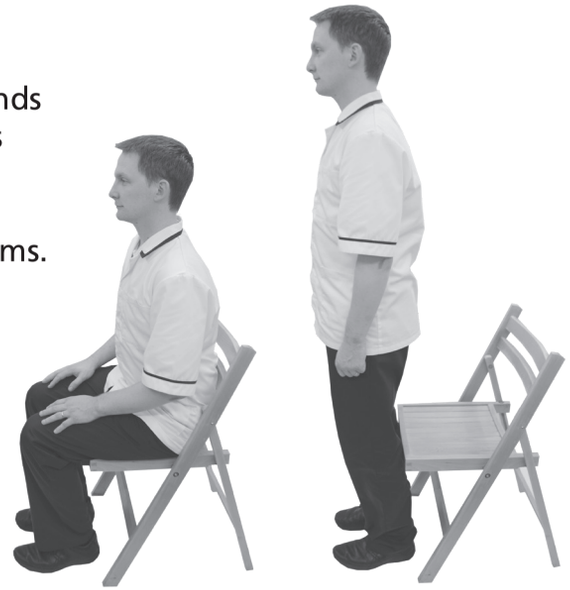
Lower limb exercises

Aim: to strengthen your leg muscles

Sit to stand

Sitting on a chair with hands on your knees (or on arms of chair).
Stand up, then sit down slowly. Do not use your arms.

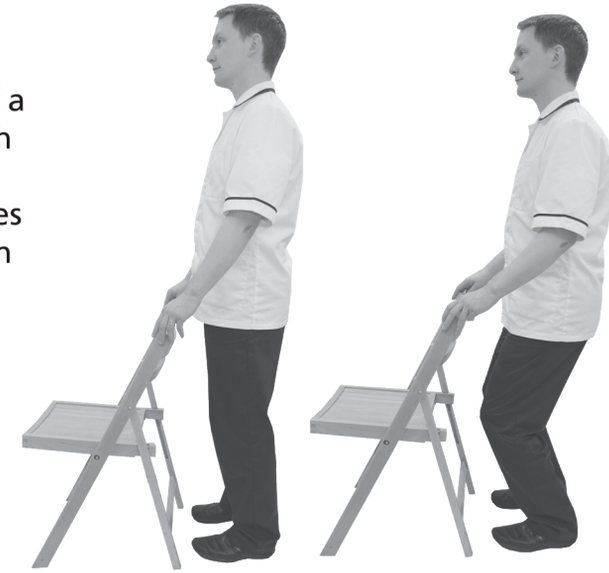
Progression - Increase number of repetitions first, then use lower chair or stool.



Squats

Hold onto the back of a chair, standing up with feet hip width apart. Slowly bend your knees a small way, hold, then stand up straight.

Progression - To make this exercise harder, increase the depth of squat by bending your knees more.



Step ups

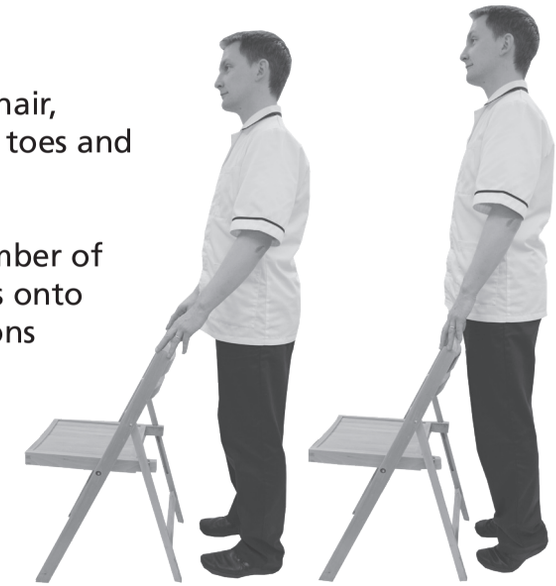
Standing in front of a step or bottom stair. Hold onto a hand rail. Slowly step up onto the stair with both feet, then step down again. Alternate the leg you lead with.

Progression - To make this exercise harder, increase the height of the step.

Heel raiser

Hold onto the back of a chair, standing up. Rise up onto toes and back down to floor.

Progression - Increase number of repetitions. Then progress onto one foot (reduce repetitions at first).



Exercise diary

You might find it useful to complete this exercise diary, to help you monitor your exercises and show what progress you have made.

Date	Time	Activity	Duration/ repetitions	Comment
DD/MM	10:00	Leg exercises	5 of each	
DD/MM	15:00	Flexibility exercises	3 of each	

Preparation for your operation

Pre-admission

Because we know that coming in for your surgery can be worrying, Royal Papworth Hospital holds a pre-admission morning where you, accompanied by a relative or friend, are invited to the hospital to learn more about what to expect during your stay in hospital.

Most patients will attend the pre-admission clinic approximately one to two weeks before their surgery.

The clinic, which is run by the cardiac support nurses, is to give you and your relative the opportunity to find out more about your operation and your recovery. It also provides an opportunity for you to talk about any worries and anxieties you may have. You will meet some of the staff and can familiarise yourself with the hospital before you are admitted.

On arrival, you will be able to check in via our self service check-in. You will be issued with a wrist band from our reception team along with a checklist, so you know who you have to see in clinic.

During the pre-admission clinic you will have the following tests:

- **Chest X-ray**
  To look at the size and shape of your heart and the condition of your lungs.

- **Electrocardiogram (ECG)**
  This shows the electrical activity of the heart.

- **Blood tests**
  A blood sample is taken from your arm and various tests are carried out including your blood group.

You will also see the following people at the pre-admission clinic:

- **A nurse** will go through your medical history and any personal issues that may affect your discharge home.

- **A cardiac support nurse** will examine you and ask questions about your illness. You can discuss any concerns or questions you might have about your operation with the cardiac support nurse.

- **A pharmacist** will discuss your medication with you and will advise you if there are any medications you need to stop, and for how long they need to be stopped before your surgery.

- **An anaesthetist** - your procedure will involve a general anaesthetic. An anaesthetist will assess you and tell you about the drugs that will be given to you before your operation and you will have an opportunity to ask questions. By signing the consent form you are consenting to receiving a general anaesthetic.

- **Trainees** - Royal Papworth is a teaching hospital. Trainees from many professions are involved at all levels, from student nurses and doctors to specialist surgeons and anaesthetists. However, all training is done under close supervision. All Royal Papworth professionals (whether they are in training or not) only do tasks that they are competent to do.

Blood transfusion

When having surgery it is likely that you will lose some blood. If only a small amount is lost your body will naturally replace this over the next few weeks. If more blood is lost, it may be necessary for you to have a transfusion so that you do not suffer any ill effects.

Although blood transfusion is quite safe, there are some potential risks associated

with this treatment. Your doctor or nurse will explain these risks to you and will offer you an information leaflet 'PI 10 - Receiving a transfusion - a patient's guide': **royalpapworth.nhs.uk/download_file/7460/305**

In the UK the risk of contracting a viral infection, such as hepatitis or HIV from blood transfusion is extremely small. Very rarely patients receiving blood transfusion may experience an allergic reaction or develop other complications, such as haemolysis (breakdown of red cells in your blood) or a bacterial infection. The actual risk of contracting vCJD through blood is unknown but appears to be extremely small. There is also a very small risk of receiving unsuitable blood, however there are stringent procedures in place to minimise this risk.

By signing the consent form, you are consenting to receiving a blood transfusion. If you do not wish to receive blood or blood products please make this known to your consultant.

If you receive a blood transfusion, you will be ineligible to donate blood in the future.

X-rays and other images

X-rays, other medical images and photographs may be used in your treatment. They may also be used in teaching or research. If this happens, your confidentiality is guaranteed.

On admission to hospital

Please follow the instructions detailed on your letter.

Who does the operation?

The operation is done by a team which includes surgeons, anaesthetists, surgical care practitioners, nurses, operating department practitioners and perfusionists.

Unless there are exceptional circumstances or emergencies, your own consultant surgeon will be a member of that team and will take overall responsibility for the conduct and outcome of the operation. We cannot guarantee that a particular person will perform the procedure. The person will, however, have appropriate experience.

Just before the operation

Hair removal

It is very important that you do not shave or remove hair from your chest, arms, legs or groin as this will be done in hospital. Hair harbours a certain amount of bacteria, therefore, it is necessary for areas that are going to have an incision, or a drip (e.g. forearm) to have the hair removed safely, to prevent infection. Hair removal will be carried out either the night before or on the morning of your surgery by a member of staff.

Washing

The night before and the morning of your surgery you will be asked to wash with a special wash solution. This will be supplied to you from the pre-admission clinic if you are coming in on the same day as your surgery. You will need to wash your hair with it as well.

Please follow the showering guidance available on the wards. This wash solution will help reduce the amount of bacteria on your skin before surgery and will help reduce the risk of your wound developing an infection.

Hand hygiene

Keeping your hands clean is an effective way of preventing the spread of infection. Please remember to wash your hands thoroughly and regularly, especially after using the toilet. This will reduce the number of bacteria on your hands.

Eating and drinking

As previously stated, It is important that you are well hydrated prior to surgery and the ward nurses will encourage you to drink water up until two hours before your anticipated operation is due to start.

Same day admissions

At 05:00 please have a light breakfast (i.e. tea and toast) and take any medications. For all admissions: the day before your surgery you may continue to eat and drink as normal before you come into hospital.

After your operation

The critical care area (CCA)

Following your cardiac surgery you will be cared for in CCA. A member of the critical care staff will telephone your partner/relative when you arrive in the CCA.

Monitoring

During your stay you will be monitored and observed closely. You will have a nurse with you most of the time and they will explain everything that is going on.

While you are anaesthetised (asleep) you will be attached to a breathing tube and machine. As you wake up the breathing machine will be disconnected and the tube will be removed to allow you to breathe by yourself. An oxygen mask will be placed over your mouth and nose.

Various types of equipment will be used to record your heart rate and to monitor your progress.

There will also be:

- A drip in the side of your neck and in each arm. These are used to give you your medications including a regular painkiller.
- Two or more chest drains at the base of your wound to drain any excess fluid left from the operation.
- A small tube in your bladder to drain your urine, this is called a urinary catheter.
- Sometimes patients have some very thin wires protruding from their abdomens. These are pacing wires and are covered by a dressing and will be removed before you go home.

Most of these drips and tubes are put in while you are anaesthetised. They will be removed over the following few days after your surgery.

Visiting/contact

Family/partners (maximum of two visitors per patient) are welcome to visit after the patient has returned from theatre and has been settled in to the CCA. Alternatively the family/partner can telephone at any time and will receive a report from the individual nurse who is caring for the patient.

Post-operative stay in the CCA

Usually patients stay in the CCA overnight (but may require a longer stay) and will return to the ward with:

- Oxygen mask
- Drip attached to neck
- Urinary catheter

Post-operative care on the ward

On your return to the ward you will be receiving regular painkillers. It is very important that you let the nursing staff know if you are in pain as it is essential for you to be able to cough and breathe deeply in order to avoid a chest infection. It is advisable to take pain relief regularly to prevent pain from occurring.

Day two onwards

Usually from day two after your surgery (although this may depend on when you are discharged from the CCA and varies from patient to patient), the remaining drip and the urinary catheter will be removed. It is important you start to walk as soon as possible; this can be with a nurse, therapist or family member. The physiotherapist will ensure that you are walking safely and you have regained your independence before going home. You may see a physiotherapist each day or less often depending on your

progress (some patients will only require one physiotherapy review after their surgery). It is important that you continue to move as much as you safely can in between physiotherapy reviews. If you are unsure what you can and can't do, your nurse and your physiotherapist will be able to give you advice. If they feel you require a step ups assessment, they will do this prior to your discharge. However it is not essential for discharge even if you have stairs at home.

You will have a wound in the centre of your chest. Initially this will be covered by a dressing. All ladies will need the added support of their bra. If you are having a bypass graft it is likely that you will have a leg wound and/or arm wound. Dissolvable stitches are used in both of these wounds.

It is important to report if there is any discharge so that the necessary dressing can be placed over the site. Do not worry as this should resolve after a few days.

Please do not touch your wound, as this could increase the risk of bacteria moving from your hands to your wound. Do not be afraid to ask any member of staff to clean their hands and apply gloves before touching your wound.

After bypass or valve operations you may have to wear special stockings to help the blood flow from your legs and to minimise swelling in the leg wounds. It is also important when resting to keep your legs elevated on the foot stool provided.

You will find that you feel very tired and are sleeping a lot. This is part of the body's way of recovering from major surgery. It is good to try and get back into a normal routine, i.e. sleeping longer through the night, with additional short sleeps in the day. It is not unusual to experience a disrupted sleep pattern for around six weeks after your surgery and some patients can experience vivid dreams and hallucinations during this time.

Initially your appetite will be poor, so just try to eat a little when you can. This helps with wound healing. Indigestion and constipation are also common, as normal function slows down during surgery. Do let your nurse know as they can give you medicines to help.

Some patients suffer from nausea as a result of the anaesthetic and the drugs. Do ensure that you inform the nursing staff should this happen to you as it can be treated. You will get up and about quite quickly. Two to three days after surgery you will be able to walk around.

At first you will need help to wash, change and move about. By day three or four you should be able to walk to the bathroom and look after yourself. You may bath or shower if you wish. You will be encouraged to start dressing into comfortable day clothes so please come prepared, including light supportive shoes or slippers. Before going home you should be dressing in normal clothes and walking independently.

Once drains and lines are removed, own clothing is essential to improve your dignity, autonomy and can shorten your length of time in hospital.

After-effects of the surgery

Blues day

Commonly patients suffer a day called the 'blues day'. A few days after surgery you may feel low, perhaps tearful for no apparent reason. Don't worry, these emotional changes are a result of having major surgery and generally only last a day or two. Some patients also experience this when they get home.

Pins and needles

Some patients experience pins and needles in their arms and hands. This is normal and should settle over time.

Heart rate

After the operation you may feel your heart beating fast, irregularly or missing a beat (atrial fibrillation). This is common after cardiac surgery and is a reaction to the heart being handled. You may be attached to a monitor for a short time.

Please affix patient label or complete details below.

Full name:

Hospital number:

NHS number:

DOB:

PIC 41: patient agreement to PI 41 - cardiac surgery

Intended procedure/surgery

Statement of health professional

(To be filled in by health professional with appropriate knowledge of proposed procedure, as specified in consent policy). I have explained the procedure to the patient. In particular I have explained:

The intended benefits:

- ☐ Improve symptoms
- ☐ Increase long-term survival
- ☐ Reduce the risk of sustaining a heart attack
- ☐ Reduce the risk of developing heart failure
- ☐ Other - please specify below:

.....

.....

Significant, unavoidable or frequently occurring risks (see page 8).

Death ..... Irregular heartbeat .....
Stroke ..... Need for a pacemaker .....
Bleeding ..... Heart attack .....
Infection .....
Prolonged stay in critical care .....
Repeat intervention or surgery .....
Other infrequent but potentially serious complications such as kidney failure and insufficient blood flow to the gut or the leg(s) .....

Other .....

Any extra procedures, which may become necessary during the procedure:

- ☐ Blood transfusion (see page 17)
- ☐ Trans-oesophageal echocardiography
- ☐ Other procedure - please specify below:

.....

.....

I have discussed what the procedure is likely to involve, the benefits and risks of any available alternative treatments (including no treatment), all complications of the operation that have a material impact upon the outcome and any particular concerns of this patient.

Healthcare professional

Signed: .....

Date: .....

Name (PRINT): .....

Job title: .....

Contact details
If you require further information at a late date, please contact switchboard on **01223 638000** and ask to speak to your consultant's secretary.

Statement of patient

Please read the patient information and this form carefully.

If your treatment has been planned in advance, you should already have your own copy of this leaflet which describes the benefits and risks of the proposed treatment. If not, you will be offered a copy now.

If you have any further questions, do ask - we are here to help you. You have the right to change your mind at any time, including after you have signed this form.

Yes	No	
☐	☐	**I agree** to the procedure or course of treatment described on this form and have read this information leaflet on cardiac surgery (PI 41) and had the opportunity to ask questions.
☐	☐	**I agree** to the use of photography for the purpose of diagnosis and treatment and I agree to photographs being used for medical teaching and education.

Top copy to be filed in medical notes, carbon copy to be retained in booklet for patient.

Please affix patient label or complete details below.

Full name:

Hospital number:

NHS number:

DOB:

NHS
Royal Papworth Hospital
NHS Foundation Trust

- **I understand** what the procedure is and I know why it is being done, including the risks and benefits.
- **I understand** that the procedure requires a general anaesthetic and have read the information leaflet called 'Your anaesthetic for major surgery' (PI 170) and had the opportunity to ask questions.
- **I understand** that any tissue removed as part of the procedure or treatment may be used for diagnosis, stored or disposed of as appropriate and in a manner regulated by appropriate, ethical, legal and professional standards.
- **I understand** that any procedure in addition to those described on this form will be carried out only if necessary to save my life or to prevent serious harm to my health.
- **I understand** that sometimes planned procedures described on this form are not performed if it is not possible to do so safely or deemed not to be necessary during the course of the operation.
- I have listed below any procedures **which I do not wish to be carried out** without further discussion:

.....

I have been told in the past by Public Health that I am at increased risk of CJD (Creutzfeldt-Jakob disease) or vCJD (variant Creutzfeldt-Jakob disease).

☐ Yes (Health professional to refer to Trust CJD procedure DN92.)

☐ No

Patient

Patient signature: .....

Date: .....

Name (PRINT): .....

Confirmation of consent

(To be completed by a health professional when the patient is admitted for the procedure, if the patient has signed the form in advance).

On behalf of the team treating the patient, I have confirmed with the patient that they have no further questions and wish the procedure to go ahead.

Signed: .....

Date: .....

Name (PRINT): .....

Job title: .....

Important notes (tick if applicable).

☐ Patient has advance decision to refuse treatment (e.g. Jehovah's Witness form)

☐ Patient has withdrawn consent (ask patient to sign/date here)

Patient signature: .....

Date: .....

Name (PRINT): .....

Statement of interpreter

(where appropriate).
I have interpreted the information above to the patient to the best of my ability and in a way which I believe they can understand.

Signed: .....

Date: .....

Name (PRINT): .....

Top copy to be filed in medical notes, carbon copy to be retained in booklet for patient.

Eyesight
Following cardiac surgery you may find that your vision is blurred. This is not unusual and is a result of being on the heart-lung bypass machine. This may last a day or two, but may last up to six weeks.

Breathing
You may experience an occasional involuntary intake of breath. This is normal and will decrease with time.

Preventing hospital-associated blood clots (venous thromboembolism - VTE)
A hospital-associated blood clot can occur in patients when they are in hospital and up to ninety days after a hospital admission. There are two kinds: a deep vein thrombosis (DVT) that forms in a deep vein, most commonly in your leg or pelvis, and a pulmonary embolism (PE) which occurs if a clot becomes dislodged and passes through the blood vessels to the lungs. The term VTE is used to cover both DVT and PE.

Admission to hospital can increase your risk of developing VTE as patients tend to lie or sit still for long periods of time. On admission, and again as necessary during your stay, you will be assessed for your VTE risk. Most patients admitted to Royal Papworth are given preventative treatment as a matter of routine. You may be given exercises to perform, special support stockings to wear, and/or anticoagulant medicine (blood thinners).

There are also ways in which you yourself can help to reduce your risk of VTE:

- Try to get up and walk about as soon as possible and as much as possible - the physiotherapists and nurses will help you with this in the early stages of your recovery.
- Unless you are placed on a fluid-restricted regime, drink plenty of fluid to keep hydrated.
- Try to remember not to sit or lie with your legs crossed. The nurses will remind you!
- As with all aspects of your stay, if you have any queries or concerns, please ask a member of staff.

What happens when I go home?

Discharge lounge
On the day of your discharge you may be transferred to the discharge lounge before you go home, you will be taken to the lounge once you are medically fit to go home. You will be able to order a hot meal for lunch in the discharge lounge or they can provide sandwiches and drinks. Once you arrive in the discharge lounge, the staff will organise the medication you need to take home.

The team in the discharge lounge will also give you your discharge letter and (organise and) book any transport (for eligible patients). These plans can take a few hours to organise, so you should be ready to leave Royal Papworth Hospital later in the day. If you're being collected, please speak to the discharge lounge staff about timings. The discharge lounge is located in our day ward and is overseen by a nursing staff and supported by a healthcare support worker.

You may be discharged from the ward within five to ten days following surgery (though this may be longer). This depends on the type of operation you have had. The doctors, nurses, physiotherapists and occupational therapists looking after you will make sure that you are fully prepared for your discharge and will be happy to answer any questions that you may have.

You will be given a letter to take to your GP explaining what has happened to you during your stay in hospital. During your first week at home it is an advantage to have someone with you.

Should you have any questions or need any advice after your discharge then you are welcome to call the **cardiac support nurse link line: 01223 638100**, Monday to Friday 09:00 -17:00, except bank holidays. You will receive a letter from the hospital with your outpatient appointment and this can be anywhere from 6-12 weeks following your operation.

For queries about this appointment contact the cardiac outpatient call centre on 01223 638933 between 09:30-16:00 - Monday to Friday

Medication

You will be sent home with a supply of tablets. When you are ready for discharge your nurse or a member of the pharmacy staff will explain the drugs, which you will need to take at home.

While you were in hospital you will have been offered painkillers (analgesics) on a regular basis. Once you have been discharged, we advise you to keep taking your painkillers on a regular basis. When you feel ready to cut them down, try stopping the ones during the day first, continuing to take them when you get up in the morning and before you go to bed, as this will help to ensure a good night's sleep. Any other tablets which you need to take home will be explained to you prior to discharge and these will then be reviewed at your clinic appointment.

Wounds

The breastbone (sternum) will take up to 12 weeks to heal completely. Therefore you may feel pain, tingling or pins and needles in different places across your chest, back and shoulders for some time.

Dissolvable stitches do not need to be removed following surgery. However, if you have had any drains, you will have one stitch per drain that will need to be removed. This is normally performed before discharge, but may be removed by the nurse at your GP surgery.

Ladies should continue to sleep wearing their bra for a minimum of six weeks following their surgery to support the healing chest wound. You may have a bead at the top and bottom of your chest wound. These will need to be snipped off by your practice nurse. Once you go home, if you notice that your wound begins to 'ooze', becomes red or 'angry' looking or 'hot and tingly', or if you feel feverish, contact your GP for advice.

If you still require wound dressings on discharge, this will be done either at your home by a district nurse or by the practice nurse at your doctor's surgery.

Patients who have a leg wound, where the vein has been taken, may experience some numbness along the wound and find that the leg becomes swollen and bruised. This is quite normal and may be helped by putting your foot up on a high stool to rest. The swelling will resolve over a period of time, usually six to eight weeks but in a few cases can take up to six months.

Patients who have an arm wound where the radial artery has been used may find that the hand and wrist may be slightly swollen and may feel numb for a few weeks after surgery.

Resuming activity

Most people find that it takes around 6 - 12 weeks after the operation for them to make a full recovery. Obviously there is considerable variation depending on the severity of the heart disease and the type of operation performed.

Age is relevant, since older patients tend to require a longer recovery period than younger patients. As a general rule, do what you can without becoming short of breath and then increase the number and demands of the activities gradually. The physiotherapist will refer you to cardiac rehabilitation, which will be local to your area. They will contact you within six weeks following discharge.

Bathing

This can be done as soon as you feel strong enough. Remember to adhere to sternal precautions when getting in and out of the bath - no pulling, pushing or lifting. You may find it easier to use a shower if one is available, as sometimes getting in and out of a bath may be difficult until the breastbone heals. You may find bathing tiring at first so bath before bedtime.

Housework

Light work (e.g. dusting or drying up) can be introduced into your regime when you feel fit and able for it, usually within the first one to two weeks you are at home. Avoid vacuuming for the first six weeks.

Gardening
Light gardening such as weeding may be done four weeks after discharge. Mowing the lawn and heavy digging etc. should not be done for 12 weeks. This will allow the breastbone to become stronger after healing.

Work
It should be possible to return to work after two to three months, depending on your job. The decision to return to work should be taken in consultation with your GP and your employer.

Driving
You may drive six weeks after your operation. If you wish to drive from four weeks you should seek authorisation from your GP. When you do resume driving expect to feel some heaviness or discomfort around your shoulders or arms as you move the steering wheel. It is illegal to drive if you are not wearing your seat belt, but you might find placing a cushion or padding under the seat belt is more comfortable. You must inform your insurance company about your operation. You do not need to inform the DVLA unless you have had a device fitted after your operation (for example, a permanent pacemaker).

Exercise
Your physiotherapist will give you information about how to build some form of exercise into your lifestyle. Action makes the heart grow stronger. It may take up to 12 weeks until you can resume:

- Bowling
- Fishing
- Walking your dog on a lead
- Golf - wait 12 weeks before starting the full swing

Racquet sports and road cycling
Should not be attempted for 12 weeks - if you have an exercise bike this can be used as soon as you feel able. Remember to follow sternal precautions when using the exercise bike - no pulling, pushing or lifting.

Gentle swimming
Can be resumed after 12 weeks if the wounds have healed.

Sleep
It is not unusual to experience a disrupted sleep pattern for around six weeks after your surgery.

Sexual activity
Most doctors suggest waiting for around four weeks after the operation before resuming sexual intercourse. It may be a case of confidence and anxiety about your wound. If you remain relaxed and possibly adopt a more passive role then you will return more easily to your normal routine. Don't bear weight on your arms to support yourself and remember to adhere to your sternal precautions.

As a general rule
Avoid any heavy lifting, pushing or pulling (e.g. vacuuming or carrying the shopping) for the first 12 weeks. This allows time for the breastbone to become stronger after healing.

Cardiac rehabilitation

This aims to give you all the information and support you need to make the best possible recovery and reduce the risk of further heart problems. Cardiac rehabilitation usually includes exercise sessions and health promotion.

Research has shown that following cardiac rehabilitation people are able to do more, feel more confident, less stressed and enjoy a healthier lifestyle.Following your stay in hospital you will be referred to your local cardiac rehabilitation team. The team will telephone or write to you and arrange an appointment. This will be from six to eight weeks after your surgery.

What programmes are available?

1. **Royal Papworth Hospital in-house programme:** this rehabilitation programme is based at Royal Papworth Hospital and Cambourne Fitness and Sports Centre.

It lasts for 12 weeks but you only need to attend the hospital once a week for the first six weeks, and then carry on at home for the following six weeks. You will then have a final review during the twelfth week. Although during the first six weeks you will be attending rehabilitation sessions in the hospital, there will be a strong emphasis on establishing a home routine. A DVD of the exercises is available. The staff will offer you support and advice to help you achieve this.

2. **Local hospital:** most local hospitals will offer an in-house cardiac rehabilitation programme or a home-based option. Access to these programmes varies widely across the region. Where there is no local hospital or home based programme available, the Royal Papworth Road to Recovery outreach service will be offered.

3. **Road to Recovery:** has been designed for people who live too far away to attend regularly as an outpatient or for those patients that are better suited to a home programme for domestic or work reasons. It is a home-based course with an exercise DVD, relaxation CD and a programme diary. It requires your commitment to do the exercises at least three times a week and to do the home study. The programme will last for 12 weeks, but you only need to attend the hospital once for an initial assessment. During this assessment your fitness and recovery will be assessed. You will be provided with the equipment you need and a clear explanation of the programme. The rehabilitation staff will telephone you each week to monitor and discuss your progress and to answer any questions that you may have. You will have a final telephone review at week 12.

Taking part

We strongly recommend that you attend a cardiac rehabilitation programme as an important part of your treatment. Your details will be forwarded to the nearest appropriate programme. Some programmes do not start for several weeks following your surgery, to allow you time to continue increasing your fitness. You will be contacted directly to make an appointment or start you on a homebased programme.

If you have any queries or concerns during the early weeks of your recovery or have not heard from a cardiac rehab team within two weeks of discharge, please contact the cardiac rehabilitation team on 01223 638429.

Health promotion

Diet - it is important to maintain a healthy body weight. Try to eat less processed foods as these tend to be higher in fat and/or sugar and try to increase your consumption of wholegrains, fresh fruit and vegetables. Including more fish and lean white meat and reducing your red meat consumption is also encouraged.

It is advisable to cut down the amount of animal fat in your diet (such as butter and cheese) and replace with plant based oils/ spreads (such as olive oil, rapeseed oil and groundnut oil).

Alcohol - can be taken in moderation.

The NHS recommends no more than 14 units a week and two or more alcohol free days.

Note: if you are taking warfarin anticoagulant tablets, excessive alcohol can interfere with the anticoagulant process, therefore caution is advised.

Smoking - if you have been a smoker, do not be tempted to start smoking again. If you would like help with smoking cessation, the hospital staff will be able to provide details of local QUIT organisations, who offer help and advice. We can refer you to this organisation if you wish.

Monitoring results (audit)

At Royal Papworth Hospital we always try to improve our service to patients and to improve the results of operations. To do this we have to keep a very close eye on operations and on their results. If you have an operation at Royal Papworth Hospital the details of the operation and the outcome will be entered into a computer database.

We analyse the data regularly to see how well we are doing and to look for ways to improve. The data are also submitted to national and international bodies which monitor cardiac surgery. They may be published in medical journals. All information is made completely anonymous to protect your confidentiality. published in medical journals. All information is made completely anonymous to protect your confidentiality.

Guidance for health professionals

What a consent form is for

This form documents the patient's agreement to go ahead with the investigation or treatment you have proposed. It is not a legal waiver - if patients, for example, do not receive enough information on which to base their decision, then the consent may not be valid, even though the form has been signed

Patients are also entitled to change their mind after signing the form, if they retain capacity to do so. The form should act as an aide-memoire to health professionals and patients, by providing a check-list of the kind of information patients should be offered, and by enabling the patient to have a written record of the main points discussed.

In no way, however, should the written information provided for the patient be regarded as a substitute for face-to-face discussions with the patient.

The law on consent

See the Department of Health's Reference guide to consent for examination or treatment for a comprehensive summary of the law on consent (also available at **gov.uk/government/publications/reference-guide-to-consent-for-examination-or-treatment-second-edition**).

Who can give consent

Everyone aged 16 or over is presumed to be competent to give consent for themselves, unless the opposite is demonstrated.

If a child under the age of 16 has 'sufficient understanding and intelligence to enable them to understand fully what is proposed', then they will be competent to give consent for himself or herself. Young people aged 16 or 17, and legally 'competent' younger children, may therefore sign this form for themselves.

If the child is not able to give consent for himself or herself, someone with parental responsibility may do so on their behalf and a separate form is available for this purpose via the intranet.

Even where a child is able to give consent for himself or herself, you should always involve those with parental responsibility in the child's care, unless the child specifically asks you not to do so.

If a patient is mentally competent to give consent but is physically unable to sign a form, a health professional should complete the form for adults who lack capacity available via the intranet.

If the patient is 18 or over and is not legally competent to give consent, you should use the appropriate consent form for adults who lack capacity, accessible from the intranet.

Legally a patient will not be competent to give consent if:

- they are unable to comprehend and retain information material to the decision and/or
- they are unable to evaluate and use this information in coming to a decision.

You should always take all reasonable steps (for example involving more specialist colleagues) to support a patient in making their own decision, before concluding that they are unable to do so.

Relatives **cannot** be asked to sign this form on behalf of an adult who is not legally competent to consent for themself.

Information

Information about what the treatment will involve, its benefits and risks (including side-effects and complications) and the alternatives to the particular procedure proposed, is crucial for patients when making up their minds.

The courts have stated that patients should be told about 'significant risks which would affect the judgement of a reasonable patient'.

'Significant' has not been legally defined, but the GMC requires doctors to tell patients about 'serious or frequently occurring' risks. In addition if patients make clear they have particular concerns about certain kinds of risk, you should make sure they are informed about these risks, even if they are very small or rare.

You should always answer questions honestly. Sometimes, patients may make it clear that they do not want to have information about the options, but want you to decide on their behalf.

In such circumstances, you should do your best to ensure that the patient receives at least very basic information about what is proposed. Where information is refused by the patient, you should document this in the patient's notes.

What is ReSPECT?

ReSPECT stands for 'recommended summary plan for emergency care and treatment'. It is a process which helps people to think about what treatment is suitable in an emergency, should they be unable to make decisions at the time.

Why is it important?

We know that, when people are very unwell, they are often unable to think clearly about what treatment they may or may not want because their brain and body are overwhelmed by the illness. It is also normal for people to feel anxious about what is happening when they are sick and in hospital, and this can also make it difficult to think clearly. This is why we think it is a good idea, where possible, for decisions about medical treatment to be made in advance – before there is an emergency situation or crisis.

How does it work?

The ReSPECT process is designed to help conversations between you and your healthcare professionals: they need to make sure you understand your health problems and which treatments may or may not benefit you. You need to make sure the healthcare professionals understand what matters most to you and whether there is anything you are particularly worried about or would want to avoid.

This conversation is used to complete a ReSPECT form that records a person's health problems, their preferences and which medical treatments may or may not be suggested. The original form should stay with the patient, though it is extremely helpful to have a record of the content of the form on their electronic patient record.

A ReSPECT form is NOT a legally binding document and can be changed or withdrawn at any point.

The ReSPECT form is often used to indicate treatments which someone may not want and/or treatments which their healthcare

professionals think would no longer benefit them. If people are getting worse from progressive conditions, it may be helpful to consider in advance about things such as whether they would wish to go back into hospital and, if in hospital, what sort of treatments might or might not be helpful for them.

This often includes a decision on whether or not they should have attempted cardiopulmonary resuscitation (CPR) if their heart was to stop.

Who is it for? Is it relevant for me?

This process has increasing relevance for people who have complex health needs, people who may be nearing the end of their lives and those who are at risk of sudden deterioration or cardiac arrest.

However, many people come to Papworth Hospital to have major procedures or surgery with the intention of curing a progressive disease or with the intention of substantially prolonging their life and, if that is you, you may wonder how a ReSPECT discussion applies to you and others like you.

One of the key things to understand about the ReSPECT process is that it can be used simply to document a person's wishes and priorities, without setting any limitations on what treatment they should have.

This is important because all the procedures and operations we do here come with a risk of complications. In the unlikely event that things do not go as planned, it is really helpful to have some idea about a person's preferences and about their fears, worries and hopes.

Once again, the document is not legally binding, but it can help those looking after you to know what you might want if you weren't able to say for yourself.

The ReSPECT form is a separate document. It is possible that your clinical team will start a conversation about the ReSPECT process with you. Equally you can ask any member of your medical team if you would like to start this conversation yourself.

Discharge advice after cardiac surgery

The below advice will take you from discharge to 12 weeks post procedure and provides milestones and advice to aid your recovery at home. Remember - action makes the heart grow stronger!

Discharge up to two weeks following discharge

1. **Breathlessness** - can occur in 50% of patients. This should be improving.
2. **Wound infection** - report signs of infection to GP i.e wound redness, oozing/discharge or temperature.
3. **Swelling** - generally occurs in the affected leg - if so, elevate leg when sitting.
4. **Palpitations (atrial fibrillation)** - can occur, sometimes associated with anaemia and/or breathlessness.
5. **Nausea** - you may still feel sick.
6. **Visual disturbances** - slight disturbances of vision may occur temporarily.
7. **Pain and/or numbness** - you will still experience pains in upper chest, shoulders and back and may get numbness and/or pins and needles in arms and hand.
8. **Painkillers** - will still be needed, as well as laxatives until bowels are regular.
9. **Warfarin** - patients on warfarin please see anticoagulant booklet.
10. **Hygiene** - you should be able to attend to own hygiene (you may bath or shower).
11. **Walking** - is encouraged everyday, gradually increasing the distance.
12. **Gentle exercise** - gentle arm and upper body exercises to be continued.
13. **Wounds:**
    - Daily shower recommended if wounds have oozed.
    - Use unperfumed moisturising lotion if dry and flaking skin develops.
    - Breastbone (sternum) will still be sore so you may hear bone clicking. Consult your GP or cardiac support team if this is painful.
    - Leg wound can take up to a month to heal. Numbness can occur in affected leg.
    - Arm wound (radial) - fingers may still be swollen but this should be improving. Area at base of thumb is often numb - may be permanent.
    - Wounds can take a month to heal.
14. **Mood** - mood swings and sleeplessness can be expected.
15. **Nightmares** - may occur but talking about them helps.
16. **Strenuous excercise** - strenuous activities involving the upper body should not be attempted until 12 weeks post-surgery.
17. **Diet** - follow a healthy diet.
18. **Alcohol** - a daily one to two units allowance of alcohol is permissible - if on warfarin, consume alcohol with caution and see anticoagulation booklet.
19. **Cardiac support nurses** - will ring approximately one week after discharge.
20. **Cardiac support nurses contact** - you may ring the cardiac support nurses for advice on **01223 638100** between the hours of 09:00-17:00 (answer machine available).
21. **Medicines helpline** - you can telephone the medicines helpline - on **01223 638777** (answer machine).

Two to six weeks following discharge

1. You should feel less breathless.
2. Leg may still be swollen - if so, elevate when sitting.
3. Painkillers may be reduced in quantity and strength.

4. Guide to reducing pain killers:
   - Continue to take painkillers regularly.
   - If pain is controlled, you may stop the strongest middle of the day tablets (strength of the painkillers is on the patient medication card).
   - If after five days the pain is still controlled, stop the strongest teatime tablets.
   - If after further five days the pain is still controlled, stop the strongest morning tablets.
   - If after further five days the pain is still controlled, stop the strongest bedtime tablets.
   - Continue the procedure by stopping the weaker tablets in the same way, but if the pain is controlled, reduce after three days.
   - Please note - most patients will need to stay on painkillers for at least four to six weeks, and many will stop the tablets only to have to increase them again as the pain is not being kept under control with the reduced tablets.
   - Patients should be able to deep breathe, cough, move and sleep with minimal pain. If not, stronger painkillers may be needed. Contact your GP.

5. Increase walking distance aiming to walk for 20 minutes prior to attending cardiac rehab. If this is not achievable, cardiac rehab will advise and help you to reach your own individual goals.
6. Gentle arm and upper body exercises should be continued.
7. May commence light activities.
8. Continue wearing anti-embolic stockings until achieved normal mobility.
9. Driving at six weeks from the date of the operation, unless you have permission from your GP to drive at four weeks.
10. You may feel emotional and vulnerable.
11. Strenuous activities involving the upper body should not be attempted until 12 weeks post-surgery.
12. Follow a healthy diet.
13. Outpatient appointment will be between six to twelve weeks following surgery.
14. You can contact the cardiac support team on **01223 638100**.
15. You can telephone medicines helpline on **01223 638777**.

Six to twelve weeks following discharge

1. Patients who are breathless before their surgery may still be breathless.
2. Leg may still be swollen - if so, elevate when sitting.
3. It is not unusual to get the occasional twinge of pain, but should no longer require painkillers on a regular basis.
4. Patients on warfarin will continue to have regular blood tests.
5. Continue to increase activities and consider returning to work.
6. Receive an appointment for cardiac rehabilitation.
7. Patients who have had valve surgery, unless all teeth and roots have been removed, must visit a dentist every six months and maintain good oral hygiene.
8. You should be feeling more confident and happy - continue with health education advice.
9. Activities involving the upper body e.g. digging, playing golf, racquet sports and cycling, must not be attempted until 12 weeks after operation.
10. Gentle swimming is allowed after 12 weeks providing the wounds have healed.
11. Follow a healthy diet.
12. Outpatient appointment to see cardiologist approximately three months following surgery (although this may vary amongst cardiologists).

Contacts

Cardiac rehab: **01223 638429**

Cardiac support nurses helpline: **01223 638100**
(09:00 - 17:00 Monday to Friday except bank holidays)

Physiotherapy: **01223 638215**
(08:00 - 16:30 Monday to Friday except bank holidays)

British Cardiac Patients Association

The BCPA offers help, support and advice to cardiac patients, their families and carers. They have local groups in many areas of the UK. For further information about the BCPA and an application form to join please contact:

BCPA
Tel: 01949 837070
www.bcpa.co.uk
Email: admin@bcpa.co.uk

National Helpline
01223 846845 (for membership information)

It will be useful for you to fill in the following diary each day after your recovery to write down your feelings and show the progress you are making each day.

Diary

Day one - post surgery

How am I feeling?

How well controlled is my pain?

☐ Well controlled

☐ I'm still sore and would like some more painkillers

What are my goals?

- Start eating and drinking.
- Try to eat something at each meal
- Drink at least six cups of fluid.
- Sit out of bed with assistance from staff.

What have I eaten today?

☐ Breakfast.....

☐ Lunch.....

☐ Dinner.....

How many cups of drink have I managed today?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

Some nausea is normal on day one

☐ **I haven't managed to eat because:**

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How active have I been?

☐ Sat out of bed with assistance for …… hours.

☐ Walked on the spot with assistance

☐ Practised supported cough and exercises …… times today

☐ I haven't been able to because:

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What am I proud of achieving?

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Day two - post surgery

How am I feeling?

How well controlled is my pain?

☐ Well controlled

☐ I'm still sore and would like some more painkillers

What are my goals?

- Eat three meals and drink at least six cups of fluid
- Follow guidance about walking, exercises and coughing
- Get out of bed (without using arms)
- Walk a few steps with guidance
- Sit out of bed for up to 6 hours

What have I eaten today?

☐ Breakfast.....

☐ Lunch.....

☐ Dinner.....

How many drinks have I managed today?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

☐ **I haven't managed to eat because:**

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How active have I been?

☐ Sat out of bed

☐ Walked around my bed

☐ Walked …… steps

☐ Practised supported cough and exercises …… times today

☐ I haven't been able to because:

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What am I proud of achieving?

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Day three - post surgery

How am I feeling?

How well controlled is my pain?

☐ Well controlled

☐ I'm still sore and would like some more painkillers

What are my goals?

- Eat three meals and drink at least six cups of fluid
- Walk around the ward with help as needed
- To get dressed in my own clothes

What have I eaten today?

☐ Breakfast.....

☐ Lunch.....

☐ Dinner.....

How many cups of drink have I managed today?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

How active have I been?

☐ Walked …… steps or
distance ☐ 1 ☐ 2 ☐ 3 ☐ 4 times today

☐ Have done my exercises …… times today

What am I proud of achieving?

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Are there any changes to my support arrangements at home after discharge? (If yes, talk to your nurse) Yes No

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Day four - post surgery

How am I feeling?

How well controlled is my pain?

- ☐ Well controlled
- ☐ I'm still sore and would like some more painkillers

What are my goals?

- Walk independently around the ward within my limits
- Get dressed on own as able
- Open my bowels
- Eat three meals and drink at least six cups of fluid

What have I eaten today?

- ☐ Breakfast.....
- ☐ Lunch.....
- ☐ Dinner.....

How many cups of drink have I managed today?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

How active have I been?

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What am I proud of achieving?

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Are there any changes to my support arrangements at home after discharge? (If yes, talk to your nurse) Yes No

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Final post operative period

How am I feeling?

How well controlled is my pain?

- ☐ Well controlled
- ☐ I'm still sore and would like some more painkillers

What are my goals?

- Walk up and down 1 flight of stairs (if appropriate)
- Walk around the ward on my own with confidence
- Understand my medication
- Prepare for going home

What have I eaten today?

☐ Breakfast.....

☐ Lunch.....

☐ Dinner.....

How many drinks have I managed today?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

How active have I been?

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What am I proud of achieving?

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As well as improving your overall fitness, you will find that you benefit from doing a few simple stretches each day to increase your flexibility. These exercises target your chest and shoulder region that can be stiff and uncomfortable after your operation.

Flexibility exercises (post-surgery)

Sitting down on an upright, firm chair, stretch first one arm as far above your head as you can.

Try and push gently up towards the ceiling and then lower it again, repeat with the other arm.

Repeat slowly four or five times.

Sit down on an upright, firm chair. Keeping hips and feet facing straight forwards, turn your head and trunk as far as you can comfortably go, first to the right and then to the left.

Repeat slowly four or five times.

Standing up, feet slightly apart and hands by your sides, slowly slide your left hand down towards your left knee, so that you bend from the waist, (try not to twist your body as you do this exercise). Repeat with the right hand down to the right knee. You should feel a gentle and comfortable stretch down the side of the chest, no more than this. If you are unable to stand to do this exercise you can do this in sitting instead.

Repeat slowly four or five times.

These stretches should not be painful. Stretch to a point of comfort and hold this for a few seconds, do not bounce. Continue to do these exercises two or three times a day for as long as you feel your chest is limited in movement.

Exercise diary

You might find it useful to complete this exercise diary, to help you monitor your exercises and show what progress you have made after your operation.

Date	Time	Activity	Duration/ repetitions	Comment
DD/MM	10:00	Leg exercises	5 of each	
DD/MM	15:00	Flexibility exercises	3 of each	

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01223 638000

Large print copies and alternative language versions of this leaflet can be made available on request.

View a digital version of this leaflet by scanning the QR code.

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