

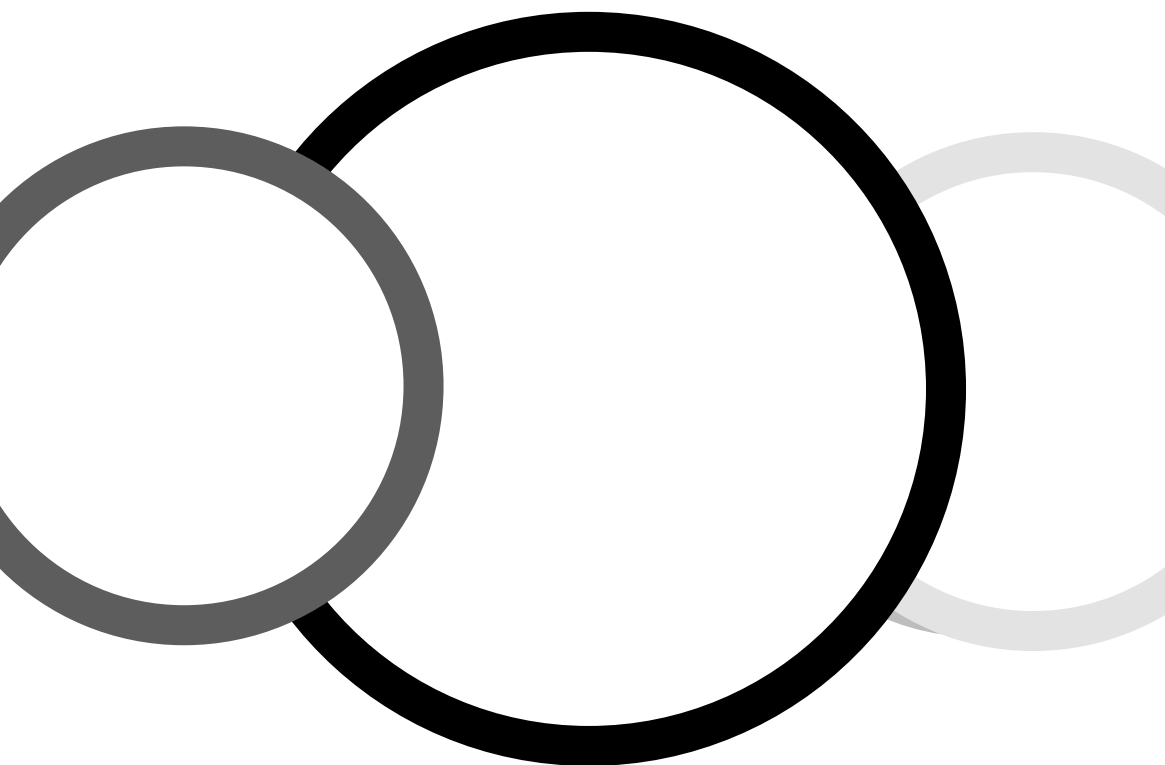


**Basildon and Thurrock  
University Hospitals**  
NHS Foundation Trust

The Essex  
**Cardiothoracic Centre**

**Patient Information**

## **Cardiac (heart) surgery**



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## **Welcome to The Essex Cardiothoracic Centre**

This booklet aims to give you, your family and friends, information about what cardiac (heart) surgery will involve. It provides a general guide about what will happen but, as everyone is different, your care will meet your individual needs.

The team of staff who will be looking after you will include doctors, ward nurses, critical care nurses and physiotherapists, supported by a large number of other staff.

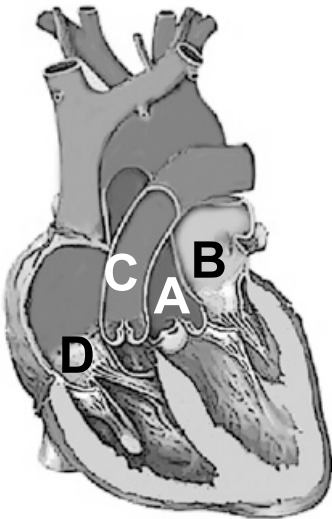
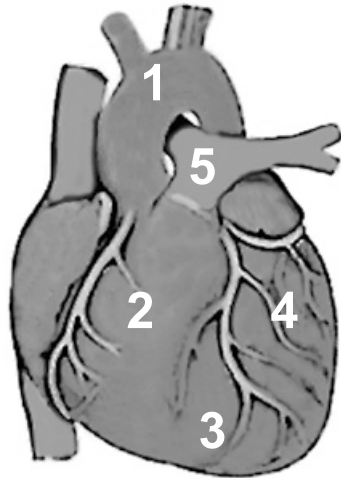
Each member of the team involved in your care will be happy to answer your questions and any worries you may have. If there is anything that you do not understand please do not hesitate to ask.

## Your heart and how it works

The heart is a muscular pump. The right side of the heart receives blood from the body and pumps it to the lungs, where the blood picks up oxygen that you have breathed in. The left side of the heart receives this oxygen-rich blood from the lungs and pumps it to all parts of the body. This is a continuous process.

### The major arteries and veins of the heart

- 1 Aorta
- 2 Right coronary artery
- 3 Left anterior descending coronary artery
- 4 Circumflex coronary artery
- 5 Left main coronary artery



### The valves of the heart are:

- A** Aortic valve
- B** Mitral valve
- C** Pulmonary valve
- D** Tricuspid valve

The valves separate the different chambers in the heart, so that the blood flows in the correct direction.

## Reasons for needing heart surgery

### Coronary Artery Disease

The heart muscle (myocardium) receives its blood supply from the coronary arteries. Sometimes these arteries can become narrowed where fatty deposits are gradually laid down inside them. This is known as coronary artery disease or atherosclerosis.

As the coronary artery becomes narrowed, the blood supply to the myocardium is decreased. When demand for oxygen-rich blood is greater than the supply, angina pain arises from the muscle.

If the coronary artery becomes completely blocked, usually by a blood clot where the artery is narrowed, a heart attack (myocardial infarction) occurs.

The narrowing of your artery will be identified by a coronary angiogram investigation, performed by your cardiologist.

A Coronary Artery Bypass Graft (CABG) operation can be carried out to relieve angina and reduce your risk of having future heart attacks.

During the CABG operation extra blood vessels are sewn to your narrowed arteries to 'bypass' the narrowed area and bring blood to your heart muscle. There are

'spare' arteries inside the chest wall and the forearm, and spare veins in the legs which can safely be removed. All these can be used to construct excellent bypass grafts.

Bypass surgery for coronary artery disease is very effective. Most patients find that their angina goes away completely following surgery, and some patients experience improved function of the heart muscle.

### Heart valve disease

The heart pumps blood continuously around the body. Within the heart are four valves that ensure that the blood flows the right way. Sometimes one or more valves can become damaged or diseased. They may not open properly and obstruct the blood flow (valve stenosis) or they may not close properly allowing blood to leak back (regurgitation or incompetence).

These problems place an increased strain on the heart. They are often recognised by tiredness and/or breathlessness when you exercise. Sometimes there are no symptoms, but a heart murmur may be heard by the doctor. Without treatment the heart muscle can become permanently damaged.

The most common valves to be affected are the aortic and mitral valves. The affected valves are either replaced or repaired.

If you are having an operation on your heart valve it is very important that your teeth and gums are healthy. This is because infected teeth and gums can cause the new heart valve to become infected. Please ensure that you see a dentist regularly – we will have already asked your dentist for information about your dental treatment. Your operation may be delayed if you need dental treatment as this will need to be carried out before your operation.

Some patients need both valve and coronary artery bypass graft surgery at the same time. The average stay in hospital following heart surgery is 5 – 10 days. However this stay may be a short as 4 – 5 days depending on your recovery.

### **Possible complications following heart surgery**

The risks from having your heart operation will have been discussed with you when you met the surgeon in the outpatient clinic. Your surgeon will discuss them with you again when you meet them the night before your operation. Complications after an operation

are always a possibility. These are explained below.

### **Infection**

In every kind of operation there is a risk of infection in the wound. The risk of an infection in your wound following heart surgery is about one to two per cent. It is also possible to get other infections. Chest infections (such as pneumonia) can occur and it is important that you breathe deeply, cough supporting your chest and have physiotherapy to ensure that this does not happen. Urinary tract ('water works') infections can also occur, and these are treated with a course of antibiotics.

### **Abnormal heart rhythm**

Around one in four patients may develop an abnormal heart rhythm after their surgery. This is called 'atrial fibrillation' (or 'AF' for short). The heart beats quite quickly and irregularly. Sometimes patients feel unwell when this happens, while others don't realise anything is wrong. Do not worry if this happens to you, as it is not a risk to your life. It is easily treated in most cases, with tablets which you will need to take for six weeks. If your heart is in a normal rhythm when you are seen in the outpatient clinic following your surgery, you will be advised to stop taking the tablets.

A few people remain in AF despite treatment. If this happens there is a small chance of blood clots forming inside the heart so we will start you on the blood thinning medicine called Warfarin. This takes a few days to work. Once a regular dose of Warfarin has been established you may go home. You will be seen by your cardiologist a few weeks later, when they will check to see if you are still in AF, and give you appropriate treatment. If you have reverted to a normal rhythm, then you will be able to stop taking the Warfarin tablets.

Some people have a very slow heart rhythm after the operation and may need a pacemaker temporarily. If the heart rate does not pick up, we may ask your cardiologist to see you to consider putting in a permanent pacemaker. This is very rare after a CABG operation, but more common after valve replacement.

### **Renal failure**

Your kidneys are very sensitive organs and may not work properly after your surgery. This is particularly the case if you have had kidney problems in the past. Often the problem will resolve after a few days but occasionally dialysis treatment may be needed for a short time. The vast majority of

patients do not have this problem and you will be told if the risk is greater in your particular case.

### **Bleeding**

This is a relatively common complication and affects about five per cent (one in 20) of patients. Heart operations involve a lot of stitching around many blood vessels and it is possible for a 'leak' to develop after the operation. Also, to stop your own blood clotting in the tubing of the bypass machine we have to thin your blood. This, together with some of the effects of the bypass machine, means that some people will have excessive bleeding after the operation as their blood will not form clots. This is one of the things we will watch for after the operation.

If there is excessive bleeding from the chest tubes after the operation, we may try giving medication to help the blood clot, to try and stop the bleeding. This often works but it may take a few hours to become effective.

If the bleeding continues, we may need to take you back to the operating theatre for another operation to look at the heart and see if we can find an explanation for the bleeding. This is usually not life-threatening and takes about one or two hours. You

will be asleep under the original anaesthetic while all this is going on, but it is important that your relatives are aware that it is a possibility. We will contact them if this becomes a problem and let them know if we need to take you back to the theatre.

### **Stroke**

The operation may lead to a stroke. This may leave you with a weakness down one side and/or speech problems. Many people recover fully with time after a stroke, while unfortunately others are left with some weakness.

Strokes are a result of many things but are usually caused by microscopic fragments of the hardened arteries becoming dislodged during the operation and travelling to the brain where they cause the stroke. We always do everything we can to minimise the chance of this happening.

Elderly patients, those who have had a previous stroke and those with carotid (neck) artery disease are at most risk of a stroke. In otherwise fit patients the risk of stroke is about one to two per cent. The risk may reach 10 per cent for patients in a high risk group.

### **Heart attack**

Sometimes a heart attack can occur either just before or during heart surgery. Usually the heart attack is small and of no consequence, but sometimes they can be large and may significantly weaken the heart muscle. This may cause problems when you are on the Critical Care Unit after your operation. You will be carefully monitored for this potential complication. About one to two per cent (one to two in 100) patients have a heart attack around the time of surgery.

### **Death**

With any heart operation there is the possibility that the operation may lead to your death. This ranges from less than one in 100 for the most straightforward cases as high as 10-25 per cent in the most complex cases, where the heart has been weakened by previous heart attacks, or if other procedures such as a valve replacement need to be done.

We have a risk prediction calculator (called the Euro Score) which gives a rough idea of the risk from your operation. This is the figure your surgeon will quote you for the approximate risk of your operation.

Please try and remember that the risk of major complications following your heart operation is low, and the majority of patients are fine following their operation.

### **Preparing for your operation**

Things you can do in the time leading up to your operation.

### **Living a healthier lifestyle**

There are certain things that can contribute to the development of coronary heart disease. If you haven't already taken steps to change your lifestyle it is important to start now, remember it is never too late to start. By altering some of the things you do, not only will you be preventing further heart disease, but you will be increasing the speed of your recovery and increasing the chances of your surgery remaining effective.

### **Stop smoking**

If you continue to smoke your angina will 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 a chest infection and increased coughing. It will also reduce the longer-term benefits of your heart surgery.

There is help available to help you stop smoking. Your GP will be able to give you advice and more information about support groups, nicotine replacement products and medication. Visit The British Heart Foundation's website for tips and hints, [www.bhf.org.uk](http://www.bhf.org.uk) or call the NHS Smoking Helpline on 0800 022 4 332.

### **High blood pressure (hypertension)**

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

- Continue to take the medication your doctor has prescribed.
- Continue to go to your GP/ Practice nurse for your regular checkups.
- Relax. Avoid stressful situations wherever you possibly can.

### **Nutrition**

Good nutrition is always important but becomes even more vital before and after surgery. A healthy balanced diet will provide your body with the right nutrients it needs to prepare for surgery, fight infections and repair tissues.

Prior to your surgery your nutritional status 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 boost your nutritional status prior to surgery. You will also be prescribed some nutritional supplement drinks and may be referred to the dietitian for further advice, if required.

If you are assessed as overweight prior to surgery, it is important that you continue to eat regular meals, but you should take steps towards making healthy dietary changes, such as cutting down on foods high in fat and sugar and reducing your portion sizes. You should not aim to actively lose weight (however, you may find you lose some weight through these changes and this is okay).

### **High cholesterol**

If you have high cholesterol, follow the healthy diet advice and continue to take your cholesterol lowering medication.

### **Diabetes**

If you are diabetic and if you are taking medications for this continue to take your medication. Continue to go to your regular check-ups to control your blood sugar. Check your blood sugar regularly both pre and post-operation.

### **Stay active**

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 gentle exercise each day, but make sure you stay within your limitations and only do as much activity as your condition allows. If you do suffer from angina remember to take your GTN spray with you.

### **Alcohol**

It is known that 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 before your operation, as long as you remember to stay within the recommended units of alcohol, which are:

- Men should drink no more than four units a day
- Women should drink no more than two to three units a day

You can discuss alcohol intake in more detail at your pre-admission appointment.

**Please be aware that any test results which are outside normal ranges may require further investigation or treatment and therefore may affect your admission date.**

## Things to bring with you to hospital

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

- Medication.
- Eradication therapy – the antibacterial wash and nasal cream
- Night wear.
- Toiletries.
- Adjustable, good-fitting slippers. Please do not bring backless, mule-type slippers.
- Dressing gown.
- Day time clothes.
- Books, magazines etc.
- Loose change.
- Drinks.
- Female patients - four soft non-underwired front closing bras.

Please do not bring large sums of money or credit cards and valuables into hospital with you. The length of time people need 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, your general health and how well you recover from the

operation. The average length of stay is three to 10 days.

## Arrival at the hospital

When you arrive at The Essex Cardiothoracic Centre (CTC), you will be admitted to Chelmer Ward. The majority of patients will be admitted the day before their procedure, however in some circumstances we will admit you on the same day of your procedure. You will be advised by your Consultant and the pre-admission team on what the instructions are for your admission.

You will be introduced to your nurse who will show you around the ward, introduce you to other members of staff and show you to your bed. They will take some details and will be happy to answer any questions that you may have. If you have any allergies, it is important that you let them know. You will be fitted with a wristband with your details on. This is so that staff can identify you correctly and give you the right care. It is important that you do not remove it until you go home.

You may need to have some routine tests, such as

- Blood tests
- A recording of your heart (ECG)
- A chest x-ray
- Weight and height

Your nurse will ask you some questions and explain the operation to you. You will be asked to sign a consent form for your operation. You may find time to meet other patients on the ward. You may find it very reassuring to talk to others either waiting to have their operation, or those who have already had surgery.

### **Treatment to minimise surgical infection**

All patients admitted to the ward will be screened for Methicillin-resistant Staphylococcus Aureus (MRSA). MRSA is carried harmlessly by many people on their skin and in their noses without causing any infection. If MRSA spreads to a wound or into the bloodstream it may cause an infection that requires treatment with antibiotics. For this reason, all patients are screened before their operation.

Infection prevention is taken seriously in our hospital. The following treatment will be prescribed for you to reduce the risk of infection during and after your surgery. Both of the following treatments will need to commence five days prior to surgery and you will be given these in the pre-admission clinic.

#### ● **Antimicrobial cleanser (antiseptic body wash)**

Use this to wash the skin and hair instead of soap/shampoo.

With clean hands, apply directly to a damp disposable wash cloth; apply to wet skin paying particular attention to the navel, armpit and groin areas. When all the skin is covered, leave on the skin for one minute before rinsing it off thoroughly in a shower or bath. Please use a clean towel each time the wash is used.

This should be done **once a day for five days**. The treatment will continue when you are in hospital.

#### ● **Mupirocin 2% (Bactroban) nasal ointment**

Wash and dry your hands, then squeeze a small amount onto a clean cotton bud or the tip of your finger and apply to your nostril. Repeat this for the other nostril. Pinch your nose and massage to make sure the cream is evenly spread. Wash and dry your hands.

This should be done **three times a day for five days**. The treatment will continue when you are in hospital.

Please bring the Octenisan and Bactroban with you to hospital so that the treatment can continue for a further three days (five days in total).

### **Before your operation**

You must not eat anything for six hours before your operation. You may drink water up to two hours before the operation. The nursing team will advise you.

After you have showered you will be asked to change into a gown which fastens at the back. Please remove your underwear, jewellery, make up and nail varnish. Your property may need to be locked away, and the property policy will be explained to you.

The night before your operation you will be asked to remove any excess body hair from the places where the operation will be done. A nurse will help you with this.

You will see an anaesthetist before your operation who, along with a nurse or doctor, will be happy to discuss any last minute questions or worries that you may have. The anaesthetist will prescribe a premedication for you approximately one hour before the operation, which will make you feel sleepy. After taking this medication you will need to stay on the bed until you are taken to theatre.

### **During the operation**

You will be taken to the operating theatre on your bed. You will be met by your anaesthetist along with other members of the theatre team. An arterial line (a small plastic tube which goes into an artery in your wrist) will be inserted so that your blood pressure can be monitored during the operation. You will also have a drip that will be used for the anaesthetic to be given. After being attached to a heart monitor, 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, another drip to allow drugs to be given and urinary catheter will be inserted.

## **After the operation**

After your operation you will be taken to the Critical Care Unit – Colne Ward. Colne Ward is a specialised critical care unit for patients who have either had, or are about to have, heart surgery. Your nominated next of kin will be contacted after the operation to let them know you are out of the operating theatre.

Many patients experience some anxiety during their stay in the critical care unit, which can be noisy and busy. The nurse responsible for your care will try and reassure you and explain what is happening to you.

All patients arrive back from theatre with equipment such as, drips, tubes and drains. This is entirely normal and allows the nurse looking after you to monitor your progress. There are also machines which have alarms. Please do not be upset by these noises which help the nursing staff to monitor you.

After your operation you will remain connected to a breathing machine (ventilator) by a tube that goes into your lungs through your mouth. As soon as you are settled into the unit and your condition is stable you will be woken up from the anaesthetic and you will start to breathe for

yourself. When you are ready, the breathing tube will be removed. Once the breathing tube is removed you will be given oxygen through a face mask and later through your nose until you are able to manage without additional oxygen.

Once the nurses have made you comfortable, your relatives may wish to see you for a short while. Visitors should remember that you will need to rest and will be sleeping off the anaesthetic.

## **Returning to the ward**

After surgery you may return to the ward with some of the following tubes and lines in place.

### **Chest drains**

At the end of your operation your surgeon will have placed a number of (usually between two and four) chest drains around the heart and lungs. These are to allow any blood from inside the chest to be drained out, preventing the heart from being compressed with a build-up of fluid. These chest drains will be removed as soon as bleeding is minimal.

### **Arterial line**

This is a small plastic tube which goes into an artery in your wrist, to measure your blood pressure. Care is needed as these small tubes, if knocked, can dislodge and cause bleeding.

### **Central venous line**

This is a plastic needle that goes into a large vein in your neck or below your collarbone. It is used to monitor the fluid levels in your body, or to give you medication or fluids.

### **Urinary catheter**

This is a tube that goes into your bladder. This allows the nurses to monitor your fluid output, and you will not need to get out of bed to pass water. It is usually removed within a day or two.

### **Intravenous drip**

This is a small plastic tube into one of your smaller veins, which is used to give you fluid drips and medication. It is usually in the back of your hand, and care should be taken not to dislodge or knock the tube.

### **Oxygen saturation probe**

This is a small peg-like device clipped to your finger, which reads the level of oxygen in your blood.

Other equipment includes:

### **Infusion pump**

This is a machine that gives small or large volumes of medication and fluids when needed.

### **Monitor**

This provides a constant reading of your heart rate, blood pressure, oxygen saturation and temperature. It has a number of different alarms that assist the nursing staff who continually assess the information it provides.

**Under no circumstances should you disconnect yourself from the heart monitor. If you have any concerns or questions please press the call bell and ask for assistance.**

### **ECG dots**

These are sticky pads that are placed on your chest which are connected via leads to the monitor. These pick up the heart rate and pattern and display the reading on the monitor.

### **Ventilator**

This helps you breathe when you are unable to do so for yourself. This machine also has a number of different alarms.

## **Temporary pacemaker**

This is a box that is connected to a wire which goes through the skin and is positioned within the chest. This wire may be used instead of drug therapy to increase your heart rate.

All these drips and drains will be removed over the days following your operation. Your level of care will then be reduced as your condition improves and you become more independent.

## **Recovering after your operation**

### **Pain**

It is normal to experience aches, pains, stiffness and numbness in your back, neck, shoulders, arms and chest after your operation. This is because of the effect of the operation on your muscles and ligaments, and due to your wound healing. This will improve, but it can take up to six months or more to recover.

It is important that after your operation you remain as pain-free as possible. If you are experiencing any pain you should tell the nurse looking after you, who will do their best to relieve it with suitable pain relief. In order to understand what level of pain you are experiencing,

we use the following pain score:

0 = None

1 = Mild

2 = Moderate

3 = Severe

Remaining pain-free will help you to do the breathing exercises that the physiotherapist will teach you.

## **Occupational therapy and physiotherapy**

The role of occupational therapy is to ensure that patients are well prepared for recovery at home and to assess individual's needs prior to discharge. The aim is to enable people to achieve as much as they can for themselves, so they get the most out of life.

Your physiotherapist and the nursing staff will advise you and assist you with your recovery. You may be surprised how quickly you will be able to get up and walk after the operation. It is this activity that is the key to 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 the chair on the first day after your operation.

It is important to remain active following surgery, which may sound daunting but it does get

easier every day, and early activity reduces the risk of complications following an operation.

It is important to cough and practice deep breathing because they are essential to your recovery. You will also be shown some exercises to practice to get your shoulders, chest and back moving freely after the operation.

Being active helps the circulation. Regular pain relief will help you to move, sleep and cough more comfortably. When pain builds up it is difficult to control which is why regular pain relief is better. Sleep helps manage your energy and pain. Most people are more comfortable propped up initially. Sleeping on your side may be difficult for a while. For women, wearing a soft light weight bra may help in the early days following surgery.

If your mammary artery was used during your by-pass surgery, you may feel pain or an ache more on the left-hand side of your chest, as the left artery is more commonly used. This area may be more sensitive or numb for a number of months.

### **Cardiac rehabilitation**

A nurse from the cardiac rehabilitation team will discuss lifestyle changes and your future recovery with you, and answer any questions or worries that you may have. This is called Phase I rehabilitation. They will also ensure that you are referred to your local cardiac rehabilitation centre, who will contact you when you leave hospital this is called Phase II rehabilitation. Most hospitals offer a structured education and exercise programme that you can attend at approximately eight weeks after your surgery. This is Phase III rehabilitation.

### **Eating and drinking**

You may lose your appetite for a while immediately after the operation. This is quite normal and should improve gradually as you recover. As soon as you feel ready after surgery, it is important to start eating and drinking, even if it is only something small at every meal.

### **Wound care**

Your wounds will be regularly inspected and new dressings applied as required.



## Leaving hospital

Following heart surgery it will take some time before you are well enough to do everything for yourself.

Before you are able to go home you must be able to:

- Walk around the ward with minimal assistance.
- Wash and dress yourself with minimal assistance.
- If you have stairs at home, you may need to have a stair assessment after discussion and advice from your physiotherapist.

Planning for your going home started as soon as you were admitted, so that arrangements could be put in place for when you are well enough to leave. You will also want to discuss your plans with your family or the people who help and support you.

You will usually be told at least 24 hours before you are able to go home. However, the final decision will depend on up-to-date results such as blood, x-ray and ECGs.

You will need to arrange to be collected from The Essex Cardiothoracic Centre. We recommend that a friend or relative drive you home if possible. You will need to wear a seat belt on the way home, and may find it more

comfortable to have a soft blanket or pillow between your chest and the seat belt.

Before you leave hospital, you should make sure you have:

- A supply of tablets.
- The letter for your family doctor informing them of your recent operation and recovery. When your medication has run out, you will need to go to your GP who will prescribe further supplies.
- Discussed any questions that you may have with a member of staff.
- The time and date of your next blood test if you are taking Warfarin.
- The time and date of your outpatient appointment will be made and confirmation sent in the post.
- Seen a member of the Cardiac Rehabilitation Team.
- A wound review and if needed, we will get the district nurse or practice nurse involved.

## **Arriving home**

You may feel tired when you get home. This is quite normal and you should rest when you feel you need to.

If you have any non-urgent queries or need some advice or reassurance in the first few weeks following your return home please do not hesitate to contact Chelmer Ward, the Cardiac Rehabilitation Team or the Pre-Admission Nurse. Their contact details are at the back of this booklet.

## **How you will feel when you return home**

The first few days at home can feel a bit strange as you adjust to being back in your home environment, and a new daily routine. You may worry about how you are feeling, both physically and emotionally, and about what activity you should be doing. This is normal but you may want to arrange for somebody to be with you for the first 24 hours after returning home. The information below explains what you should expect.

## **Pain**

When you leave The Essex Cardiothoracic Centre, you will be given a supply of pain relief tablets. You should take these until you feel that the pain is easing, and then

slowly reduce them. You may still be taking the odd dose after about six weeks and this is perfectly fine.

If you have had vein grafts taken from your leg(s) you may find that you experience some discomfort and swelling in your legs and ankles for a few weeks. Taking pain relief, putting your legs up on a stool while sitting, and not crossing your legs, may relieve this. Pain relief can cause constipation. If this is a problem, make sure that you drink plenty of fluids and eat foods which contain fibre. Do not stop taking your pain relief. If you remain constipated, please contact your GP.

## **Looking after your wound**

Surgical incisions are undertaken in sterile operating theatre conditions and during most surgical operations you will be given a dose of intravenous antibiotics to help reduce the risks of associated infections following surgical procedures. Many of the procedures use absorbable suture material, glue and other wound products to hold the wound together while healing takes place, or staples and removable sutures may be used to secure the incision together.

The healing process is very important as this will reduce scarring and avoid complications due to infections.

It can take 2 – 3 weeks for your wound to heal. It is very important that you look after your wound carefully. Use a mirror or get a member of your family to check your wound daily. Some swelling around the wound is perfectly normal and should settle down after a few weeks.

To ensure your wound heals and to avoid infection it is important to keep the wound clean and dry and drink plenty of fluids and maintain a nutritional well balanced diet.

Despite having antibiotic cover when being given your anaesthetic surgical wounds **can** and **do** become infected, although the overall risk of this happening is very low.

### **Signs of infection include:**

- Increased local tenderness and swelling around the wound
- Sensation of increasing heat
- Redness, increased swelling or red streaks spreading to the edges or around the wound area
- If you experience increasing pain or soreness that is not relieved by any pain relief and appears to worsen.

- Flu-like symptoms – headache, tiredness temperature and generally feeling off par.
- The wound may ooze fluid or drain pus – this may be clear or blood stained yellow / green appearance.
- The edges of the wound appear to be separating – this may not be a sign of infection but will need to be reviewed.

### **Causes of wound infections following surgery**

The skin is the largest organ in the body and a normal barrier to micro-organisms and bacteria that live on the skin in the nose and throat and gastro intestinal tract and circulate in the air. Our normal defences' such as the skin keep these under control however, when there is a break in the normal integrity of the skin it is easier for micro-organisms to gain entry to the body and some may cause infections.

### **How to care for your wound following discharge home**

- Keep your wound clean and dry.
- All female patients should have a soft, non-underwired, front closing bra applied as soon as possible post-operatively. This should be worn day and night for the first four weeks post-operatively.

- Once you are home following your surgical procedure you may have a shower and gently wash the wound with a gentle non perfumed soap and ensure the area is dried with a clean towel daily for your use only, it is advisable not to share your bath towels when you get home until your wound is fully healed. Pat the wound gently when drying.
- There are wires in your chest to help your breastbone to heal. You will be totally unaware of these wires. They do not rust and will not set off airport security systems.
- The stitches in your main surgical wound will dissolve on their own. Any other stitches will be removed before you go home, or arrangements will be made with the district or practice nurse to have these removed following your return home.
- Numbness around the scar is very common and will start to settle after a few weeks.
- Your wound can be cleaned in the evening with warm water and mild unperfumed soap and again dried thoroughly with a clean towel.
- You should avoid using talc.
- When you are cleaning your wound, look for signs of infection such as sudden appearance or increased redness, swelling, red streaks or red rash going away from the wound. Look for any drainage of any fluid coming from any areas of the wound.
- Your wound will be red and feel sore and uncomfortable but this should improve during your recovery. However, if you feel the wound is not feeling better please contact the CTC Outpatient Department for advice.
- **Do not** soak or scrub your wound and do not soak in a bath, go swimming or use a hot tub until you have been for your follow-up appointment. There is no benefit to adding any products to a bath such as salt, antiseptic products such as Dettol to enhance wound healing or prevent infection.
- **Do not** scratch or pick at your stitches, staples or any adhesive film or skin glue. The stitches will dissolve as the wound heals. It is advisable not to pick at any scab formation on the wound areas.
- Protect your wound from long exposure to sun light or any kind of tanning lights for at least six months following your procedure.
- When coughing or sneezing, we advise that you support your chest by crossing your arms over the chest to support your wound

and chest area. Please do not use pillows or rolled towels over your chest wound as a support mechanism.

- Please call the CTC Outpatient Department or visit your GP following your discharge home if you start to show signs of infection that may include:
  - Your skin around the wound is redder and feeling more painful.
  - Red rash or streaks coming from the wound and appear to be traveling along a vessel line.
  - The wound is feeling warmer or even hot to touch.
  - You notice pus or fluid oozing from the wound.
  - You have a fever and a body temperature over 38.0°C.
  - You experience shivering, chills nausea or vomiting and muscle aching.
  - You notice the wound has opened up.
  - You are worried about the tension to the sutures or the look of your wound in general.
- As the wound heals the incision line will feel tighter but if you have any of the above symptoms as well, please contact the CTC Outpatient Department or visit your GP.

Please advise the CTC Outpatient Department when you return if your GP or district nurse has taken a swab from the wound or you have commenced on any antibiotics. It would be helpful if you could advise the staff what post-operative day you noticed the signs of infection.

### **Medication**

Your medication may have changed since your operation. You may need to stop taking some of your previous medication, and you may need to start taking some new medication. This will be discussed with you. You will be given a letter to give to your GP that lists all of the medication you are on, and the doses. If you have any questions about your medicines, please contact your GP.

### **Warfarin patients**

You may need short or long term anticoagulation treatment with drugs 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 double the dose, but do tell the doctor at your next appointment. If more than one dose is missed please contact your GP as soon as possible. Before being sent home, an anti-coagulation clinic referral will be arranged for you.

You may be asked to return to Chelmer Ward after your discharge for blood tests, so that the dose of your medication can be adjusted until your clotting levels are stable.

Aspirin and other medications such as antibiotics can affect the clotting of your blood. DO NOT take these unless prescribed by your GP, who should then adjust your anti-coagulant dose.

In the event of severe bleeding, bruising or illness, contact your GP, NHS 111 or local Accident and Emergency Department.

### **Support stockings**

These stockings are worn to promote good circulation in the legs, preventing blood clots from developing within the first few weeks following surgery. It is important that these stockings are put on correctly i.e. they are wrinkle-free and clean. Due to the physical effort needed to put them on, you should have someone to help you. You will need to wear the support stockings for six weeks.

### **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 cause the new

heart valve to become infected. It is important that before any dental treatment, your dentist knows what type of surgery you have had and whether or not you are on Warfarin.

The dentist should ensure that you have antibiotics before the treatment and may wish to check with your GP or hospital before starting any treatment.

### **Eating and drinking**

If your appetite has not returned to normal by the time you return home, try to eat small amounts of nourishing, higher calorie foods often. This will help to prevent weight loss, and promote both 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, including the following:

- Fruit and vegetables – aim for at least five portions per day (fresh, frozen, tinned, dried or juice all count).
- Starchy foods – include at each mealtime e.g. rice, bread, pasta, potatoes (choose wholegrain varieties when you can).
- Protein-rich foods – include these foods twice a day e.g. lean meat, fish, eggs, beans, lentils or nuts.

- Milk and dairy foods – lower fat versions of these should be included every day.
- Limit foods that are high in fat, sugar and salt.

For more information on healthy eating please visit the following websites:

- British Heart Foundation  
[www.bhf.org.uk](http://www.bhf.org.uk)
- NHS Choices Live Well pages  
[www.nhs.uk/LiveWell](http://www.nhs.uk/LiveWell)

### **Alcohol**

Keep within the maximum recommended limits. Do not save all your units to drink on one occasion.

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

### **Avoid constipation**

Following surgery you may have difficulty opening your bowels, a few tips to help prevent this are:

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

When on the toilet, try not to strain as this may put extra pressure on your heart and your chest wound.

Sometimes pain relief medication can cause constipation. Do not stop taking the pain relief. If you are still in pain, constipation can easily be remedied with mild laxatives from your pharmacy.

### **Moods and emotions**

During the first six weeks following your operation you can feel emotional and unusually irritable. It may also affect other members of your family, especially those closest to you. These feelings will usually pass after a few days, so please do not be worried. You and your family have been through a particularly stressful experience so patience, understanding and consideration for each other will be essential. Please discuss your feelings with your partner and be honest with each other.

If you continue to feel emotional and are concerned, please speak to your GP.

## **Other symptoms you may notice**

Previous cardiac patients have also noticed other symptoms following their operation.

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 or cardiac rehabilitation nurse know.

## **Activity**

A key benefit following heart surgery is being able to do more. Everybody recovers at a different pace and it is good to balance activity with rest, gradually building up your activity levels. This will help improve your well-being and recovery.

When you first get home, continue to take your pain relief. Shower and get dressed, allow yourself a few days to adjust to being at home. Potter around the house, rest as you need to. It is common to feel very tired in the first few weeks. Take regular walks around the house and garden like when you were on the ward. Gradually increase the length of time you are walking for. Choose a route with a bench or wall to sit on. Build up slowly, little and often is the key at first. Build up the amount of time spent walking, then build up your speed.

When you are ready to pick up your speed, get into the routine by warming up for 10 minutes with a gentle pace to get your body ready. Then increase your pace to a brisk walk and gradually over 10 minutes, slow down again.

This is the key principle for exercising safely and can be applied to different activities. Your breathing pattern is a good indicator of your activity level. Initially activities should feel light and comfortable. Gradually increase your efforts so you are slightly breathless but can still talk. Slow down or take a shorter walk if you are uncomfortable or too out of breath. Everyone is different. There are no rules. Plan your activity to suit you and your recovery.

## **Keeping fit for life**

Aim to make physical activity part of your everyday life. Use your recovery time to consider how you can make changes and plan how you are going to do this. See the British Heart Foundation website (contacts page at the back of this booklet) for more ideas. Recognise your achievements and try not to compare yourself with others. Aim to make life-long changes – keep it up!



## **Advice:**

Always warm up and cool down.

- Wear loose, comfortable clothing and well fitting shoes.
- Listen to your body. Rest or slow down when you need to.
- STOP if you experience chest pain.
- Avoid exercising for two hours after a meal.
- Avoid exercise if you feel unwell.
- If you are unsure or having difficulty with your activity levels seek professional advice from your GP or the Cardiac Rehabilitation Team.
- Remember everyone is different. Take things at your own pace and increase activity gradually. Do things you enjoy. Allow yourself to become fit again before resuming competitive sports. Seek advice from your surgeon before resuming contact sports.
- Remember these are guidelines only and your recovery is altered by your previous activity levels and what you want to achieve.

## **Other activities**

### **Back to work**

From eight weeks depending on the nature of your work and hours. Be advised by your clinician and occupational health.

### **Showers**

You may shower straight away.

### **Baths**

Avoid for the first six weeks. The action of pushing up from the bath could damage your wound.

### **Bowls and golf**

Practice from eight weeks, gradually building up. For example try pitch and putt or short mat initially. Enjoy the sociable aspect.

### **Cooking**

When you feel ready, start with preparing vegetables / light preparation and build up.

### **Cycling / dancing**

From eight weeks, build up slowly. Seek advice if you have not participated in these activities before.

### **Driving**

Do not drive for six weeks *until you have been seen at the outpatient clinic*. Inform the DVLA if you have an HGV or PSV licence.

Inform your insurance company. Make sure you feel confident with steering and braking before you start driving again.

### **Fishing**

Dependent on the type of fishing you do, no strenuous reeling in or pulling for at least eight weeks. Consider what you have to lift or carry, break it into separate journeys or use a trolley.

### **Gardening**

Weeding and light pruning after four weeks.

### **Getting dressed**

You may dress yourself straight away.

### **Having visitors**

Anytime but limit your telephone calls and visitors so you can protect your rest time.

### **Holidays and air travel**

You may travel after 10 days if your operation is uncomplicated. Generally people prefer to wait until they have attended their post-op follow-up (about six weeks). This also allows time for you to get the most out of your holiday. Each airline has its own procedures, so discuss your situation with them. You must inform your travel insurance company. During long

journeys, take regular walks and stretch your legs. Wear your support stockings.

### **Housework**

Dusting, washing up and drying up can be done from two weeks. You can vacuum after eight weeks.

### **Lifting, pulling or pushing**

Nothing heavy for eight to 12 weeks.

### **Night out**

When you feel ready. Be realistic about what you can cope with.

### **Sex**

Normal sexual activity may be resumed from about four weeks. Consider taking a less active role initially and change positions so you feel comfortable. Take the time you need to resume your intimate relationships.

### **Shopping**

Supermarket trolley and carrying bags after eight weeks.

### **Stairs**

Straight away. Initially limit how often you do these.

## **Swimming**

Gentle swimming at eight weeks if your wounds have healed.

Swimming is a demanding activity, it is a good idea to build up your fitness on land first. Always work at a lower rate in the water and remember the effort required is very dependent upon your technique.

## **Who to contact**

### **CTC outpatient department**

01268 524900 ext 4046, 4052 or  
4010 (answerphone)

Open Monday-Thursday 8am-5pm,  
Friday 8am-1pm

### **Chelmer Ward**

01268 524900 ext 4370, or ask for  
Chelmer Ward

### **Colne Ward**

01268 524900 ext 4272, or ask for  
CTC Critical Care Unit

### **Cardiac Rehabilitation Team**

01268 524900 ext 4076, or ask for  
Cardiac Rehab Team

### **Surgical Pre-Admission Nurse**

01268 394055

## **Information**

Note down any information that you may find helpful.

For example you may want to make a note of the name and dosage of any new medication, any special instructions for your first few weeks at home, or the details of your treatment.

Additional Information is available from:

**British Cardiac Patient Association**

2 Station Road

Swavesey

Cambridge

CB4 5QJ

Email: [enquiries@bcpa.co.uk](mailto:enquiries@bcpa.co.uk)

Tel: 0800 4792800 or

01954 202022

[www.bcpa.eu](http://www.bcpa.eu)

**British Heart Foundation**

14 Fitzhardinge Street

London

W1H 6SH

Tel. 0207 935 0185

**Heart Information Line:**

Tel: 0845 070 8070

[www.bhf.org.uk](http://www.bhf.org.uk)

**Basildon and District Hearts  
and Minds Support Group**

Email:

[committee@basildonheart.org.uk](mailto:committee@basildonheart.org.uk)

[www.basildonheart.org.uk](http://www.basildonheart.org.uk)



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Liaison Service (PALS)  
☎ 01268 394440  
E [pals@btuh.nhs.uk](mailto:pals@btuh.nhs.uk)

W [www.basildonandthurrock.nhs.uk](http://www.basildonandthurrock.nhs.uk)

The Trust will not tolerate aggression, intimidation or violence directed towards its staff.

This is a smokefree Trust. Smoking is not allowed in any of our hospital buildings or grounds.

This information can be provided in a different language or format (for example, large print or audio version) on request.