

Cardiology

Cardiac resynchronisation therapy with defibrillator (CRT-D)

Please read this information before your admission

This booklet has been compiled and edited by the Coventry and Warwickshire Cardiovascular Network from information provided by the staff responsible for cardiac services at the following hospitals:

- University Hospitals Coventry and Warwickshire NHS Trust (UHCW)
- The Hospital of St. Cross, Rugby
- George Eliot Hospital, Nuneaton
- South Warwickshire General Hospital NHS Trust

Our aim

- Give you an understanding of your heart and your heart condition and why you need a CRT-D implant
- Provide you with the information you will need before, during and after your admission
- Tell you of any lifestyle changes that you may need to make when you return home

Please read the booklet carefully before your admission and keep it as a handy reference.

If you have any concerns or queries, we can be reached by telephone.



Patient Information

Contact numbers

University Hospitals Coventry and Warwickshire NHS Trust (UHCW)
switchboard: 024 7696 4000

Cardiac Physiologist/Cardiac pacing team

024 7696 6416/02476 96419 with answer phone

Email: pacingteam@uhcw.nhs.uk

Arrhythmia Nursing Team/UHCW

024 7696 4794

Email: arrhythmianurses@uhcw.nhs.uk

Heart Failure Nurse Specialist

UHCW: 024 7696 5814

Rugby: 01788 663944

Coventry Community Heart Failure Nurses: 0300 3032444

Cardiology Ward 21/UHCW

02476 965780

Coronary Care Unit (CCU) / UHCW

024 7686 5656 & 024 7686 5648

South Warwickshire Hospitals NHS Foundation Trust

01926 495321

Heart Failure Nurse Specialist: 0778 639 5289

ECG Department: 01926 495321 Ext: 4127

George Eliot Hospital, Nuneaton

024 7635 1351

Patient Information

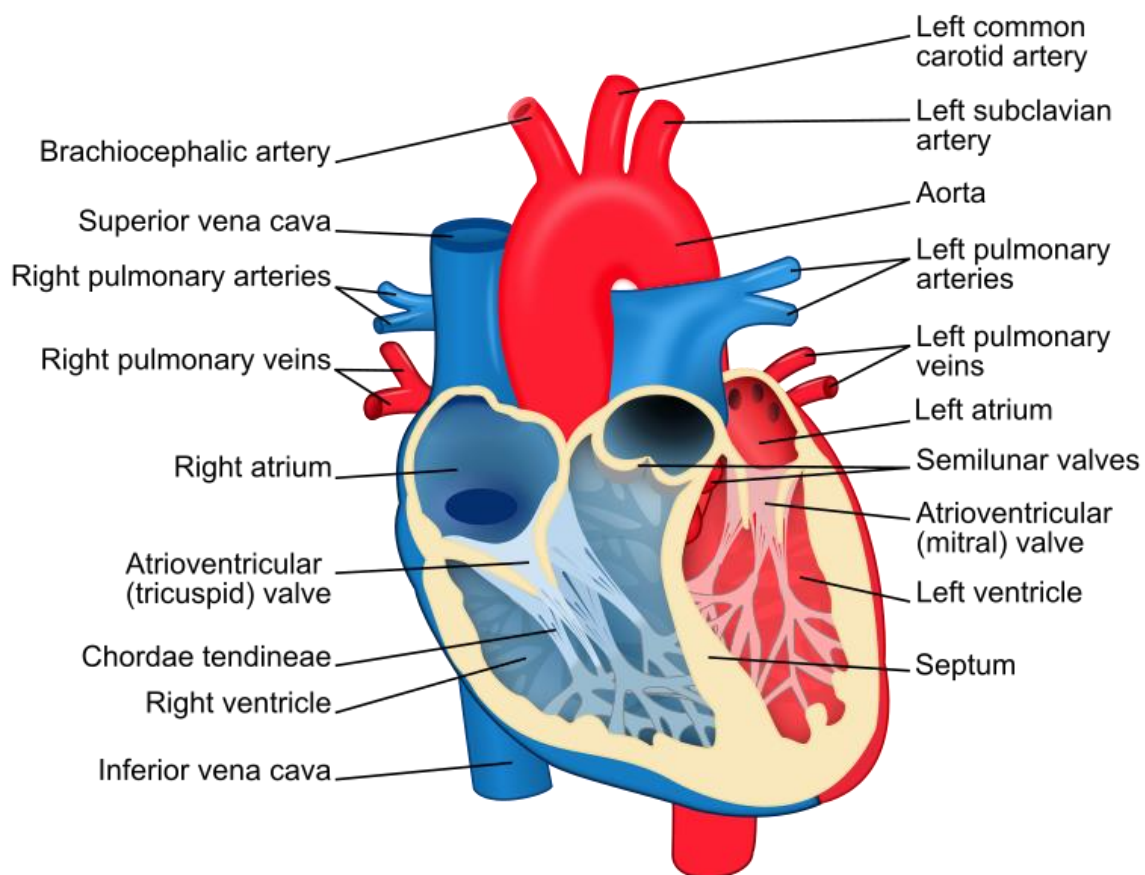
You will find other useful telephone numbers and websites at the end of this booklet.

Understanding your heart and heart condition

What is the Heart?

The heart is a strong, hollow muscle about the size of a fist. It lies in the centre of the chest and is tilted slightly to the left. The heart beats continuously throughout life, usually between 60 to 90 times per minute. It is divided into two sides – left and right – and has four chambers. The two upper chambers are called the atria, and the two lower chambers are known as the ventricles. Its job is to pump blood, oxygen and nutrients to all parts of the body.

Heart Diagram: Blue components indicate de-oxygenated blood pathways and red components indicate oxygenated blood pathway.



“[Heart diagram](#)” by [ZooFari](#) is licensed under [CC BY 3.0](#)

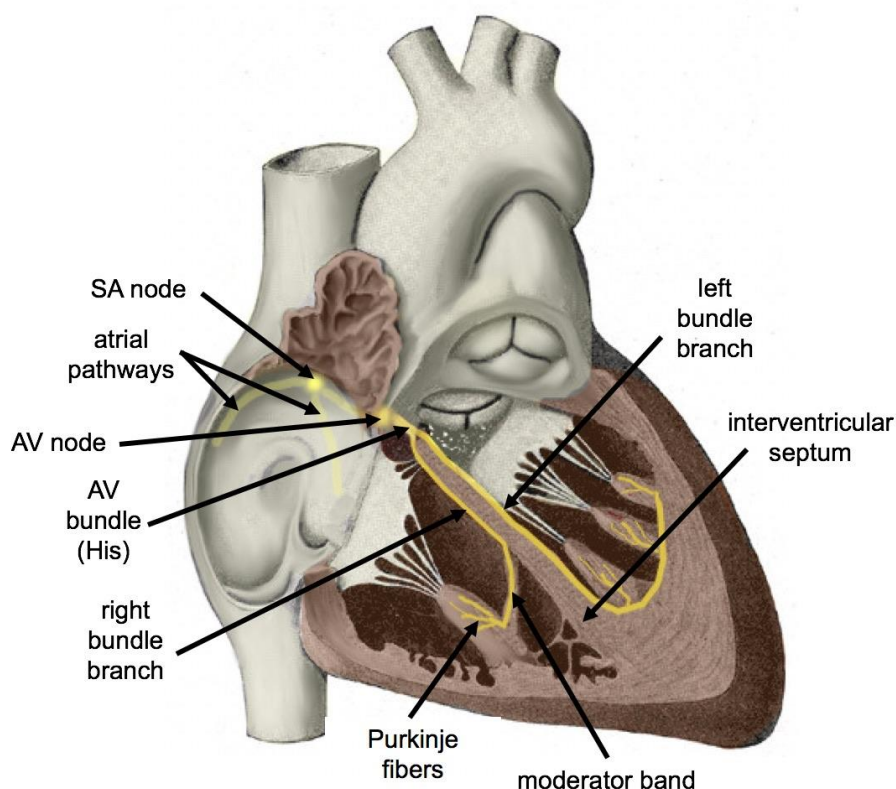
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When we breathe in, we take in oxygen which is vital to keep all living tissues healthy and working well. The oxygen enters our blood stream, and the left side of the heart pumps the blood around our body through the arteries, delivering oxygen and essential nutrients to the tissues, muscles and organs.

As the tissues use the oxygen, they make carbon dioxide which is removed in the bloodstream. This is taken to the right side of the heart to be pumped to the lungs where we breathe out the carbon dioxide and breathe in vital oxygen. This is a continuous process.

The pumping mechanism of the heart is controlled by electrical signals, produced in the heart itself.

The following is a diagram of the complex electrical signals pathway in the heart.



“[Cardiac Conduction System](#)” by [Cypressvine](#) is licensed under [CC BY 4.0](#)

Patient Information

This pathway can become damaged or stops functioning properly because of a disruption to the electrical signals, or if the heart muscle has been damaged by disease. This can be because of a previous heart attack, high blood pressure, or disease of the heart valves. The heart will not pump as well as it should during each heartbeat. This can lead to heart failure.

What is heart failure?

You will have seen a consultant cardiologist and been told that you are suffering from heart failure. This term covers a range of heart conditions resulting in the heart muscle's inability to pump blood efficiently around the body.

If the heart is no longer able to pump enough blood, and therefore oxygen, around the body, you will start to have breathlessness, tiredness, diminished exercise capacity and swelling in the feet and ankles due to fluid retention. This can make you feel very unwell. You may also develop serious heart rhythm problems (arrhythmias) which could be a threat to life.

Heart failure does not mean that your heart is going to stop beating, but it does mean that you need treatment to relieve your symptoms and regulate your heartbeat, so enough blood is pumped around the body.

You will have been given drugs to help to relieve your symptoms, but your cardiologist may also have suggested a treatment known as CRT-D Cardiac Resynchronisation Therapy with Defibrillator. (CRT-D)

What is CRT-D?

CRT (cardiac resynchronisation therapy) is also known as biventricular pacing. Each ventricle will have a lead (or wire) placed in it through a blood vessel, capable of producing an electrical impulse to stimulate the heart muscle. Electrical impulses from these leads will have a positive effect on controlling your heart rhythm, by ensuring that your heart beats in a coordinated way, allowing it to pump more efficiently. This should improve some of the symptoms you experience because of your heart failure.

CRT-D not only ensures that your heart rhythm is monitored and stabilised, but also that a small electric shock can be delivered to the heart muscle using the defibrillator for a life-threatening arrhythmia.

Patient Information

Patients who are more likely to benefit from this device are those with:

- Moderate to severe heart failure symptoms, despite drug therapy
- A weakened and enlarged heart
- An electrical pathway problem, causing uncoordinated pumping of the ventricles which could lead to serious problems with the heart rhythm

Since not all people benefit from this therapy, your cardiologist will have had to do a full assessment of your condition before the decision was made to fit a **CRT pacemaker/defibrillator (CRT- D)**.

The CRT- D device

A CRT pacemaker/defibrillator is a metal device, consisting of a box the size and weight of a small pack of playing cards containing a battery powered, computerised electronic device. It has from one to three leads (or wires) which are connected to the heart, usually through the veins.

In the case of heart failure, it will usually be necessary to connect all three leads – one into the right atrium and one each into the ventricles.

The device is usually implanted under the skin of the left chest wall in a 'pocket' behind the muscle, where it will receive signals from the leads and continuously monitor your heartbeat.

The CRT pacemaker/defibrillator detects abnormal heart rhythms (arrhythmias), fixing them to keep normal heart rhythm by delivering electrical impulses known as **pacing**. It is programmed to respond to your individual heart rhythm, based on the information we got during your tests and investigations, helping your heart to function properly.

The defibrillation aspect of the device will only activate if you experience serious heart arrhythmias, such as **ventricular tachycardia** or **ventricular fibrillation**. This part of the device is programmed to deliver a **small electric shock**.

If the pacing impulses of your CRT-D do not normalise your heart rhythm, the device will need to deliver a shock to restore your heartbeat. You may feel like you have had a big thump in the chest.

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This is quite alarming when it first happens, but the feeling should pass very quickly. If you have anyone near you when you receive the shock, please be assured that it is not harmful to them, although they may feel a slight tingling sensation.

If you feel unwell or begin to sense that your heart rhythm is changing or going too fast, please stop what you are doing and rest until the CRT-D has corrected the arrhythmia.

You may be quite upset the first time you receive shock therapy and need help and support and to talk it through with someone. Please, contact your local pacing department who will be happy to listen to your concerns and support you.

The device will help the heart to return to its normal rhythm, working much more effectively than drugs alone. However, it will still be necessary to continue to take your heart drugs, to gain maximum benefit from your treatment.

Risks

The procedure does carry some risks, though these are quite small. Any complications can be fixed and are rarely life threatening.

There are slight risks associated with the actual implantation of the CRT-D device and slight risks which may occur after the procedure.

At the time of the procedure, there may be:

- Accidental damage to the blood vessels when placing the leads into the heart.
- An air leak in the lung may happen due to inadvertent puncture - this will need treatment.
- Discomfort/bleeding during the procedure.
- Very rarely, damage to the lead(s).
- Reaction to the drug used to sedate you.

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After the procedure, there may be:

- Bleeding from the insertion wound.
- Movement of the lead(s) which would require them to be repositioned.
- Infection in the wound or the lead(s) themselves within the blood vessels, but you will be given antibiotics before and after the procedure, to reduce these risks.
- Failure of the device to function properly.

Risks are rare, but it is our duty to make you aware of them before you sign the consent form, to allow us to go ahead with the treatment. Before signing the consent form, please do not hesitate to ask your doctor any questions or concerns you may have.

Having a CRT-D fitted will support your heart muscle as it pumps the blood around your body, reduce the risk from any future heart rhythm problems, and should allow you to get on with your life with fewer restrictions.

Before admission

You will receive a letter from the hospital in which your admission date and ward will be shown.

Please note

- If you are, or think that you may be, pregnant, please contact the hospital at once, as it may not be advisable to go ahead with fitting your CRT-D device, during your pregnancy.
- If you are on a DOAC such as, Apixaban, Rivaroxaban, Edoxaban, Dabigatran then you need to **stop taking it for 2 days before** the admission.
- If you are on Warfarin, unless you have been otherwise advised, you will have been told to stop taking it **for 4 days before your admission**.
- If you have a mechanical heart valve replacement, please discuss alternative blood thinning medication with the doctor who will be doing the procedure, before you come in.

About your admission

Length of stay

You may go home the same day or stay in overnight. This will depend on your consultant, your medical condition, the time of your procedure and if you will have support at home when you are discharged.

If you live alone, have you got someone who can stay with you for a couple of days, or can you stay with them? If not, please let the nursing staff know when you come in for your admission.

Transport

You will not be allowed to drive for at least one week after you have had your CRT-D device fitted, so please do not drive yourself to hospital, but arrange for someone to bring you in and collect you.

If this is not possible, please ring your consultant's secretary or the waiting list coordinator for advice as soon as you receive this information.

You may wish to have someone to stay with you on the ward to support you on the day of your admission. You are welcome to do this, but please keep other visitors to a minimum to allow you to rest after the procedure.

Items to bring in

We recommend that you bring an overnight bag with toiletries and nightwear.

It is also essential that you bring **all** your medication with you in their original containers, as the doctors and nursing staff will need to see them.

Please remove all make-up and nail varnish before arriving – we shall need to be able to see your natural skin colour during and after your procedure.

Valuables

For your own safety, **do not** bring any valuables or large amounts of money into the hospital. Please remove all jewellery (except wedding rings) before coming into hospital.

Preparing for your admission

On the day of your admission

You will be given an admission time depending on where you are placed on the doctor's list.

Eating and drinking before the morning procedure

You are allowed to have your breakfast and usual preferred drink in the morning.

You can take all your usual morning tablets, apart from your Warfarin and diuretics (water tablets).

If you are diabetic:

You **must stop** taking your Metformin/Glucophage one day before your admission, and then re-start your diabetic tablets again one day after your procedure.

If you are in any doubt as to what you are allowed to do, please ring the ward where you will be having your admission, or the arrhythmia specialist nurses. Alternatively, you can contact your consultant's secretary.

What happens when you arrive at the hospital?

- Please report to the Main Reception area on the ground floor to book in and show the receptionist your admission letter. The receptionist will hand you a registration form that you will need to give to the nurse or support worker on the ward.
- She will also give you instructions on how to get to your ward.
- On arrival at the ward, you will be given a bed and be met by a nurse or support worker who will be looking after you. They will help you in preparing for your procedure.
- You will be fitted with a wristband that will have your name on it and your unique hospital number that will be used to identify you during your hospital stay. Please do not remove this until you are ready to go home.

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- You will be asked some questions and have your blood pressure and pulse recorded. An electrocardiogram (ECG) will be taken. You will have the opportunity to ask questions.
- Blood tests will be taken to check your blood clotting (INR) if you are usually on Warfarin.
- A doctor will come and see you to explain the procedure. If there is anything that you don't fully understand, then please ask the doctor. They will then ask you to sign a consent form, agreeing to have the CRT-D device fitted.
- A small plastic tube (cannula) will be inserted into the back of your hand or in your arm and taped in place to allow antibiotics and any other necessary drugs to be given.
- Please tell the staff if you are allergic to penicillin, so that we can arrange for an alternative antibiotic.
- Half an hour before your procedure, the nurse will bring you a hospital gown. Wearing easy to remove clothing when you come in, will help when the time comes for you to change.
- Please empty your bladder a short time before going for your procedure. Please ask for help if you need it.
- You will be given a covering dose of antibiotics before the start of your procedure and will also have to take antibiotics by mouth for three days after your CRT/ conduction system pacemaker has been fitted. If you are allergic to penicillin, then a suitable alternative antibiotic will be used.

Fitting the Cardiac Resynchronisation Therapy with Defibrillator (CRT-D) device

You will be taken from the ward by the nurse looking after you and will be handed over to the care of a nurse or support worker who will stay with you throughout your procedure.

The implantation of the device is a sterile procedure done in a Cardiac Catheter Laboratory or suitable hospital room. This room will be equipped with an X-ray camera facility, monitoring equipment and a table on which you will be asked to lie for the duration of the procedure.

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The procedure usually takes between one and a half hours to three hours, during which time you will have been given a sedative injection into the tube in your arm to make you feel pleasantly drowsy. You will be attached to a heart monitor throughout the procedure.

After this, the area identified for insertion of the CRT/ conduction system pacemaker over your left chest wall, just under your collar bone, may be shaved, if necessary, cleaned with a skin disinfectant preparation and injected with a local anaesthetic.

A small incision (cut) 5-8cms.in length will be made and a small tube will be passed into a large vein. Through this tube, the leads will be guided with the help of the X-ray camera into your heart. The leads are then tested and attached to the CRT/ conduction system defibrillator box which holds the miniature battery and computer.

A small pocket is formed under the skin of the chest wall and the box will be carefully inserted into this pocket.

Before completion of the procedure, your cardiologist will test the device to make sure that it is working properly.

When the tests are complete, the wound will be closed with dissolvable stitches. These will dissolve when they have done their job of holding the wound edges together to allow healing, so you will not need to have them removed.

A dressing will be secured over the wound, and you will be ready to go back to the ward.

On your return to the ward

Your ward nurse will keep checking your wound to look out for any signs of bleeding or swelling. You will need to rest in bed for a couple of hours, depending on how sleepy you are because of your sedation.

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It is essential to restrict your arm movement on the affected side where your device was fitted, particularly avoiding lifting your arm above your head. This will reduce the risk of the leads moving or becoming displaced.

Your blood pressure and pulse may be taken at intervals during this time.

You will be able to eat and drink as soon as you feel like it unless you need further tests. However, most patients prefer to sleep for a while after their procedure, because of the sedation.

The local anaesthetic will gradually wear off over the next couple of hours. Please ask your nurse for some painkillers if you experience discomfort..

You will usually be able to go home a day after your procedure, but the cardiologist will want you to have a chest X-ray in the X-ray Department to ensure that the leads are safely in the correct position before you are discharged.

A cardiac physiologist will also want to check that your device is working properly and to adjust its programme, if needed. You may be taken to the Cardiac Physiology Department to have this check.

You will be provided with a special identification card, which will have your personal details together with details of your CRT-D programme, the number of leads used and the make and model of your device. You will be advised to always carry this card with you.

You will be given antibiotics to take home with you. You will take these by mouth for three days after your procedure.

Caring for yourself at home

You may feel tired for a couple of days while you are recovering from your procedure.

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You may remove the dressing covering your wound 48 hours after the CRT-D has been fitted. The wound should then be left uncovered to promote healing.

You will have some bruising around the wound area and that can sometimes go around the chest area and down onto the arm. This is quite normal, but the wound itself should not be red or gaping and you should not feel feverish.

Your ward nurse will have checked your wound and dressing before you left for home, but if you notice further bruising or swelling or if it oozes, bleeds, or becomes hot or tender, then go to your GP as soon as you can.

You may need another course of antibiotics, or you may need to be referred to the hospital team for their advice.

Remember to wear loose fitting, preferably cotton clothing for the first few weeks, to prevent rubbing which could make your wound sore.

Please, avoid any excessive movement of your arm on the side of your wound for about four weeks after your procedure to prevent movement of the leads during the healing process. This will mean that, though you may do light housework; you should not be doing any work that requires you to stretch your arms, such as mowing or hanging out clothes on a washing line.

You are also advised not to do any heavy lifting, such as carrying shopping bags or moving heavy furniture.

Because your wound will have been sewn together with a dissolvable stitch, it should heal without the need to remove any stitches, but again, please arrange to see the nurse at your GP's practice if you have any concerns at all.

Don't be afraid to ask for help from your family and friends and take it when it is offered.

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Personal Hygiene

Gentle, unperfumed soaps or clean, warm water are ideal when you have a bath or shower. Strongly perfumed soap, talc, body lotion and deodorants may irritate the wound and cause an infection.

If you have a power shower, please use a gentler setting until your wound is properly healed. After bathing, always make sure that your wound area is gently patted dry with a soft, clean towel.

Outpatient checks

The cardiac physiologist will give you written information about the settings (programme) for your device which you must always carry with you.

Your first check will usually be in about 6 to 12 weeks' time. Information stored in your device will be taken at this time, using a handheld device placed over your skin. The procedure lasts about 10 to 25 minutes and is completely painless.

You will most likely be provided with a home monitoring device and the cardiac physiologist will guide you accordingly.

The information is important for us to be able to decide if you need any further adjustments, and to let us know the device is working effectively.

Please, take advantage of this visit to ask any questions, relating to any concerns you may have about living with your CRT-D device.

You will continue to have CRT-D device checks regularly by the pacing team either face-to-face or remotely.

Condition identifying jewellery

You may have heard of Medic Alert and SOS Talisman 'jewellery.' If you are diabetic, you may already own one of these pieces.

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They are bracelets or neck pendants which can store vital medical information about you and your heart condition and are particularly useful if you are unable to communicate details of your condition yourself. They are easily recognisable to the medical staff who may be called to treat you.

They are not provided by the NHS and can be bought by you. It is worth asking if you could get help in purchasing them and your local cardiology department may be able to provide you with helpful information.

Living with your CRT-D

Medication

You will need to continue to take all your earlier heart medication, unless your cardiologist has told you that it is safe to stop taking any of them. Do not stop taking your drugs unless they have asked you to.

Your CRT-D's battery

As you know, your device has a long-life battery which will usually last between 5 to 10 years. Your device will not suddenly stop working, as when the battery runs down, your clinic will keep track of this with you and arrange for the box to be replaced when this is necessary.

Sleep

Some people find it difficult to sleep for a while after they have had a CRT-D fitted. Patients who have already had the procedure, recommend sleeping on your back supported by pillows, or on the opposite side to where the device was fitted. Always make sure to support yourself with enough pillows until you get into a comfortable position, particularly if you are breathless at night.

Diet

Eating a well-balanced diet, low in salt, cholesterol, sugar and saturated fat is essential and will not be as boring as it sounds. If you eat ready prepared meals, please read the information labels on the products to help you make a healthy choice.

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It is also important for people whose heart function is compromised to reduce their intake of salt. The BHF booklet 'SALT' can give you tips to reduce your salt intake.

Alcohol

Your consultant will already have told you about your alcohol intake and it is essential that you follow this advice, as part of your treatment plan. The usual recommended guidelines are that you should not exceed 12 to 14 units per week. However, your consultant may have suggested that you do not drink this amount.

Apart from the effects it can have on your liver, alcohol can unfavourably affect your weight and blood pressure. It can also interact with some medications and increase any side effects you may experience.

Please, follow this advice for your heart's sake.

vice for your heart's sake.

Smoking

Stopping smoking is one of the best things you can do for your heart and health in general and for the health of those close to you.

It is also recognised that it can be very difficult to stop.

Non-smoking aids, such as nicotine patches, gum, lozenges, sprays are now readily available on prescription from your GP through a smoking cessation programme, or over the counter in pharmacies and supermarkets. You can also join a support group.

Ask the nursing staff for information, before you are discharged home.

Exercise and keeping fit

Walking and sensible exercise which raises your heart rate are perfectly safe and, indeed, beneficial in keeping you fit and helping you to keep a healthy weight. Do take care to warm up slowly, so that your heart rate has time to adjust to the change in activity.

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Exercise at a level that makes you feel slightly breathless. This is quite safe and will help you to improve your fitness.

You may find at first that you tire more easily, so stop and rest.

If you have any concerns, discuss them with the staff in the cardiology department.

Sporting activities

Golf, tennis, hockey, squash, badminton or other sports involving swinging your arms and stretching must be avoided until your cardiologist is satisfied that your device and leads are firmly fixed in the required position. Please, ask for further advice on these issues, as you progress along your treatment pathway.

Many sports, such as football, rugby, boxing, martial arts and other contact sports will now be considered too dangerous, because there may always be the possibility of damage to your device, as it sits so close under the skin. Again, your cardiology team will be able to advise you.

Sex

There is no set rule about when to resume sexual activity. Wait until you and your partner are both comfortable with the idea. For the first few weeks, it is advisable to avoid any position that could put a strain on your affected arm or chest, to allow your chest wall to heal properly.

Emotions

It is natural to feel anxious about your new device, particularly if you have previously experienced a life-threatening situation. You will have to get used to putting your trust in your new CRT-D and this may make you feel very vulnerable. But try to remember that your CRT-D **will help your heart muscle work more effectively** and treat your abnormal heart rhythm. This is what it was designed to do.

Most people experience feelings of low mood and tearfulness, together with anger, at times. These feelings will pass in time as you adapt to your

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new lifestyle, but if they do not, don't suffer in silence, tell your cardiology team or GP who will be able to help you.

Work

You will have discussed what type of work you are employed to do with the cardiac team before going home from hospital.

The cardiac team will be able to offer specialist advice on when you can safely return to work, based on the level of activity within your job. Much depends on the type of work that you do, and it is always advisable to discuss your return with your employer.

If you need any advice about returning to work, your local Job Centre will have a Disablement Resettlement Officer who will advise you.

This can be a time of financial worry, so speak to someone from the Citizens Advice Bureau or Benefit Agency who will explain what you are entitled to.

Driving

If you drive a car or ride a motorbike, it is essential to let the DVLA know that you have had a CRT-D fitted and you will be expected to voluntarily return your licence until certain health criteria can be met, about which you will be informed.

As shown above, there are some permanent exclusions from driving as part of your job but driving for pleasure or to get to and from work are only usually affected for some time. This will very much depend on your personal continuing health status.

- For example, if you have had your CRT-D fitted partly as a **primary preventative measure**. If it was fitted because your heart failure could cause serious rhythm problems, but has not yet done so, then you will usually be excluded from driving **for one month**. This will be discussed with you when you attend your clinic appointment.
- If your CRT-D has been fitted because of heart failure with serious arrhythmia problems (**secondary prevention**), then it is usual for your licence to be withheld for **six months or more**, until it has been established that you are not a danger to yourself or other road users

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because the defibrillator part of your device is being activated to correct your arrhythmia.

These regulations have been drawn up by the DVLA, following advice from a national Cardiology Advisory Panel. This panel is made up of specialists in Cardiology and Cardiothoracic Surgery.

For more information on driving restrictions, visit the DVLA website at www.dvla.gov.uk or ring them on 0300 790 6806.

It is also important to let your insurance company know that you are not allowed to drive for the period decided.

It is worth noting here that the above restrictions also apply if you must have a procedure to change your device when the battery runs out (one month) or shock from the CRT-D due to life threatening arrhythmia (6 months).

Holidays

Having a CRT-D fitted does not mean that you may not benefit from this important aspect of your life. You will be able to travel both at home and abroad, even if your destination is in a distant country.

Flying should pose absolutely no problems for your CRT-D device, even on long flights but your cardiologist will need to be happy with your underlying heart condition before you travel.

Please make sure that your chosen destination has an adequate health service with facilities to manage an emergency cardiac condition or problem with your device. Your consultant must be told of your plans, so that he may advise you appropriately.

If you are planning to be away on holiday, remember to take your CRT-D identification card with you, together with any emergency documentation you may need.

Take a full list of all the drugs you take and their doses with you. It will be very useful, should you need treatment while you are away.

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If you need vaccinations, please check with your GP or cardiology team to make sure that these will not adversely affect any medication you are taking for your heart condition. This applies particularly to cardiac anti-arrhythmic drugs and drugs used to prevent malaria.

Holiday insurance

As with all chronic medical conditions, holiday insurance may be more difficult for CRT-D patients. Most insurance companies will need a letter from your cardiologist confirming that you are fit to travel and are able to fulfil certain health criteria.

This will vary from company to company.

Your level of cover will also depend on your underlying condition, so don't forget to read the small print before you accept any offer. It may be wise to shop around to find the most cost-effective cover for you, but do not be tempted to settle for cover which will not meet your needs in a medical emergency.

The Arrhythmia Alliance, the heart rhythm charity, has a very comprehensive list of insurance companies who cater for people with long term health problems. You can contact the Alliance via their website: www.arrythmiaalliance.org.uk or by telephone on 01789 450787.

Interference

There are many stories about how electrical interference can cause problems for CRT-D patients. Most of these stories are not true, so please do not worry. Your cardiology team will be able to tell you what is likely to cause problems and what is completely safe.

Mobile telephones

These are usually safe but can affect your device if they are held closer than 15cms (6ins) to where it was inserted. Telephones transmitting more than 3 watts are particularly disruptive. In these cases, hold the 'phone to the ear opposite to where the device is fitted.

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Never carry your mobile in a breast pocket; it is safer in a bag or a trouser pocket. Other people can safely use a mobile close to you without any problem. You may have a cordless 'phone at home. Fortunately, these do not pose any risk, if you never hold the handset over your chest near your device.

Magnets

The CRT-D is very sensitive to strong electrical magnets and will be affected if it comes into close contact (15cms. (6ins) away), with any of the following pieces of domestic equipment:

Stereo speakers in large stereo systems, boom boxes, transistor radios.

The same applies to industrial equipment such as some motors, arc welders and generators.

Most of the equipment you would use around the home, in the office or workplace is not going to have an adverse influence on your device, if you keep at least 15cms(6ins) away but ensure that your domestic appliances are in good repair and are correctly earthed, where earthing is required.

Airport Security Systems

This is an area where there may be a small risk of interference with your CRT-D. Do not go through airport security system equipment and should show your device's ID card to the security staff that will then hand-search you. If you cannot avoid going through the security machine, then make sure that you walk through quickly.

Shop Security Systems (Electronic Article Surveillance)

These may interfere with your CRT-D. You should walk through the door quickly.

In the hospital environment

If you need hospital or dental treatment, it is important that you let the medical and nursing staff know that you have a CRT-D and show them your identification card. If there is any question of safety, they will contact

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your Cardiology Department to ensure that they are treating you appropriately.

People who have CRT-D's implanted **should not** have:

- MRI scans (magnetic resonance imaging)
- TENS devices used to control pain by way of electrical impulses
- Some physiotherapy treatments
- Electro-cauterisation to stop bleeding during an operation
- Shock wave lithotripsy to get rid of kidney stones

This is because this equipment can cause interference with your device.

X-rays, CT scans and mammograms

X-rays do not interfere with the function of your device, and it is safe for you to have CT scans and mammograms, but the same rule applies as with any other medical treatment, you **must** let the staff at the hospital know that you have a CRT-D.

Radiotherapy

If your consultant feels that any medical condition you may have would benefit from radiotherapy, then it is important that they get in touch with the cardiology department managing your care to discuss any proposed treatment, particularly the levels of radiotherapy to be used.

Please remember that despite all the above warnings, it is highly unlikely that anything will cause problems with your CRT-D.

Always involve your family, carers and friends when you have had a CRT-D fitted, so they can help you if there is an emergency and will know when to call for help.

Patient Information

An important note on Shock therapy

If your CRT-D is unable to return your heart to its normal rhythm by pacing, it will deliver a shock.



Patient Information

Advice for patients and carers

The Arrhythmia Alliance is a charitable organisation, approved by the Department of Health, which produces helpful booklets on heart disease, a list of which can be found on their website at www.arrythmiaalliance.org.uk or you may contact them by telephone on 01789 450787.

The British Heart Foundation also offers a wide range of booklets on heart disease and will be able to recommend how to contact Heartstart UK, from where you will be able to learn how to give emergency treatment for cardiac arrest.

The important thing to remember is that if the shock does not work and the patient faints and does not respond to you, dial 999 immediately for an emergency ambulance and get someone to help you if this is possible.

If you want any further information, below is a list of useful email addresses or telephone numbers to help you:

Arrhythmia Alliance

PO Box 3697 Stratford on Avon Warwickshire CV37 8YL

Tel no: 01789 450787 www.arrythmiaalliance.org.uk

Cardiac Risk in the Young (under 35's)

www.c-r-y.org.uk

British Heart Foundation

Greater London House

180 Hampstead Road, London, NW1 7AW

Tel no: 020 7554 0000 Heart Information Line: 0300 330 3311

www.bhf.org.uk

Age UK

Free helpline 0800 009966

www.ageuk.org.uk

Patient Information

NHS Direct (health advice and information)

Tel no: 0845 46 47

www.nhsdirect.nhs.uk

Stop Smoking Coventry:

0300 200 0011

www.covwarkpt.nhs.uk/

Stop for Life:

0800 612 4580

help@stop4life.co.uk

Stop Smoking services:

024 7696 4760

stopsmoking.services@uhcw.nhs.uk

Coventry and Warwickshire Cardiovascular Network

Westgate House, 21 Market Street, Warwick, CV34 4DE

Tel No: 01926 493491 ext. 622

We hope that reading this booklet will have been helpful to you and given you an understanding of what will happen to you during your hospital admission and that it will continue to be a useful resource for you and your family after your CRT-D has been fitted.

Should you have **any** concerns, please contact the staff involved in your care on the number you will find at the beginning of this booklet.

This booklet has been written by the cardiac teams across Coventry and Warwickshire.

The Trust has access to interpreting and translation services. If you need this information in another language or format, please contact us on 024 7696 5666 and we will do our best to meet your needs.

Patient Information

The Trust operates a smoke free policy.

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