Patient Information Leaflet

York and Scarborough Teaching Hospitals NHS Foundation Trust

Cardiac Resynchronisation Therapy (CRT)

Information for patients, relatives and carers

ⓘ For more information, please contact:

Vascular Imaging Unit
Telephone: 01904 726065
Monday – Friday 08:00 – 17:00

Pacemaker Clinic
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Monday – Friday 09:00 – 17:00

Or email us at: yhs-tr.yorkcardiacdevices@nhs.net

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What is a cardiac resynchronisation therapy?

Cardiac resynchronisation therapy (CRT) devices are used to help treat heart failure. They can either be a pacemaker (**CRT-P**) or in combination with an implantable defibrillator (**CRT-D**).

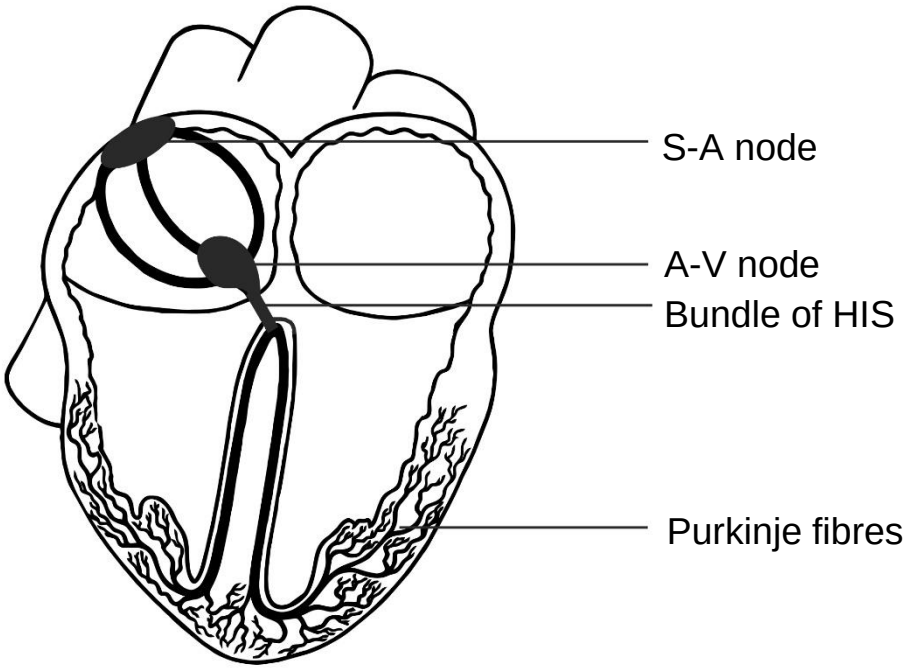
They aim to make the lower chambers of the heart (ventricles) pump at the same time (hence resynchronisation). This is to improve the heart's overall function and potentially reduce breathlessness and other heart failure symptoms.

They work in the same way as traditional pacemakers to help regulate the heart to beat. Traditional pacemakers have one or two leads in the right side of the heart. However, CRT devices are more advanced and will often have a lead in the left side of the heart too.

How the heart works normally

The heart is a muscle that pumps blood and oxygen around your body to all your vital organs. It has four chambers, two at the top (the right and left atria) and two at the bottom (the right and left ventricles). The heart also has an electrical system, which sends impulses (beats), through the heart causing it to contract and pump blood around the body.

Each normal heartbeat begins in the natural pacemaker of the heart (the sino-atrial or SA node) which lies at the top of the right atrium. It travels across the two top chambers and down through a small junction (the atrioventricular or AV node) between the upper and lower chambers. It then spreads across the bottom chambers (ventricles) causing the heart to contract and pump blood to the lungs via the right ventricle and oxygenated blood around the body via the left ventricle.



Sometimes the electrical system in your heart does not work as well as it should, causing your heart to beat too quickly, too slowly or in an uncoordinated way.

A CRT device can help when the left and right ventricle fail to pump at the same time which causes blood to pump in an ineffective way, leading to breathlessness, dizziness and the feeling of less energy.

The leads in the left and right side of the heart can make the ventricles beat at the same time to restore the hearts co-ordination.

You will need to have some tests before the decision to have a CRT device fitted is made, such as an electrocardiogram, ambulatory ECG monitoring, an echocardiogram, and maybe a few others. Your cardiologist will advise as to what is needed.

Why might I need a CRT-P?

- If you have a problem with the electrical pathways in the heart, meaning the heart beats too slowly or the left side is out of time with the right.
- If your overall heart function is less than normal and you suffer symptoms of heart failure despite medication and a healthy lifestyle.

Why might I need a CRT-D?

- If you have heart failure as mentioned above.
- If you have previously had a ventricular arrhythmia or are at risk of one due to your type of heart failure or inherited heart condition.
- If you have had a heart attack, which has caused damage to the pumping function of the ventricles as well as the electrical pathways in the heart.

For more information on the defibrillator part of a CRT-D, please read the information leaflet ‘Implantable Cardioverter Defibrillator (ICD)’.

How is the CRT device implanted?

You will arrive at the Vascular Imaging Department at an agreed time or if already in hospital, a ward nurse and a porter will take you to the procedure room. Once there, another nurse will check your details again and you will be asked to lie on a trolley or narrow operating table.

The procedure is performed under local anaesthetic and sometimes with sedation, which will make you relaxed and sleepy. There will be a circulating nurse in the room throughout the procedure to check on you.

Before the implant procedure starts, the doctor will inject some local anaesthetic under the skin just below your collarbone (usually the left side). This will numb the area and allow the doctor to pass a small lead or electrode through a vein into your heart.

You may have two or three leads inserted depending on what your doctor recommends. The leads are then connected to the pulse generator box, which is about the size of a large matchbox which will be placed under the skin.

What happens after the CRT device is implanted?

After the procedure you will undergo some checks outside in recovery or back on the ward. It is important to let the nurse know immediately if you experience any pain at all. It is normal for the wound to be sore or bruised for a few days so you may be given some regular painkillers. You will also be given some antibiotics before the procedure.

There is a small risk the leads into the heart can move out of position. To minimise this risk, you should not lift the arm or perform vigorous movements on the side the CRT device is implanted. This is for at least six weeks after the procedure.

After this time, you will be able to return to normal activity providing the wound is healed and the device is functioning appropriately. If you are unsure, it is important to check with your cardiologist, nurse or cardiac physiologist after the procedure.

The cardiac physiologist/scientist will come and see you at least four hours after the procedure to check the device before you go home. This involves using a special programmer to communicate with the device and usually takes around 20 minutes.

You will be given a CRT/pacemaker identity card before you leave hospital, or it will be sent out in the post. At this time, you can ask any questions you may have about the device.

- If you have the procedure done as an outpatient or day case, you will likely go home the same day unless there are any complications, or the procedure finishes late in the day.
- If you have the procedure done whilst already being in hospital, you may stay in overnight so extra checks may be carried out.

If you do go home the same day, the cardiac physiologist/scientist will arrange an appointment for you to come back the next day, to have the device checked again.

If you are unable to travel to an appointment the next day, an appointment may be performed through a home monitor -see ‘Clinic Visits / Remote Monitoring’ on page 7.

How do I care for my wound site?

Your wound site should take approximately six weeks to heal fully. It is important to:

- Keep the dressing on until the stitches, clips or steri-strips are removed.
- If the dressing becomes soiled or wet, wash your hands thoroughly, remove the existing dressing and replace with one of the new dressings given to you. **Do not touch the wound site.**
- You may notice some bruising; if the bruising is soft, this is normal. If the bruising is hard or the wound site starts to swell, or bleed or ooze apply firm pressure to the area and return to hospital.
- Avoid taking hot baths so take a cool bath or shower for a few days. It is important to keep the wound clean and dry.

You may need to make an appointment with your GP practice seven to ten days after your procedure to have the closure material removed. If you:

- develop a fever.
- the wound site is red or warm to touch.
- or you have any concerns regarding the wound site.

Please contact the Cardiorespiratory Department (York Hospital) - if out of hours, please contact your GP.

What about my medication?

Do not stop taking any prescribed medication unless you doctor instructs you.

If you are taking warfarin, rivaroxaban, dabigatran, apixaban or edoxaban, please ask the nurse or doctor before discharge when you should recommence taking your medication.

Going home

- On discharge, we advise you to take plenty of rest over the following couple of days. Gradually build up your activities to your normal level.
- Avoid extending your arm or shoulder for the first six weeks, so no reaching, lifting, and stretching.
- Avoid rough contact that could result in blows to the implant site.
- Avoid rubbing the wound site or the surrounding chest site.
- Avoid lifting heavy objects, pushing, pulling, mowing the lawn, or hoovering until instructed by the pacemaker clinic.

Living with a CRT device

If you have a CRT-D device, please also read the 'Implantable Cardioverter Defibrillator (ICD)' information leaflet for 'Living with an ICD'

When can I return to work?

We advise you not to return to manual work for seven to ten days but you may return earlier for sedentary occupations such as desk jobs.

Can I use my mobile phone?

You may still use your mobile phone as long as it is not carried over the CRT device, such as in the left chest pocket. We also advise you to use the ear on the opposite side of the CRT device site when on the phone.
You must maintain a distance of 15 centimetres (6 inches) away from your device.

This is especially important if you have a mobile phone that has a magnet in the back of it, this is some iPhone models.

What about driving?

The Driving and Vehicle Licensing Agency (DVLA) have strict guidelines in relation to patients that have a CRT device implanted.

If you have a **CRT-P** device, typically you will not be able to drive for one week.

If you have a **CRT-D** device, the driving restrictions will vary depending on why you have had your ICD fitted. It is important to discuss this with your cardiologist or cardiac physiologist.

You can access the guidelines on the DVLA website and will also need to inform your motor insurance company to let them know you have a CRT device fitted.

Clinic visits / remote monitoring

If the procedure was done as an outpatient or day case, you will come back to the Pacemaker clinic the next day for a further check. This will be arranged with the cardiac physiologists when they see you after the implant procedure.

At the next day clinic appointment, the cardiac physiologists will check the device using a special programmer. This allows them to check the settings on the device, the CRT battery and test the lead(s) to ensure it is functioning appropriately.

You may also be given a remote monitor which allows the Pacemaker clinic to check your device from home. It uses a small device plugged in in the bedroom that sends the information securely using an integrated aerial.
If you have any questions regarding your clinic visits or remote monitoring, please discuss it with the pacemaker clinic during your visit, or via telephone.

Exercising

You should restrict your exercise and movement for six weeks post-implant. After your first follow up appointment, you should be able to resume normal activity levels. This is mainly to minimise the risk of the leads moving out of position.

It is more likely that your underlying heart condition will have more influence on your ability to exercise than the CRT device itself. This can be due to shortness of breath, fatigue or chest pain and should not be ignored.

Research has shown that physical activity is hugely beneficial for people with a pacemaker or CRT device; however this should be progressed slowly from the first follow up after implant, usually six weeks. If you are not sure what you can and cannot do, discuss this with the pacemaker clinic at your follow up appointments.

What electrical equipment can I use?

Most electrical appliances at home will be safe to use providing they are in good working order. This includes:

- Televisions, radios, CD and DVD players.
- Hairdryers, shavers.
- Washing machines, fridges, hoovers, ovens and microwaves.
- Office equipment such as computers, telephones and printers.
- Remote controls.

There is some equipment which is **not** advisable to use when you have a pacemaker / CRT device implanted. This is usually due to strong electromagnetic fields or vibrations from the equipment. This will not typically damage the pacemaker but will interfere with normal function when in contact with it. This includes:

- Arc and MIG welders.
- Heavy drilling equipment.
- Discharging of firearms.
- Induction hobs.

If you still need to use this equipment, or some electronic equipment is not listed above, speak to your cardiologist or cardiac physiologist for advice before using this equipment. Our clinic number is on the front page of this booklet.

Further Information

Magnets

Do not carry magnets or place a magnet over the device site. Avoid carrying devices that contain strong magnets as they can temporarily interfere with the pacemaker function.

Travel

You can safely travel abroad with your device, but it is advised to show the security staff your CRT/pacemaker identification card. You should also ask to be searched by hand as hand-held wands can interfere with your pacemaker. You may walk through metal detector arch ways briskly, but due to the metal casing of the device, it will cause the detector to alarm.

It is important to let your travel insurance company know that you have a device, but this may increase your insurance premium. The British Heart Foundation website has a list of friendly insurance companies for people with a pacemaker.

Other medical procedures

If you require any other medical procedures or operations, it is important to let the medical professional looking after you know you have a pacemaker beforehand. This is because technical support may be required before and after the procedure to ensure the pacemaker is functioning appropriately.

Please ensure you have your pacemaker identification card with you whenever you go to hospital.

Tell us what you think of this leaflet

We hope that you found this leaflet helpful. If you would like to tell us what you think, please contact: Vascular Imaging Unit, York Hospital Wigginton Road, York, YO31 8HE, telephone 01904 726065 or email us at yhs-tr.yorkcardiacdevices@nhs.net.

Patient Advice and Liaison Service (PALS)

PALS offers impartial advice and assistance to patients, their relatives, friends and carers. We can listen to feedback (positive or negative), answer questions and help resolve any concerns about Trust services.

PALS can be contacted on 01904 726262, or email yhs-tr.patientexperienceteam@nhs.net

An answer phone is available out of hours.

Teaching, training and research

Our Trust is committed to teaching, training and research to support the development of health and healthcare in our community. Healthcare students may observe consultations for this purpose. You can opt out if you do not want students to observe. We may also ask you if you would like to be involved in our research.

Leaflets in alternative languages or formats

If you would like this information in a different format, including braille or easy read, or translated into a different language, please speak to a member of staff in the ward or department providing your care.

Patient Information Leaflets can be accessed via the Trust's Patient Information Leaflet website: www.yorkhospitals.nhs.uk/your-visit/patient-information-leaflets/

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