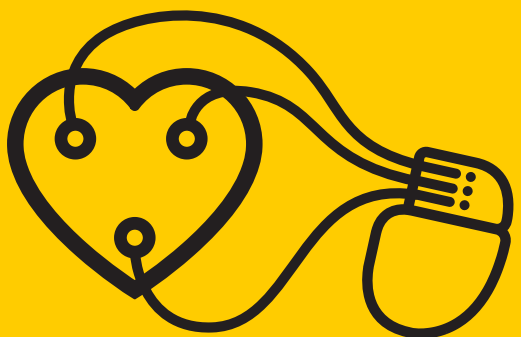
A Marvellous Guide to Having a Cardiac Device Fitted in Patients with Heart Failure

A Patient's Story...



WELCOME TO THE PUMPING MARVELLOUS FOUNDATION

A number of Heart Failure patients now live with complex cardiac devices. This Marvellous Guide has been created by the Pumping Marvellous Foundation (PMF) and Patient Educators who all live with a cardiac device. The aim of this guide is to give you the information that we HOPE will be helpful when you are about to have your cardiac device fitted. There is technical information here in 'patient speak' and discussion around the various emotions that you may be experiencing at this time.

We feel this is one of our more technical toolkits, but the Patient Educators feel we have explained it sufficiently in their language so that you will understand it. If you require help then please do not hesitate to call us on **01772 796542** or email **hearts@pumpingmarvellous.org**.

Many thanks to Consultant Cardiologist Dr Fozia Ahmed for reviewing this version of our Cardiac Device guide, along with Patient Educators from the Pumping Marvellous Foundation. We would also like to thank Medtronic UK for funding this widely used guide in the NHS.

Nick Hartshorne-Evans BEM
Founder and CEO
Pumping Marvellous Foundation

PLEASE NOTE: This guide should not replace or substitute interactions with your healthcare professionals. If you have any concerns regarding your condition, you should discuss these with your healthcare professional at the earliest opportunity.

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What Are They and How Do They Work?

Cardiac devices are very clever, almost as clever as your body! To understand how a cardiac device works, it's necessary to understand how the heart works.

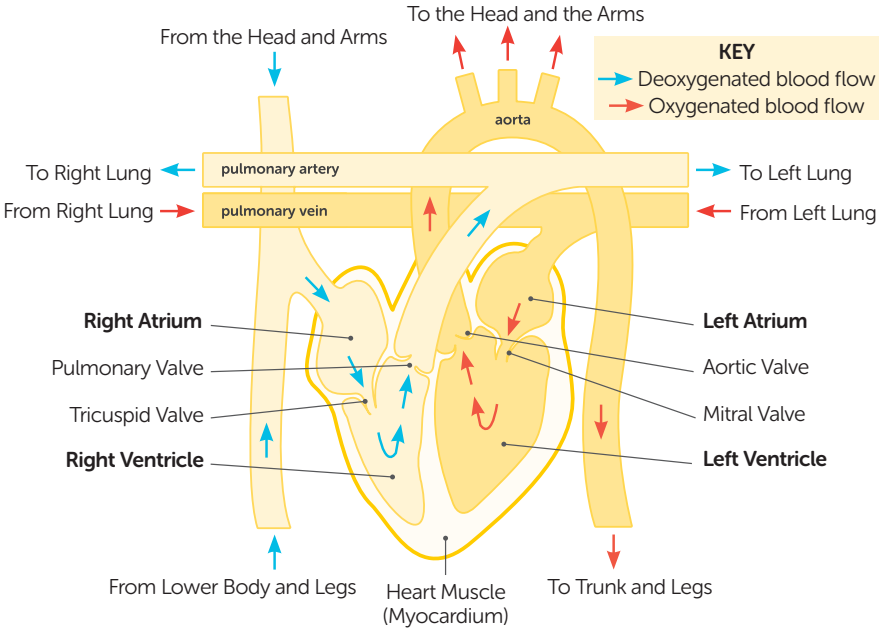
The heart is a pump that ensures that blood containing oxygen and nutrients is delivered to all parts of the body. When the heart is unable to do this efficiently, we call it Heart Failure.

The heart is made up of four chambers (see diagram): the **right** and **left atria** (upper chambers) and the **right** and **left ventricles** (the bottom chambers). This diagram shows how blood from the body is returned to the right side of heart, before it passes through the lungs to pick up oxygen. After this, blood rich in oxygen is pumped out from the left ventricle (LV) to the body.

The left ventricle is one of the most important parts of the heart, responsible for ensuring all parts of the body receive oxygen-rich blood, all of the time.

When referring to how effectively a heart pumps blood around the body, doctors use the term **ejection fraction**. The ejection fraction compares the amount of blood in the heart to the amount of blood pumped out. When the heart is working well, between 55-70% of blood is pumped out of the left ventricle with each heartbeat. An ejection fraction of 55% means that 55% of the blood in the left ventricle is pumped out with each heartbeat.

1 in 2 patients with Heart Failure will have reduced ejection fraction. If the ejection fraction is significantly reduced, your doctor may speak to you about a cardiac device.



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The New York Heart Association Scale

You can assess how you are feeling with your Heart Failure by looking at the table below.

NYHA Class	Symptoms
NYHA Class I	No limitation of physical activity. Ordinary physical activity does not cause undue tiredness, palpitations or shortness of breath.
NYHA Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in tiredness, palpitations or shortness of breath.
NYHA Class III	Comfortable at rest, but less than ordinary activity causes tiredness, palpitations or shortness of breath.
NYHA Class IV	Unable to carry out any physical activity without discomfort and tired and short of breath even at rest. If any physical activity is undertaken, discomfort is increased.

Why People May Need a Specialised Cardiac Device

Specialised pacemakers for people with Heart Failure

In a healthy heart, the right and left ventricles are activated at almost exactly the same time; this means that they pump blood out of the heart in a synchronised manner.

In Heart Failure, an electrical abnormality called 'bundle branch block' may occur. This means that the electrical impulse passes through the ventricles much slower than normal. The result is delayed electrical conduction through the heart, which in turn can cause the heart to pump less efficiently and contribute to low heart muscle pumping function, or Heart Failure.

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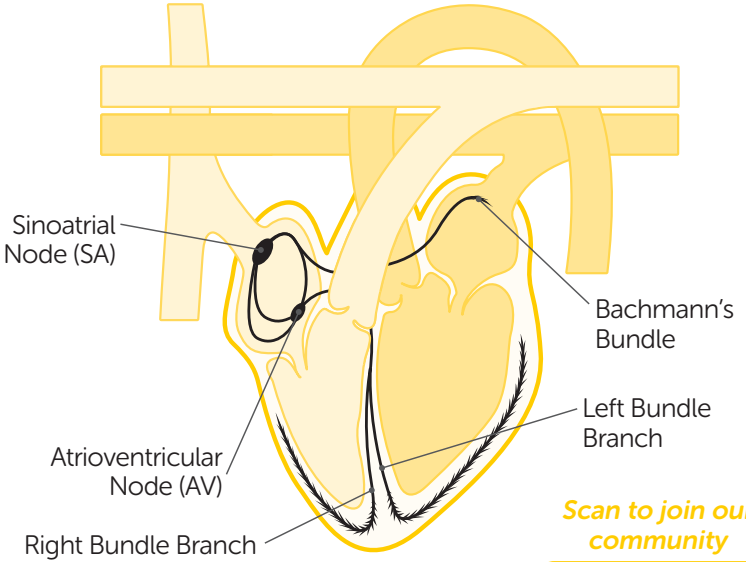
If you have bundle branch block with low heart pumping function, a specialised pacemaker, called a biventricular pacemaker (bi meaning two) or cardiac resynchronisation therapy may be recommended.

This specialised pacemaker entails two leads being placed in contact with the right and left sides of the heart to stimulate both ventricles to contract at the same time and resynchronise your heart function. Treatment with a specialised pacemaker has been shown to lead to improved symptoms, improved quality of life, fewer hospital admissions due to Heart Failure and increased life expectancy.

People who may benefit from an implanted defibrillator

Some people may be identified to be at increased risk of potentially life-threatening heart rhythm problems. These are typically fast heart rhythms arising from the bottom chamber of the heart (ventricular arrhythmias). This can be due to an inherited problem, a heart attack, or Heart Failure, and can be treated with a cardiac device called an **Implantable Cardioverter Defibrillator** (ICD). ICDs are used in the treatment of patients at high risk of potentially life-threatening heart rhythm problems. This type of cardiac device will either deliver extra beats to try and terminate the abnormal heart rhythm (overdrive pacing), or in the event that the abnormal heart rhythm is sustained, deliver a shock to restore normal heart rhythm. In selected patients with Heart Failure, an (ICD), either on its own, or combined with a specialised pacemaker designed to resynchronise the heart (cardiac resynchronisation therapy pacemaker; CRT) may be indicated.



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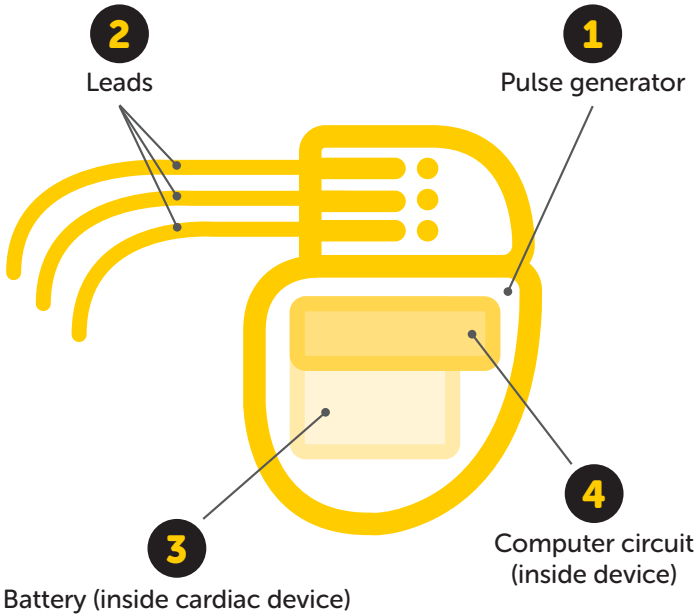
Cardiac Devices/Pacemakers

Cardiac devices (pacemakers and defibrillators) have evolved significantly over the last decade. They have become smaller in size and more sophisticated in their function. Today, a pacemaker is the size of a stopwatch and weighs between 25 and 50 grams.*

A defibrillator is a little larger and weighs around 50-70 grams.

A cardiac device contains four elements:

1. A pulse generator (this contains the battery and electronics, including a small computer circuit).
2. The leads; these are placed inside the heart and are connected to the battery that is usually placed at the top of the chest, just below the collarbone.
3. The battery will last anywhere between 6 to 10 years, depending on how much your cardiac device has to do. The battery life will be assessed on a regular basis so that your clinician knows when you may require a battery replacement.
4. A minute computer circuit which converts energy, produced by the battery, travels down the wires and stimulates your heart to beat.



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Why Might I Need a Cardiac Device?

ICD or pacemaker?

- In selected patients with Heart Failure, an implantable cardioverter defibrillator (ICD), either on its own, or combined with a specialised pacemaker designed to resynchronise the heart (cardiac resynchronisation therapy pacemaker; CRT) may be indicated.
- While some patients require either a CRT pacemaker or an ICD, other patients require a device that can do both.
- An ICD differs from a pacemaker in that pacemakers are designed to regulate the heartbeat but do not give a shock like an ICD.
- ICDs are used in the treatment of patients at high risk of potentially life-threatening heart rhythm problems.

Implantable cardioverter defibrillator (ICD): who gets one?

- An ICD is designed to prevent a person identified to be at increased risk of an abnormal heart rhythm from dying suddenly due a dangerous heart rhythm.

What is it?

- An ICD is a small device, typically compared to the size of a stopwatch, that is placed under the skin at the top of the chest, just below the collarbone.
- A lead is introduced through a vein at the top of the chest and is placed in contact with the inside of the bottom chamber of the heart (right ventricle).
- When the lead is connected to the ICD battery, the device is now able to monitor every single heartbeat.
- If the ICD detects a potentially life-threatening heart rhythm then the device first watches to see if the abnormal rhythm terminates.
- If the abnormal heart rhythm continues, the ICD is programmed to either deliver extra beats to terminate the abnormal rhythm or deliver a shock to restart the heart in a regular rhythm.

Cardiac resynchronisation therapy (CRT) device: who gets one?

- The majority of patients who go on to receive a CRT device have an abnormality on their ECG called bundle branch block (most commonly left bundle branch block), which results in delayed electrical conduction through the heart, which in turn can cause the heart to pump less efficiently and contribute to low heart muscle pumping function.
- Bundle branch block may also occur in healthy people who have no symptoms and do not require treatment.

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- However, if you have left bundle branch block with low heart pumping function, your cardiac care team may recommend cardiac resynchronisation therapy. This consists of a lead being placed in contact with the right and left sides of the heart to stimulate both sides to contract at the same time and resynchronise your heart function.

What are the benefits of having a CRT device?

- A CRT pacemaker, either alone, or combined with a defibrillator is designed to improve heart muscle pumping function.
- Up to 70% of patients with low heart muscle pumping who undergo a CRT implant have an improvement in heart muscle pumping function (ejection fraction).

In patients with Heart Failure, CRT pacemakers have been shown to:

1. Improve heart function (ejection fraction) in 7 out of 10 patients fitted with a CRT.
2. Reduce the risk of being hospitalised due to Heart Failure.
3. Improve life expectancy.

Patients' Experiences

For the patient

You are no doubt experiencing a wide range of emotions at present and these differ from person to person. Some patients express how they are pleased and positive that there is a treatment which they HOPE will stabilise their Heart Failure symptoms. For others, they express feelings of shock, being emotional, frightened, concerned and apprehensive. Many speak of the speed of what is suddenly being proposed and are desperate for information to understand what is going to happen. Sometimes patients are attending a routine appointment when cardiac device treatment is recommended and it is not always possible for them to have time to reflect on what is being proposed. Remember that this therapy is being recommended by your cardiologist because they feel that it will help you, so ask them exactly why they feel this is the best option for you, including the benefits and the risks. Ensure that you are given contact details, so that when you go home and if you think of any concerns, you are able to contact your cardiologist and further discuss the procedure with them.

For the carer

You may be a family member, a friend, a neighbour, or a professional carer. Whoever the significant other is in your life, we suggest that you show them this guide so that they have an understanding of the proposed treatment, the type of device recommended and how you (including your emotions) may be affected.

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Benefits of Having a Cardiac Device

Our Patient Educators tell of the HOPE and RELIEF that many of them experienced when they had their cardiac device fitted. The cardiac device is there to improve your symptoms and/or detect and treat potentially life-threatening heart rhythm problems (arrhythmias). You may experience an improvement in your symptoms of Heart Failure if you have had a CRT device fitted almost immediately; however, other patients report a more gradual improvement in their symptoms, over a period of weeks or months. It may take up to 6 months before the benefits of a CRT can be fully assessed. Symptoms relating to severe palpitations and dizziness may improve soon after insertion of your cardiac device.

For some patients, particularly those who are very slim, their cardiac device may be quite prominent in their chest. In some cases the cardiologist may recommend placing the device under the muscle.

Pre-operative Assessment

What happens before the procedure?

Before the procedure you will typically be invited to a pre-operative assessment. This usually occurs a few weeks before the planned procedure. During the appointment, usually carried out by a nurse, routine blood tests will be taken. The nurse will explain the procedure in detail to ensure you have a good understanding of what the procedure will entail and advise if any specific medications should be stopped beforehand (e.g. warfarin or other anticoagulants). You may be asked to sign a consent form at this visit. This appointment is a very good opportunity to ask any outstanding questions or discuss any concerns that you may have. Some hospitals may wish you to have nothing to eat or drink for 4-6 hours before the procedure due to the sedation you will receive.

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Potential Risks Associated With the Procedure

As with any medical or surgical procedure, cardiac device implantation has risks as well as benefits. Your cardiologist or nurse will explain these in detail. Risks associated with cardiac device implantation may include the following:

- Bruising/swelling at the site of the cardiac device. This usually settles in a few weeks.
- There may be slight bleeding at the site (more common in patients who are also prescribed blood thinners).
- There is a small risk of infection at the site.
- One of the leads may move or become displaced, it will then become necessary to reposition this.
- Very rarely (in less than 1% of cases) one of the lungs may be accidentally punctured during the procedure and this may cause an air leak. This is called a pneumothorax (identified by an X-ray after the procedure has taken place). This may settle of its own accord or require a small drain to be inserted.
- Very rarely (in less than 1% of cases), a complication called cardiac tamponade may occur. This is where blood accumulates around the heart. This rare occurrence could lead to major complications.

See our section on our website under "Heart Failure Guide/CRT Devices" for information in regard to specific issues relating to these cardiac devices.

What Happens on the Day?

On the day itself, you will be admitted to the unit where the procedure is to take place. Most patients are able to go home the same day. The procedure usually takes place in a mini theatre, often referred to as the CATH lab. Male patients may be asked to consent to having the hair on their chest clipped prior to the procedure and ladies asked to remove any nail varnish. You will be given a theatre gown to wear and during the procedure you will be covered with drapes to keep the area sterile.

You will find a number of people in the room who all have a vital role to play. They will introduce themselves and explain their role. A general anaesthetic is usually not required, but you will be offered sedation and local anaesthetic. This will ensure that you feel no pain and

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are relaxed. Your heart rate, ECG and blood pressure will be monitored during the procedure and you may be given oxygen via a face mask. A cannula (thin plastic tube) will be placed into a vein in your arm and will stay there so that medication, including sedation and pain relief, can be delivered through the procedure and topped up if required. You can expect the procedure to take a couple of hours, particularly if you are having a CRT device fitted. Do tell the team if you are in any discomfort or if you have any questions as your procedure is taking place. You will also be given antibiotics intravenously (into the vein) before the procedure as a precaution against infection.

How Is the Cardiac Device Fitted?

You may wish to visit the Pumping Marvellous website to watch a video on a cardiac device being inserted.

Having had your sedation, you will feel relaxed and even sleepy. You will feel a cold solution (which is an antiseptic) placed on the area where the procedure is to take place in order to clean the skin. A small injection (local anaesthetic) is administered to the site to numb the area. Using X-ray guidance, the cardiologist will pass between 1 to 3 leads via a large vein below the collarbone, into the heart. The number of leads placed depends on the type of device you are having fitted. For patients undergoing a CRT implant, in addition to leads being placed inside the right side of the heart, an additional lead is placed into a vein that wraps around the left ventricle. Occasionally this can take a little time.

At the end of the procedure, the leads are connected to the cardiac device which is then placed into a pocket, fashioned under the skin at the top of the chest. The leads and cardiac device are then tested and the wound is stitched up, typically using dissolvable stitches under the skin that do not need to be removed. Once your cardiologist is happy the cardiac device is working as intended, you will be taken back to the ward to rest. Once back on the ward, you will be allowed to eat and drink. Your heart rate, rhythm and blood pressure will continue to be monitored for a few hours and you will undergo a chest X-ray to ensure the leads are in the correct position before being discharged home. You will be offered painkillers for any discomfort you may have. If you do experience any discomfort or feel unwell, make sure that you tell the ward staff.

Do ask any questions or raise any concerns you may have with the specialist team.

Scan for more information

For more information, go to:
www.pumpingmarvellous.org/heart-failure-guide/crt-devices/

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Follow-Up Arrangements

You should ensure that the site of your cardiac device is kept clean and dry after the procedure. Advice may vary, but you can generally shower or bathe the day after the procedure. However, you should avoid soaking the area or immersing in water until the incision (cut) has healed, which may take a few weeks. Ask the cardiologist or nurse if unsure.

Ensure that you are aware of the follow-up arrangements should you have any concerns regarding your cardiac device site, particularly any redness, heat, pain or oozing. It is not uncommon for the site to be a little swollen after the procedure, but this should settle with time. If, however, the swelling does not settle or it becomes sore, then contact the number you have been given in case of any problems. Expect to feel the cardiac device under your skin and even the wires, this is normal.

You will be given a further appointment to see your heart rhythm team, typically two weeks after device implant, in order to retest the device. This appointment may be in-clinic or remote.

You will be given a card with all the details of your cardiac device on it. Ask the staff on the ward to explain to you exactly what your card says. You should carry this with you at all times.

You are likely to be given a home monitor that works via your telephone line or cellular network, which sends important information about how your device is functioning and with health-related data monitored by your device to your cardiac care team. A full explanation will be given by your cardiac team.

At any time in the future the battery of your cardiac device will need to be changed – this will only involve changing the unit and not the leads.

Any additional information relating to your device and its manufacturer can be obtained from their website. The makers of your specific device can be found on the documentation you should receive post-procedure. If you have not received that then ask your team.

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Dos and Don'ts

You will be given some general advice about living with your cardiac device; however, here is some information that you may find helpful at this stage:

- **Arm Movements** – until you have had your first follow up appointment you should be careful not to raise your arm above shoulder level and avoid lifting heavy objects and any contact sports. This will ensure that the healing process can take place and that the leads remain in the correct position within the heart. Typically, after approximately 6 weeks, the leads become fixed in their position and are less likely to move.
- **Physical Activity** – please discuss this with your healthcare professional first. Physical activity can be undertaken usually after a period of three or four weeks, however, you should avoid contact sports. It is better to gradually build up your exercise regime. Ask if there is a cardiac rehabilitation programme that you can be referred to.
- **Mobile Phones/Cordless Phones** – there is some evidence to suggest that a mobile phone may interfere with your cardiac device. It is suggested that you do not keep your phone in a garment pocket that would cover your cardiac device. It is also recommended that you hold your mobile six inches away from your cardiac device, preferably using it in the hand opposite to your cardiac device.
- **Sexual Activity** – care should be taken for a period of six weeks so that excessive strain is not placed on the cardiac device site. If you have an ICD fitted then no harm can be caused to your partner if the cardiac device delivers a shock.
- **Medical Cardiac Devices** – always inform your healthcare professional of your cardiac device card, which will indicate the type of cardiac device you have and if medical equipment, such as MRI scans which have magnetic fields, would interfere with your cardiac device. If you require surgery then the ICD will be temporarily deactivated prior to surgery and reactivated once the surgery is over. Your heart rate and rhythm are typically monitored throughout an operation and any treatment given if required.
- **Magnets** – avoid placing any form of magnet over your cardiac device as this will interfere with your cardiac device. In an emergency a medical team may need to switch off an ICD. They may do this by holding a magnet over your cardiac device.
- **Medication** – your cardiology team will no doubt review your medication and you may find that some things will be stopped, added or current medication increased.
- **Security Systems** – you will need to inform airport security that you have a cardiac device as again they employ a magnetic field. Security staff will use a handheld wand, instead of the usual security gates.
- **Cardiac Device Shock** – in the event that you felt unwell, either before or after the ICD delivers a shock you should call an ambulance or seek urgent medical advice. Should you feel 'fine' after a shock, most ICD clinics ask that you still contact them in case a change in treatment is required.

  As advice may vary, ask the specialist nurse or cardiac physiologist about when to contact them in the event that your ICD delivers a shock.

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Cardiac Devices and the DVLA

We believe this section is relevant to understanding the impact of having a cardiac device, concerning the restrictions that may be applicable as designated by the DVLA. Do discuss any concerns or questions around this issue with your health team prior to your procedure.

You must inform the Driver and Vehicle Licensing Agency (DVLA) that you have had a cardiac device fitted. You can visit their website on:

www.gov.uk/defibrillators-and-driving

Scan for government guidance

For an ordinary driving licence and non-ICD pacemaker

You will be able to drive a week after fitting your cardiac device, as long as:

- You have no symptoms such as dizziness or fainting which may affect driving.
- You attend regular check-ups in the pacemaker clinic.
- You have not recently had a heart attack or heart surgery.

For a large goods vehicle (LGV) or passenger-carrying vehicle (PCV) licenses

- You cannot drive these vehicles for six weeks after the cardiac device is fitted.
- You can apply for another licence when you no longer have any symptoms that would affect driving – e.g. dizziness or fainting.
- A current licence is replaced with a three-year licence and you will have to go to a pacemaker clinic regularly.

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Driving and ICDs

Please check the DVLA website regarding up-to-date information, however, the following gives general guidance.

Not associated with incapacity

- You can drive after one month if stable, non-sustained VT provided LVEF is less than 35%, no inducible fast VT and any induced VT is terminated (needs to be shown twice).
- If, subsequently, the ICD provides a shock then the driving rules revert to the same as those 'associated with incapacity'.
- For ICDs inserted as a precaution, you cannot drive for one month after implantation – if, however, they subsequently receive a shock then they too fall under the 'associated with incapacity' rules.
- Group 2 drivers (e.g. lorry or bus drivers) – there are no subdivisions that apply and they are permanently barred.

Associated with incapacity

- You cannot drive until six months after the procedure.
- You cannot drive for a further six months after any shock therapy and/or symptomatic antitachycardia pacing.
- You cannot drive for a period of two years, if after cardiac device implantation, incapacity results. This could be from the cardiac device or an arrhythmia, unless:
  - It is proven to be an inappropriate shock (e.g. atrial fibrillation); or
  - The shock was appropriate but measures to prevent it have been undertaken (then you can drive after six months).
- You cannot drive for one month after any alteration of the leads or change to antiarrhythmics.
- You cannot drive for one week following a change of the ICD box.

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Top Tips From Patients

Here are some top tips from the Pumping Marvellous Patient Educators on having had a cardiac device fitted:

- On the day, it's not as frightening as you think.
- In the first few weeks after device implant, try and sleep on the opposite side to your cardiac device to avoid discomfort.
- If it's a cold day, wear an extra T-shirt or sweater as you feel the cold more on the site of your cardiac device.
- Remember to rest and listen to your body.
- In the first few days/weeks after device implantation, front-fastening pyjamas/bras help to reduce excessive movement of your arms.
- Take your nail varnish off when you go to have your cardiac device fitted.
- When having your cardiac device fitted don't be afraid to ask your healthcare professional any questions.
- It can take time to have your cardiac device fitted, so don't panic as it can be fiddly.
- When driving use a baby sponge under your seat belt over the site of the cardiac device.
- Your cardiac device site takes some time to settle down, so don't panic. After the procedure, ask the specialist nurse or cardiac physiologist about when and who to contact in the event that your ICD delivers a shock.

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Concerns on Activation of an ICD

Having an ICD fitted is a major decision that you may wish to discuss with your doctor, nurse and family. Its capacity to prevent you experiencing a life-threatening event cannot be underestimated, however, it can impact on your lifestyle; it may affect what work you can undertake, e.g. you will not be able to drive certain vehicles or be an arc welder due to magnetic field interference with your cardiac device. Some patients are understandably concerned about the possibility of their cardiac device giving them a shock (activated). It is important to consider that in the vast majority of cases a shock is delivered to terminate a potentially life-threatening heart rhythm. Patients feel that their confidence in living with a cardiac device eventually grows. One patient put it as "better my cardiac device goes off than dying".

Patients ask what will it feel like to receive a shock from their cardiac device. Our Patient Educators described it as receiving a blow to their stomach which passes quickly. It is natural to feel very emotional afterwards. This may impact you psychologically as you may wonder if this is likely to occur again. Remember the cardiac device has done its job, discuss your feelings with your healthcare professional or give us a call on **01772 796542.**

One aspect that is not often discussed is what happens should you reach the end of your life, something that will happen to all of us. Having an ICD in does not mean that you will never die, it may prevent you from dying of a life-threatening arrhythmia. Some patients may reach a point whereby their Heart Failure has resulted in their heart now being too weak to continue or a patient may develop a terminal condition. As a consequence they may wish to die without their cardiac device being activated. For such patients a discussion can be had with their consultant, GP or nurse into having the shock aspect of their ICD turned off (deactivated). This can be performed quite easily by the settings being changed by the cardiac device specialist team.

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Remote Monitoring

Most cardiac devices now have remote monitoring capabilities. As well as sending data to your cardiac device team about battery status and lead function, modern day cardiac devices also routinely collect health-related data, including heart rate, rhythm, activity levels and changes in fluid levels within the body. Your cardiac device can transmit data via your home monitor (this may also be a mobile app) to a secure monitoring system that your healthcare team can access.

What it does

Health-related data from your cardiac device may help your healthcare team to:

- Manage your heart condition.
- Monitor your heart device.
- Make adjustments to your treatment based on monitored data.

Why is this important for patients and their families?

- It may reduce the number of visits you make to the device clinic.
- It helps your healthcare team detect abnormal heart rhythms.
- It may help alert your healthcare team to changes in your health data, in between routine clinic visits.
- This may allow your healthcare team to make changes to your treatment based on up-to-date health data.
- It may help you have a sense of security around your device.

What you need to know

Some remote monitoring systems have patient support apps available to download on a mobile device, such as a smartphone or tablet.

- The remote monitoring system can come in all different shapes and sizes depending on the manufacturer and generally sits at the side of your bed, or may be a mobile app downloaded to your phone. Downloads usually take place at night when you are asleep. You won't know this is happening.
- The remote monitoring system does not change anything with your cardiac device and does not affect battery performance.
- What it does do is report to your healthcare team how your heart is working with your cardiac device.
- It transmits data that helps your healthcare team understand your condition.
- It doesn't call anybody or 999. All it does is transmit important data that helps your healthcare team make the best decisions for you.
- In the event that you feel unwell, you should seek medical assistance in the usual way.

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- The information transmitted from your device will be used at your regular device clinic appointments, so your healthcare team can make the best decisions for you.
- Depending on your device, the data will be sent to your healthcare team automatically or prompt you to send information at a scheduled time to your healthcare team.
- In order for the device to transmit data it needs to be left switched on. The home monitor consumes minimal electricity.
- If you are regularly away from your home monitor for long periods of time, consider speaking to your healthcare team about whether your device is compatible with mobile app monitoring that can be downloaded to your phone.

Simply

Schedule – download of information is scheduled.

Send – your device sends information securely to your remote monitor.

Transmit – your remote monitor sends information to a secure website.

Healthcare team – your team review the information.

For more detailed information you will get an information pack from the manufacturer of your device.

Your Device Details

Device Type:

_____

Manufacturer:

_____

Serial Number:

_____

Device Clinic Tel Number:

_____

Other Details:

_____

_____

_____

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How Data From Devices May Help Improve Your Care

Health data from your cardiac device may help to identify if there has been a change in the way your heart is functioning.

Both Medtronic and Boston Scientific cardiac devices allow health-related data from your cardiac device to send alerts to your healthcare team in the event that a change in health-related data is detected. This may help manage your Heart Failure care.

'HeartLogic'™ (Boston Scientific) is available in selected newly implanted CRTD and ICD devices. If a significant change in health-related data is detected by your device a notification will be sent to your heart care team.

*The MyLATITUDE™ Patient App does not replace the Patient Manual or LATITUDE™NXT Communicator.

**LATITUDE™NXT Patient Management System Important Safety Information: https://www.bostonscientific.com/content/dam/bostonscientific/Rhythm%20Management/portfolio-group/LATITUDE/emea-patient-manuals/patient-brochure/CRM-916601-AA%20MyLATITUDE%20app%20Patient%20Brochure%20FINAL.pdf.

***Not all Boston Scientific Cardiac Devices are compatible with MyLATITUDE™

All cited trademarks are the property of their respective owners. CAUTION: The law restricts these devices to sale by or on the order of a physician. Indications, contraindications, warnings and instructions for use can be found in the product labelling supplied with each device. Information for the use only in countries with applicable health authority product registrations. Material not intended for use in France. CRM-1181102-AA.

TriageHF™ (Medtronic) is available in cardiac devices with the OptiVol™ feature. This means that it is available across both new and existing CRTD, ICD and CRTP devices.

TriageHF™ technology enables your cardiac care team to check the stability of your heart condition. Using health-related data monitored by your device, TriageHF™ automatically calculates a risk score, which is transmitted to your cardiac care team.

A HIGH risk score indicates that a patient may be at increased risk of hospital admission.

The risk score, and the information contained in the report may be used by your cardiac care team to decide if you need an assessment earlier than your next scheduled appointment.

CareAlert™ notifications

If there are any significant changes in your health-related data in between regular transmissions, a message will automatically be sent to your team. This is called a CareAlert™ notification.

CareAlerts™ keep your team updated about your health,

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so they can check the stability of your heart condition and make appropriate assessments and treatment decisions, in between your scheduled appointments and regular data transmissions.

CareAlert™ notifications may be used by your cardiac care team to see if you need an assessment, or change in treatment, in between your scheduled appointments.

*TriageHF™ is not an alarm. The TriageHF™ assessment does not replace Heart Failure assessments in standard clinical practice. Medical treatment should not be modified remotely based solely on the TriageHF™ assessment. Interpretation of the TriageHF™ assessment requires clinical judgement by a medical professional. The TriageHF™ assessment should be used in conjunction with professional guidelines for patient management decisions.

Managing Your Heart Condition

While your cardiac device may be able to monitor certain signs about your Heart Failure clinical state, it is important that you also notify your Heart Failure team of any significant changes in your health data. It is also important to identify any potential changes in your heart condition yourself, as early as possible. You can use our Symptom Checker which you may have been given to you by your Heart Failure team. You can also download this from our website in the support guide section in our community hub. This will help you track your health and decide if you need to take action.

What does the future hold?

By the time we have written and printed this "Marvellous Guide to a Cardiac Device" the technology surrounding cardiac devices will have moved on. So how do we see what's in the future?

Devices are, overall, becoming smaller, smarter, and battery life is lasting longer. It has been known for some time that cardiac devices can do much more than the initial role they were intended for. Some devices are now able to detect a change in your condition long before you may experience symptoms. This means that clinicians can monitor your condition remotely and notify you to alter your medication or give advice, possibly avoiding the onset of distressing symptoms and/or hospital admission. Expect your device to play a significant role in the monitoring and management of your Heart Failure.

Scan to join our community

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One Step at a Time

We hope that our Marvellous guide has triggered thoughts around some of the questions you may have. We know this is not a position you want to be in but it's about taking small steps which is a good thing. You may never have had to deal with something like this, but self-management can be the key to a better life and enable you to find your normal again. This may be the start of your journey so if you need help do seek out further advice from your healthcare professional or visit our website: **www.pumpingmarvellous.org**

Other Marvellous Guides Available in the Series

All guides are written by patients and clinically validated for accuracy by leading UK Heart Failure specialists.

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If you have any concerns or questions, get in touch with
Pumping Marvellous Foundation.

Another Midi Toolkit by the Pumping Marvellous Foundation
Crowdsourced information from REAL patients.

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