

Implantable Cardioverter Defibrillator



A device to help correct abnormal heart rhythms

This leaflet has been written to provide information about a device that can be put in your chest to help correct abnormal heart rhythms (Implantable Cardioverter Defibrillators). We hope it answers some of the questions or concerns you may have about the procedure. It is not intended to replace talking with medical or nursing staff.

How the heart works normally

The heart is a muscle, its function is to pump blood and oxygen around your body to all of your vital organs. It has four chambers, two at the top (right and left atrium) and two at the bottom (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 Sinus Node or SA node) which is located at the top of the right atrium. It then travels across the two top chambers and down through a small junction box (the atrio-ventricular or AV node) which lies between the upper and lower chambers. Following this the impulse it then spreads across the bottom chambers causing the heart to contract and pump blood from the heart to the rest of the body.

What is an ICD?

ICD stands for Implantable Cardioverter Defibrillator. It is made up of a small, slim box shaped device which contains a battery and electronic circuits. The device is connected to your heart by one or more wires (called leads). The leads are passed along a blood vessel to your heart and the ICD box is usually implanted under the skin in front of the muscle in the upper chest, near your collar bone. The ICD can recognise and monitor your heart rhythm and can give you some treatments if needed. It also stores information about your heart rate and rhythm which can be accessed at clinic visits and via home monitoring equipment.

Why do I need an ICD?

ICDs are used to treat abnormal heart rhythms that affect the lower part of the heart (ventricular arrhythmias). These abnormal heart rhythms most commonly happen after a heart attack or in people who have disease of the heart muscle (cardiomyopathy). Sometimes the abnormal heart rhythm occurs when no other signs of heart disease are apparent.

How does it work?

Your heart usually beats at 60 to 100 beats per minute. An abnormal heart rhythm can lead to your heart beating at a much faster rate. An ICD has three specific functions.

1. It can detect if your heart is beating too slowly and add extra beats to speed the heart up by working as a normal pacemaker. Bradycardia pacing.

2. If your heart beats too fast, the ICD can deliver pacemaker beats at a faster rate than the abnormal rhythm which can possibly return your heart to normal rhythm. Anti -tachycardia pacing.

3. If the anti-tachycardia pacing does not restore normal rhythm within the heart then the ICD will deliver a high energy shock. Defibrillation.

What does it feel like?

If the ICD sends out electrical pulses you may not be able to feel it. Some people however experience a fluttering sensation in their chest. If the ICD delivers an electric shock it may feel like a heavy thump in your chest. This can vary however from patient to patient.

How is the procedure done?

This will depend on which type of defibrillator is being fitted.

A traditional (or transvenous defibrillator) is performed under sedation (to make you feel drowsy) with local anesthetic to numb the area.

A small cut is made below your left or right collarbone. Wires are passed along a vein to your heart. Once your doctor is happy that the wires are in the correct position they are attached to the ICD generator that is positioned just below your skin. The wound is closed using a special type of glue or internal, dissolvable stitches and internal stitches.

Will I have any pain during the procedure?

Once the skin is numbed using local anaesthetic it will not be painful.

How long does the procedure take?

The procedure will take approximately 1-2 hours. You may be away from the ward a little longer with this procedure as you wake from anesthetic you will need to be monitored more closely.

How do I prepare for the procedure?

You may be asked to attend a pre admission clinic prior to the procedure. You will have various tests and meet with a nurse practitioner who will talk to you about the procedure and discuss any questions.

Staff on the ward will ensure you have had the appropriate investigations when you are admitted for the procedure and prepare your chest for theatre using an antiseptic solution. You will be informed when to stop eating and drinking prior to the procedure.

What are the benefits of having the procedure?

Arrhythmias that affect the lower part of the heart (the ventricles) can be life threatening. Many people feel reassured to know the ICD is there and may correct the heart rhythm early.

What are the risks involved?

The risk of complications varies from patient to patient depending on individual heart conditions.

You may experience bruising and discomfort to the ICD site following the procedure.

There is a small risk of infection to the ICD site.

There is a small risk of collapsing of the lung (pneumothorax) during the procedure. If this happened you may require treatment to reinflate the lung.

Your individual risks will be discussed with you in more detail before you sign a consent form.

What alternatives do I have?

Other ways of preventing or treating certain abnormal heart rhythms include the use of drugs, or having surgery to remove the part of the heart that is causing the abnormal rhythm.

You will be able to discuss alternatives appropriate for you with your consultant cardiologist.

What can I expect after the procedure?

Following the procedure you will be taken back to the ward. You will need to rest in bed for a few hours. You must restrict your arm movements on the side of the ICD. Your blood pressure, heart rate and wound site will be checked regularly. You will be able to eat and drink unless you require further tests. You will have a chest x-ray and your ICD will be checked to make sure it is working properly before you go home.

When can I resume normal activities?

You may be able to go home later the same day, or sometimes the day after the procedure. You will be given an ICD registration card which you should carry with you and show to any medical professionals that are treating you.

You should arrange to take approximately 10 – 14 days off work, although this varies depending upon the type of job you do. Your cardiologist will advise you if you require longer.

You should not lift heavy objects and avoid lifting your arm above your head on the side of the implant for 2 weeks. Following a recovery period of four-six weeks it is recommended to try to increase your activity levels if possible. You will be offered the opportunity to attend a cardiac rehabilitation program to restore your confidence in exercising. You may also if required be asked to attend exercise testing.

Looking after the wound

You will be given important information on how to care for the wound after you leave hospital and information on who to contact if you notice any redness, swelling or discharge from the ICD site. The wound will take up to six weeks to heal fully. You may be aware that there are lumps close to the box itself. This is where the leads are attached to the box itself. It is important that you do not try to move the box or leads.

Driving

You must inform the Driver and Vehicle Licensing Agency (DVLA) and your insurance company that you have had an ICD implanted. You may be advised not to drive for between 1-6 months following implant of your ICD, your consultant, cardiac physiologist or cardiac device nurse will be able to clarify this for you personally.

You will not however be able to hold a large goods vehicle licence (LGV/PCV).

There are other rules regarding driving after an ICD implant, which are being continuously updated. It is important to talk to the DVLA and your doctor about these rules. You can find more information at the DVLA website (www.dvla.gov.uk) or call 0870 600 0301.

Everyday life

Most people adapt to having an ICD implanted fairly quickly and are able to lead a relatively normal lifestyle after making a few adjustments. You should however be careful of any contact sports and if you want to consider non competitive sport please check with your consultant, cardiac physiologist or cardiac device nurse.

Swimming can be undertaken after six weeks when your device has healed fully. You must be aware that it is not recommended that you swim alone. SCUBA diving is not recommended.

Sexual Activity

It is very common to be reluctant to resume sexual activity. However the device will not cause any harm to your partner, even if a shock is delivered to you during intercourse. It is hoped that when you return home that you are able to adjust to life with an ICD. Sometimes people report feeling a little apprehensive and worried especially if they have been in hospital for a long time.

Electromagnetic Interference

Electromagnetic interference will not damage your ICD but will stop it from delivering any treatment for the period of time that you are in contact with it. Most mechanical and electrical devices that you use in your normal daily activities will not affect your ICD. Ordinary radios, fridges, cookers, computers and microwaves will not affect your ICD (with the exception of induction cookers - which you should not lean over whilst cooking) as long as they are in good working order.

Magnets

Do not carry magnets or place a magnet over your chest. Avoid carrying stereo or hi-fi speakers as they contain strong magnets that can interfere with your ICD. ICD therapies may be temporarily disabled by magnets and in some cases this may be necessary if you received inappropriate shocks from ICD.

Nurse Specialist on the number at the end of this leaflet.

Most medical equipment used by hospitals will not cause any problems to your ICD. Some of the ICD's implanted are safe for use with Magnetic Resonance Imaging Scans (MRI scan). However it is advised that you let any medical and dental staff know you have an ICD and carry your ID card with you at all times.

Operations

If you require any surgical procedures it is advisable that you inform your consultant team so the ICD can be switched off (deactivated) temporarily during surgery.

Travel

It is advised that you carry your ID card with you and provide it along with your passport to the security staff. This will usually then mean you are searched by hand.

Planning to deactivate ICD therapy.

What happens when a defibrillator is turned off?

Why do defibrillators require deactivation?

Your ICD will have been implanted to protect your heart from abnormal heart rhythms.

When people have progressive disease or are nearing their natural end to their life, ICD therapy can occur frequently and can be painful and distressing.

Having your ICD deactivated means preventing you from receiving ICD shock therapy at a time when the likelihood of success is reduced and may cause you additional trauma.

What is Deactivation?

Deactivating an ICD will not cause death.

Following deactivation of an ICD if your heart rhythm becomes abnormal your device will not provide any treatment to return the heart to a normal rhythm.

Deactivation is painless.

Why do I need my ICD deactivating?

You will have had a discussion surrounding deactivation with the healthcare team involved in your care which may include:

- cardiologist
- heart failure specialist nurse
- arrhythmia specialist nurse
- device management cardiac physiologists
- general practitioners
- physicians or surgeons
- palliative care doctors or nurses

What happens when the ICD is deactivated ?

This procedure is frequently done at an outpatient visit.

It is performed by a cardiac device physiologist.

This is non-invasive and painless taking only a few minutes.

It is performed using the programmer that you are familiar with from your routine visits.

What are the risks?

The device will no longer provide emergency treatment for abnormal heart rhythms that occur following deactivation.

Your device will no longer provide therapy/ shock treatment.

What happens following the procedure?

You will still be provided with further clinic appointments regarding your care and treatment.

You may be apprehensive leaving the hospital following deactivation which is normal.

Please ensure you speak with one of the medical or nursing team if you have any concerns.

Once you go home if you feel upset or down and it is important to let someone know how you feel.

Your GP and other health professionals involved in your care will be contacted and informed.

Contacting the pacemaker clinic

The pacemaker clinic service runs
Monday – Friday 9am-5pm
their contact number is
(0151 600 1712)

What should I do if the ICD delivers an electric shock?

If the ICD delivers an electric shock it may feel like a heavy thump in your chest and you may find this quite distressing, especially the first time. You may get warning symptoms before the shock such as dizziness or palpitations. If you do get any warning symptoms you should try to remain calm and sit or lie down. Once the shock has been delivered you should rest for a few minutes while you recover.

If you are feeling unwell after the ICD has delivered a shock or the ICD delivers repeated shocks, you should you should dial 999 and request an ambulance you will be taken to your nearest Accident and Emergency Department.

Patients are often concerned about what would happen to a family member or a friend if they where to touch them whilst their ICD delivered an electric shock. If this happens, the person touching you is not at risk of getting a shock and they will not be affected. They may feel a tingling sensation which is nothing to worry about.

Follow up appointments

It is very important that you attend an ICD clinic for regular follow up appointments. At your first follow up appointment the cardiac physiologist will discuss remote ICD folllow up. They will provide you with a special transmitter ,and inform you how to use your device to send information to clinic from home. This will allow medical and technical information to be reviewed by your doctor, cardiac physiologist or cardiac device nurse. You may be able to use this facility to discuss management following ICD shock therapy within the hours between 9 am- 5pm by calling the cardiac physiologists 0151 600 1712.

Eventually your ICD will need a new battery. This will be identified during your regular ICD checks. Batteries can last between four to six years depending on the type of ICD.

For further information call:

Cardiac Device Nurse Specialists on
0151 600 1522
Monday-Friday 9-5pm

For advice out of hours contact: Coronary Care Unit – 0151 600 1173.
Pacing Clinic: 0151 600 1712

Or visit:

www.lhch.nhs.uk
www.bhf.org.uk
www.guidant.com
www.medtronic.com
www.arrhythmiaalliance.org.uk
www.sjm.com

Or contact:

The British Heart Foundation Heart Information Line on 0845 070 8070.

If you require a copy of this leaflet in any other format or language please contact us quoting the leaflet code and the language or format you require.

إذا لزمك الرغبة في الحصول على نسخة من هذه المعلومات بأي لغة أخرى أو بشكل آخر (على سبيل المثال بخطوط كبيرة) ، الرجاء الاتصال علينا على الرقم 0151 600 1257 موضحاً الشكل أو اللغة التي ترغب فيها.

如果您想索取一份以其他語文或形式（如大字體）編印成的資料傳單，請致電 0151 600 1257 向我們查詢，並說明您所需要的形式和語文。

நகரம் ஊர்மையிலிருந்து பெற்றுக்கொள்ளும் தகவல்களை வேறு மொழி அல்லது வேறு வடிவில் (உதாரணமாக பெரிய எழுத்துகள் போன்றவை) கிடைக்க விரும்பினால், அதற்கான தேவையான வடிவம் அல்லது மொழியை குறிப்பிட்டு, 0151 600 1257 என்ற தொலைபேசி எண்ணில் தொடர்பு கொண்டு கேள்விப்பட்டோம்.

W celu uzyskania niniejszej informacji w innym języku lub formacie (np. dużym drukiem), prosimy o kontakt z nami pod numerem 0151 600 1257 podając wymagany format lub język.

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