

Cardiology services

Having an implantable cardioverter defibrillator

Information for patients, relatives and carers

Contact details

Arrhythmia nurse specialists: **020 3313 4966** or email
imperial.arrhythmia_specialist_nurses@nhs.net

Booking Team: **020 3313 1661** or email: ICHC-tr.cathlabs@nhs.net

Cardiac Day Ward: **020 3313 1663** or **020 3313 4034**

**Due to Covid 19, visiting restrictions remain in place to keep everyone safe. Please visit our website for more details <https://www.imperial.nhs.uk> > patients and visitors > visiting.

Cardiac Rhythm Management team: **020 3313 3943**

Hospital switchboard: **0203 313 1000**

Pre-assessment Care Team: **0203 313 3412**

Transport booking team: **033 0678 1245** (Monday to Friday: 08.00–20.00, Saturday and Sunday: 10.00–13.00)

Above contacts are available Monday to Friday 09.00 – 17.00.

What is an ICD?

An implantable cardioverter defibrillator (also known as ICD) is an electrical device that is implanted in the chest to manage abnormal heart rhythms (arrhythmias).

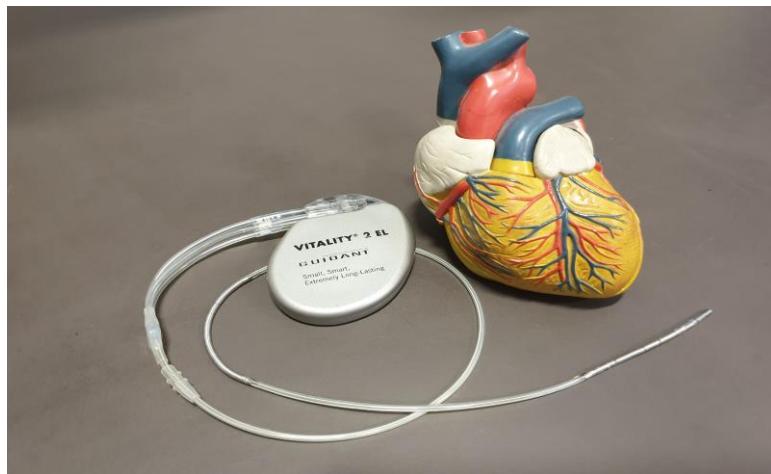
An ICD is slightly bigger than a pacemaker and works differently.

An ICD constantly monitors your heart rhythm and detects any fast and dangerous heart rhythms. When such a fast and dangerous heart rhythm is detected, an ICD sends a lifesaving electrical shock to the heart muscle to restore it back to a normal heart rhythm.

An ICD can also help in managing slow heart rhythms by sending electrical impulses to the heart muscle to stimulate the heart into maintaining a suitable heart rate and rhythm.

The ICD system is comprised of a pulse generator (or battery box) and one or more electrode leads that will be implanted into the heart muscle (depending on the nature of your heart condition):

- single chamber ICD (one lead)
- dual chamber ICD (two leads)
- biventricular ICD also known as Cardiac Resynchronisation Therapy-Defibrillator or CRT-D (three leads)



There is another type of ICD known as a subcutaneous ICD (or S-ICD) where the electrode lead is implanted just under the skin instead of inside the heart.

Most ICD batteries last approximately 5 to 10 years, but this depends on how much ICD therapy is required over the device's lifetime. The battery life is monitored at each check.

The ICD implantation procedure usually lasts between 1 and 3 hours. You will be able to go home the same day. In some cases, you may need to stay overnight in hospital for observation. This will depend on several factors which will be discussed with you on the day of your procedure.

As part of NHS safety measures in response to Covid 19, there are restrictions in place when visiting our hospital. Please visit our website for more details <https://www.imperial.nhs.uk> > patients and visitors > visiting.

Your friends/relatives can phone up the cardiac day ward to find out how you are doing and what time you will be discharged.

Why has an ICD been recommended for me?

You have had or are at greater risk of having a dangerous fast heart rhythm. An ICD can deliver a life-saving electric shock to restore a normal heart rhythm.

Some devices can also help relieve some symptoms such as palpitations, dizziness, fatigue (tiredness) or shortness of breath.

A CRT-D device can help to synchronise the contraction between the lower chambers of your heart, and this may improve your symptoms of heart failure over time.

Are there any alternative to an ICD implantation?

An ICD implantation will only be requested by your doctor if they feel that this is the best way to treat your heart condition and symptoms.

Other alternatives are not to have the implant procedure and continue using medications (if applicable) to manage your heart condition and/or symptoms.

What are the risks and complications involved in implanting an ICD?

The risks involved in having any ICD implantation procedure vary from patient to patient depending on your medical history. The cardiologist will discuss the risks in more detail with you on the day of your procedure and you will be asked to sign a consent form.

Complications may include:

- bleeding or bruising
- blood clot formation in one of the veins in the arm on the side where the ICD is fitted.
- punctured lung
- build-up of fluid around the heart
- lead dislodgement
- risk of infection. This generally occurs during the first few weeks after your procedure. Symptoms include pain, swelling, redness and/or weeping at the wound site

Making arrangements before having my ICD implantation

Before your procedure, you will need to attend a nurse-led arrhythmia clinic. During the session, your arrhythmia nurse specialist will discuss and answer any ICD related concerns and questions you may have.

This consultation usually takes about 1 hour and can be done in person or via the telephone or video call. You are welcome to bring your family or a friend to this appointment. Please contact or email the arrhythmia nurse specialist to arrange for the ICD consultation as soon as you receive the admission letter at 020 3313 4966 or email imperial.arrhythmia_specialist_nurses@nhs.net.

You will also need to attend a nurse-led pre-assessment clinic as the next step in your care pathway. Currently, this pre-assessment service will be either a telephone or face to face appointment. For further enquiries, please contact the pre-assessment care team at 0203 313 3412.

It is important that you **arrange for a relative or a friend to take you home** after your procedure by car/taxi. You will not be able to drive or use public transport (on your own). **Your relative or friend will need to stay with you overnight or you may choose to stay with them for the**

If you do not have anyone to take you home or stay with you after your procedure, you **must** contact the booking team to **arrange a new date or pre-arrange an overnight hospital stay**. If you do not do this, we may have to cancel your procedure on the day.

If you are pregnant or think you may be pregnant, you must contact your cardiologist for appropriate advice about your treatment.

If you have had vomiting or diarrhoea, a cough, cold or skin infection with or without a fever during the 3 days before your procedure, please contact the booking team.

Plan your hospital journey beforehand. Wear a face mask (if possible) while travelling using public transport, hospital transport, a family car or a taxi. Please note that Hammersmith Hospital has a small number of general and disabled car parking spaces. Please visit our website for more details <https://www.imperial.nhs.uk> > our hospitals > hammersmith > parking.

In line with Department of Health guidelines, we provide a non-emergency transport service for patients whose clinical condition or mobility makes it very difficult for them to attend hospital without transport assistance. Please visit our website for more details <https://www.imperial.nhs.uk> > patients and visitors > help and support > patient transport.

What if I cannot keep my appointment?

If you cannot attend your procedure appointment, please contact the booking team immediately. This allows us to agree a new appointment date and time with you and offer your original appointment to another patient. We will always aim to re-schedule your procedure appointment to the next available date.

If you are running late on the day of admission, please contact the cardiac day ward to notify them your estimated arrival time.

How should I prepare for my procedure?

In response to Covid 19, we are taking every precaution to protect our patients and staff. We ask all patients and their carers to familiarise themselves with our new procedures for coming into hospital. Once you arrived at the hospital, please follow physical distancing rules (keep a two-metre distance from others), wear a face mask and practise good hand hygiene. Please visit our website for latest information on coronavirus infection prevention and control measures in place across our hospitals <https://www.imperial.nhs.uk> > patients and visitors > patients > coronavirus latest information.

Before coming to the hospital to attend your procedure, it is important to shower or bath. Please ensure any nail polish is removed and avoid applying heavy makeup. As monitoring equipment will be placed on your chest, it is advised not to apply moisturising skin lotion on your chest or on the implantation site. To minimise the risk of infection, you may prefer to shave or remove any hairs from the chest area (if possible) on your own. If not, this can be done for you on the day of the procedure.

Please only bring essential items and avoid wearing jewellery or other valuables. Bring a dressing gown, loose clothing, and comfortable footwear such as a pair of slippers for ease. As you may be in the hospital for around 4 to 6 hours, we suggest bringing something to read or listen to with a headset or earphones while you wait.

It is important that you do not eat and drink before your procedure to reduce the risk of food and drinks going into your lungs:

- **no food or milky/flavoured drinks for 6 hours** before your procedure.
- **only Plain (non-flavoured) Water** is allowed **until 2 hours** before your procedure.

For more details on how to prepare for your planned procedure, please visit our website <https://www.imperial.nhs.uk> >patients and visitors > patients > planned procedures and surgery.

Medication

The pre-assessment care team and your doctor will have advised and discussed with you about stopping any medications before your procedure. Please bring all your medications that you are currently taking with you when attending your procedure.

If you have any drug allergies, please ensure that you inform the team.

If you have asthma, please bring your inhaler medication with you.

If you are taking warfarin

- if you have had a stroke, have a mechanical heart valve, pulmonary embolus (clot in the lung) or have chronic thromboembolic pulmonary hypertension - continue your warfarin and aim for an INR of around 2.5 for a week before your procedure. Your anticoagulation clinic will be able to assist you in this.
- if you do not have any of above, please stop warfarin 5 days before your procedure unless otherwise advised by your cardiologist
- it is very important that you bring your yellow INR record book with you to your procedure.

If you are taking Rivaroxaban (Xarelto), Apixaban (Eliquis), Edoxaban (Lixiana) or Dabigatran (Pradaxa)

- please stop taking the medication 1 day before your procedure unless otherwise advised by your cardiologist. (*For example, if your procedure is scheduled for Monday morning, the last dose of anticoagulation medication should be taken on the Sunday morning, leaving at least 24h duration free of the anticoagulant prior to the procedure. If you usually take your anticoagulation medication in the evening, then the last dose should be taken on the Saturday evening prior to the procedure.*)

If you are taking Clopidogrel, Prasugrel or Ticagrelor

- if you have had a coronary artery stent within the last 6 months, please continue taking the tablets and inform the pre-assessment care team.
- if you have not had a stent within the last 6 months, please stop the tablet 1 week before your procedure.

If you are taking Aspirin

- please do not take on the morning of your procedure

For any medications not stated above, please continue as per recommended by your doctor or pharmacist. If you have any enquires about any of your medications, please contact the pre-assessment care team.

What happens on the day of my appointment?

Please arrive at the hospital at the time stated in your admission letter. Note that this will not be the actual time of your procedure.

You will need to go to the cardiac day ward that is located beside the heart attack centre on the first floor of Block A, above the outpatients department. Please check in at the reception desk. Visit our website for our internal site map <https://www.imperial.nhs.uk> >our hospitals > hammersmith > hospital map.

A bed space will be allocated to you where blood samples and clinical history will be taken. The cardiologist will explain the risks and benefits of the procedure to you. Once you have understood these and agree to go ahead with the procedure, you will be asked to sign a consent form.

You will then change into a hospital gown and a member of staff will escort you to the procedure room.

We will ask you to lie down on the x-ray table and connect you to the monitoring equipment. We will clean your chest area with antiseptic fluid and cover it with a sterile sheet.

The procedure

You will be under local sedation (comfortably awake or lightly sleeping) during the procedure. In some cases, the procedure such as an S-ICD, will be performed under full sedation or general anaesthesia (completely asleep). This will be discussed with you before your procedure.

The cardiologist will inject local anaesthetic (usually just below your left collarbone) to numb the area. The stinging sensation will only last for a short period of time.

When the implantation site is numb, the cardiologist will make a small cut. The device is usually implanted near the left shoulder; however, the implantation site can vary, and this will be discussed with you before the procedure. The electrode lead/s will be passed through a vein into the heart with the use of x-ray imaging. The electrode lead/s will be checked for optimal lead placement and secured in position. The wound is closed using sutures and/or a special type of medical skin adhesive.

Once the procedure is over, you will be taken back to the recovery ward for post procedure observation.

What happens after the procedure?

There may be a small bulge where ICD has been implanted, and you will have a small scar under your collarbone. If you have an S-ICD implanted, the scar will be on the left side of the chest next to the ribcage.

The implant site may be sore for a couple of weeks, and you may also notice some bruising, especially if you are taking blood thinning tablets. This is normal.

Wound care

It is important that you keep the wound clean and dry until it has healed. If a dressing has been applied, you can remove this dressing 2 days after your ICD implantation. Although it is not necessary, you may prefer to keep your wound covered with a dry dressing for a longer period. Please ensure that the sticky edges of the dressing do not contact the wound.

If you had sutures to close the wound, the nursing staffs will be able to tell you the type of sutures used. Some sutures dissolve by themselves whilst others will need to be removed by your GP practice nurse after 7 to 10 days.

In most cases, you will also find that a medical skin adhesive has been applied on the skin edges of wound. This medical skin adhesive has a water-resistant protective coating and will flake off by itself after 5 to 10 days.

You can shower after your procedure, however, try and avoid getting the wound wet. Always pat down to dry the wound area rather than rubbing dry. Do not immerse in any bath for at least 1 to 2 week or only until your wound has fully healed. Do not scrub/ scratch/ touch or apply any heat packs, cream or oil over the wound site to minimise the risk of infecting the wound.

You may be given antibiotics to take for the first few days after you get home, although this is not always required. If antibiotics are prescribed for you, they will be supplied by the hospital.

If the wound becomes sore or swollen or there is excess discharge or oozing, please contact the cardiac day ward or the cardiac rhythm management team immediately.

Psychological impact

Some patients can feel depressed after an ICD implant. It is natural to feel very emotional afterwards and the reasons for this can vary from patient to patient. Discuss your feelings with your doctor or the cardiac rhythm management team. They can examine these worries with you and refer you to our clinical psychology team or ICD support group if you think this would be helpful.

Do's and Don't's after your ICD implant

Arm movements: For the first couple of weeks, try not to raise your elbow above your shoulder. This is to help prevent the leads from moving before becoming firmly embedded into the heart tissue and to help the wound to heal properly.

It is however important to gently rotate and/or flex your arm to prevent your shoulder from becoming stiff. Avoid strenuous arm movements such as lifting heavy loads, playing golf or swimming until you have been seen by the cardiac rhythm management team for your first follow-up appointment after your procedure.

Returning to work: Most patients return to their normal jobs within a few days. This will depend on the nature of your work. Jobs involving industrial machinery should be discussed with your healthcare professional.

Physical activity: Most patients return to their normal activities within 3 to 4 weeks. This should be discussed with your healthcare professional and should be built up gradually.

However, contact sports should be avoided as there is a very small risk of damage to your ICD from an exceptionally violent impact.

If you wish to participate in a cardiac rehabilitation program, please speak to your healthcare professional.

Sexual activity: Having an ICD should not affect your sex life. If you receive a shock from your ICD, it will **not** harm anyone who is in contact with you at the time.

Mobile phones: All current ICDs are protected against mobile phone interference. A general rule of thumb for mobile phones would be to keep them at least 6 inches (15 centimetres) away from the device.

It is also advisable to avoid keeping a mobile phone in a shirt or jacket pocket that is directly over your ICD device (even if it is switched off).

Electrical appliances: Properly maintained domestic electrical appliances, including microwave ovens, will not adversely affect the function of your device. If you have an induction hob you must keep your ICD 2 feet (60 centimetres) away from the hob to avoid interference with your ICD settings.

Medical tests: Not all ICDs are compatible with MRI scanners. If you need an MRI, please check with your device clinic. Normal x-rays and CT scans are safe.

If you have concerns that the treatment you require may affect your device, please discuss them with the cardiac rhythm management team or your doctor.

Magnets: A magnet placed very close to the ICD will **temporarily** ‘deactivate’ the ICD ability to treat fast heart rhythms. When the magnet is removed, ICD is reactivated. Therefore, magnets should not be placed close to the ICD.

Travel: If there have been no procedure complications, you will be able to travel a week after your procedure however, we would advise that you attend your first device follow-up with the cardiac rhythm management team or your doctor before travelling.

Remember to present your ICD ID card to airport security staff so that they can advise you about walking through the security archway or using the handheld wand for your security clearance.

Insurance: Ensure that you inform the relevant insurance companies (such as travel insurance, life insurance, medical care) that you have an ICD.

Medication: Your medical team will review your medication and inform you of any changes such as medication may be newly added, stopped or adjustments in the dosage. Please take your medication as instructed. Any new medications prescribed for you as a result of the procedure will be supplied by the hospital.

Follow-up checks

On-going care and management of your ICD will be co-ordinated by the cardiac rhythm management team. An initial ICD clinic appointment will be sent to you for around 4 to 8 weeks after the implant.

You will be followed-up at Hammersmith Hospital. Your follow-up appointments will usually be every 6 to 12 months. Most ICDs can also be checked via remote monitoring transmission so you may not need to attend the hospital as often.

We will discuss this with you when you attend for your first ICD follow-up appointment. It is very important that your ICD continues to be checked at regular intervals.

All these regular checks do not replace seeing your cardiologist in the outpatient clinic.

ID card

At your first check, you may be given an ID card containing details of your ICD, otherwise one will be posted to you. It is important that you always carry this ID card with you as this will allow medical professionals to identify the manufacturer and model of your device if they need to.

ICD shock

How does an electrical shock feel like?

This will vary from patient to patient. You may occasionally lose consciousness before receiving the shock. Some patients have described the shock as “a kick in the chest”, whilst others describe it more like a sudden jolt.

Although rare, some patients have commented that they were not aware of receiving the electrical shock.

What do I do if I get an ICD shock?

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- if you receive 1 or 2 shocks but otherwise feel well, contact the cardiac rhythm management team on 0203 313 3943 (Monday to Friday between 09.00 to 17.00) to arrange an ICD appointment.
 - if you receive 1 or more shocks and feel unwell, ring 999 immediately.

Psychological Impact

Some patients can feel depressed after a shock. It is natural to feel very emotional afterwards. This may impact on you negatively as you may wonder if this could happen again. Remember that the ICD has done its job and kept you alive.

Discuss your feelings with your doctor or the cardiac rhythm management team. They will be able to advise and reassure you. In addition, they can refer you to the clinical psychology team if needed.

Sound or vibration alerts

In certain situations, your ICD may make sounds or vibrate. These alerts have been developed by ICD manufacturers with the intention to notify you to seek attention and not to alarm you.

It is important that you contact the cardiac rhythm management team at Hammersmith Hospital for medical advice as soon as possible when you hear or feel these alerts.

Such alerts vary depending on the ICD manufacturers; some ICD make a tone or beep sound whilst others simply vibrate. Some ICD will even do both. If you would like to find out more about the alert, please seek advice from the cardiac rhythm management team at your next ICD follow-up.

Alternatively, please visit the following website for more details on ICD alert demonstration and other useful information <https://www.suddencardiocarestuk.org> > information >treatment > ICD > sounds and alerts.

What to do if you hear or feel an alert

If you hear or feel an alert, you do not need to attend A&E unless you feel unwell. You should inform the cardiac rhythm management team at Hammersmith Hospital as soon as possible so that they can investigate further and assess if any action is required.

Contact the cardiac rhythm management team on 0203 313 3943 (Monday to Friday between 09.00 to 17.00)

What do I do if it's the middle of the night or at the weekend?

Please call the hospital switchboard on 0203 313 1000 and ask to bleep the on-call cardiology registrar

What triggers an alert?

Conditions that trigger an alert vary depending on the manufacturer, the device model, and how your ICD setting is programmed. Some common reasons are:

- **Failure to communicate with your Home Monitor.** This is a common trigger for an alert for some ICD manufacturers. If the ICD has new data to transmit and is unable to communicate with the home monitor for a prolonged period, you may receive an alert from the device. Therefore, if you have been issued a home monitor, it is important that you plug in to a power socket at the earliest opportunity. As the power consumption of the home monitor is very low, please leave it plugged in all the time in the room where you sleep (think of it like a bedside clock!). This will allow the home monitoring unit to operate at maximum efficiency as it ensures that the cardiac rhythm management team is notified to any new data, and/or any potential problems can be addressed in good time. If you plan to be away from home for a prolonged period, please inform the cardiac rhythm management team for further advice.
- **Possible device or lead fault.** An alert can be triggered if the device detects a possible fault with its electrical components or with the leads that extend to the heart. If your device alerts after delivering a shock, please contact the cardiac rhythm management team immediately or call the hospital switchboard on 0203 313 1000 and ask to bleep the on-call cardiology registrar.
- **Battery.** When the battery power is low, it may periodically send out a sound or vibration warning at the same time every day to alert you. Such alerts should not be for several years after implantation. If you have home monitor, the cardiac rhythm management team will also receive the same alert. Please be reassured that this alert is triggered well before the battery is completely depleted, and your ICD will continue to function normally for some time after this alert. The cardiac rhythm management team will arrange for the ICD to be changed in good time following this type of alert.
- **Strong magnetic field.** Some ICDs may make a steady tone if you are close to a very strong magnetic field. This tone warns you to move away from the source of the magnetic field which could otherwise interfere with the function of your device.

If you have any further questions about device alerts, please contact the cardiac rhythm management team or seek advice at your next ICD follow-up visit.

Driving - when to notify the Driving and Vehicle Licensing Agency (DVLA)

For implantable cardioverter defibrillator (ICD), the DVLA driving recommendation are

Group 1 licences (car, motorcycle): You need to notify DVLA. If ICD is implanted for sustained ventricular arrhythmia associated with any condition, symptom or treatment that is likely to cause you to be unable to safely control or stop a vehicle, you must not drive for 6 months after your procedure. You can resume driving after 6 months if there is no disqualifying condition.

If ICD is implanted prophylactically or implanted for sustained ventricular arrhythmia not associated with any condition, symptom or treatment that is likely to cause you to be unable to safely control or stop a vehicle, you must not drive for 1 month after your procedure. You can resume driving after 1 months if there is no disqualifying condition. Please refer to DVLA website for more information <https://www.gov.uk/guidance/cardiovascular-disorders-assessing-fitness-to-drive>



Or scan

Group 2 licences (lorries, buses): You need to notify DVLA, and you must not drive as you will be **permanently barred** from holding any Group 2 licensing.

Seatbelts

Patients with an ICD are not exempt from wearing a seatbelt. It may be necessary to place a small pad or sponge over the device to ease any discomfort that a seatbelt may cause.

MedicAlert® Bracelet

You may wish to consider wearing a MedicAlert® bracelet to show medical staff that you have an ICD. Please visit the website for more information <https://www.medicalert.org.uk/>

End of life care

When the time comes where your health deteriorates and you no longer wish to receive shocks from the ICD, the shock treatment (for a fast heart rhythm) from the ICD can be turned off whilst leaving the pacing function on (for slow heart rhythms).

However, this can only be done by a specialist cardiac physiologist together with a consultant cardiologist after an extensive consultation with you explaining the risks and benefits.

It is encouraged to bring at least one family member to this consultation. If you agree for the shock function to be turned off, you will be asked to sign a consent form.

Useful links:

British Heart Foundation - <https://www.bhf.org.uk/>

Heart Arrhythmia Alliance - <https://www.heartrhythmalliance.org/>

Sudden Cardiac Arrest UK - <https://www.suddencardiocarrestuk.org/>

How do I make a comment about my visit?

We aim to provide the best possible care and would like to hear about your experience of our services. By telling us about your experiences and raising any concerns you may have, it helps us to make improvements.

Please visit our website for more information <https://www.imperial.nhs.uk> > patients and visitors > help and support > your feedback.

If you have any general queries or would like to raise a concern, please either speak to a member of staff or contact the patient advice and liaison service (PALS) 020 3312 7777 (10.00 – 16.00, Monday to Friday). You can also email PALS at imperial.pals@nhs.net The PALS team will listen to your concerns, suggestions or queries and is often able to help solve problems on your behalf.

If, despite our best efforts, we are not able to resolve your concerns informally with the staff caring for you or via PALS, you have the choice to make a formal complaint.

To make a complaint please email our complaints office at: ICHC-tr.Complaints@nhs.net or send a letter addressed to:

Complaints department
Fourth floor
Salton House
St Mary's Hospital
Praed Street
London W2 1NY

Alternative formats

This leaflet can be provided on request in large print or easy read, as a sound recording, in Braille or in alternative languages.

Please email the communications team: imperial.communications@nhs.net

Wi-Fi

Wi-Fi is available at our Trust. For more information visit our website: <https://www.imperial.nhs.uk> > our locations > hammersmith > our facilities.

Cardiology
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