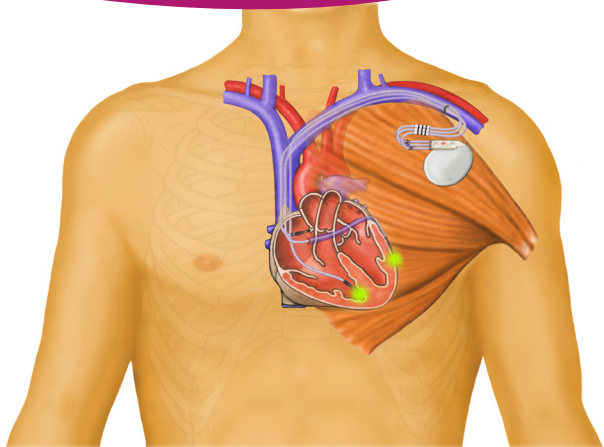


# Pacemaker / ICD Lead Extraction

Information for patients



Cardio-Respiratory  
Service

This document is designed to provide information for patients, their carers and family members regarding the procedure of lead extraction. It provides information about the need for the procedure, how it is performed, what to expect and the risks attached to the procedure.

It is designed to supplement discussion the medical team will have with you before the procedure and to answer questions you may have.

We would encourage you to discuss the procedure with your family and carers so they are fully aware of the procedure you are about to undergo.

## **What is lead extraction?**

Lead extraction is a procedure to remove a pacemaker or Implantable Cardioverter-defibrillator (ICD) system.

Immediately after a pacemaker or ICD has been fitted it is usually easy to remove. After it has been in place for more than a year, the pacemaker wires can become attached to the heart and blood vessels. This makes removing them a potentially more complex and difficult procedure.

## Why is lead extraction required?

There are a number of reasons that it may prove necessary to remove your pacemaker or ICD wires. These can include:

- Infection (either of the tissue around the pacemaker box, or of the wires themselves.)
  - ◆ When there is infection around foreign material the body is generally unable to eradicate it. This means that all the foreign material needs to be removed to allow healing
- Erosion of the pacemaker or ICD box
  - ◆ Even if there is no evidence of infection in this situation, healing will not occur without removal of the device
- Failure of function of a pacemaker or ICD wire that then needs to be replaced
- Pain arising from a pacemaker or the wires
- To gain access to the blood vessels to implant another pacemaker wire.

## How successful is lead extraction?

It is possible to remove the device and wires successfully in the significant majority of cases. In around 90% of individuals the wires can be entirely removed. In a further 5% the majority of the wire is removed but a small portion remains. This generally does not cause problems. On rare occasions it may not be possible to remove all lead material. Generally we are able to find a way to manage in this situation but on very rare occasions we may need to discuss the possibility of open heart surgery to remove the remaining wires.

## What are the risks of lead extraction?

- If a pacemaker/ICD has only been in place for 1 year or less then the wires can usually be removed without difficulty and only minor risk.
- When the device has been in for longer the risk is a little higher.
- Whilst the majority of lead extraction procedures occur without problems there is a small risk of serious complications.
- The risk of a serious problem following lead extraction is 1-2 in 100.

The most serious risk is the chance that a tear is caused in the heart or blood vessels when the wires are released. That tear may cause severe bleeding within the chest that would require emergency surgery to open the chest to repair the tear. That is a major operation that carries risks including a danger of not surviving the procedure or being left with life changing consequences. The risk of a tear occurring is approximately 1% (around 1 in every 100 cases). The risk of not surviving the procedure is 0.3 - 0.5% (1 in every 200-300 cases).

The risk of less serious complications such as limited bleeding, bruising or infection is approximately 1 in 30 to 1 in 50. These may delay your discharge from hospital a little but generally resolve without long term consequences.

***The risk of the procedure is determined by a number of factors including:***

- how many wires are in place
- whether they are pacemaker or ICD wires
- how long they have been in place
- other medical problems you may have.

The team will discuss these risks in detail with you prior to the procedure.

**Are there any alternatives to lead extraction?**

Sometimes it is possible to correct a pacemaker malfunction by inserting a new wire only and leaving the old wire in place. On occasion, generally in older patients with complex medical problems, we may feel that lead extraction is unsafe even in the presence of an infected pacemaker and we may recommend that we leave the wires in place but only remove the device.

We will discuss these issues with you including their pros and cons as part of the decision making process prior to your procedure. You will be given an opportunity to ask questions and can elect to have a lesser procedure if that is your wish.

**How is lead extraction performed?**

We will normally ask you to come in to hospital the day before the procedure. This is to allow us to perform any tests that may be necessary and to allow us time to fully discuss the procedure with you. If you are taking warfarin or other anticoagulants you may be asked to stop taking this a few days before you come in.

To maximise your safety in the event of a complication the lead extraction procedure is generally performed in a cardiothoracic operating theatre with an experienced cardiac surgeon and full theatre team available.

The procedure is performed under general anaesthesia. The anaesthetist will be very experienced in looking after cardiac patients. They will see you on the ward prior to the procedure.

While you are asleep the device is explanted and special equipment used to free the pacemaker wires. We will normally insert short tubes into the veins at the top of your leg as part of the procedure and you may subsequently notice some bruising or discomfort in this area. The procedure generally takes 1-2 hours.

After the procedure we may need to leave you with a temporary external pacemaker wire. This is a wire that is passed via a vein in the leg or shoulder and connected to an external pacemaker box.

## **What should I expect after the procedure?**

It is normal for the site of the extraction to be sore for a few days after the procedure and bruising, which may be significant, is common. You will be prescribed pain relief which will hopefully deal with the worst of this.

You may have sutures which need to be removed around 10 days after the procedure. If you have these, the ward nursing staff will advise you and make arrangements for their removal. This can be done at your GP surgery if you have been discharged by that point.

We will discuss with you whether a new pacemaker will need to be implanted. This is not always necessary. If your initial pacemaker was infected we prefer to implant your new pacemaker a few days after removing the old one to reduce the risk of infection being transferred to the new device. For that reason you may need to remain in hospital for some days after the lead extraction procedure.

If you do not need to receive a new pacemaker and you have no on-going medical needs (e.g. on-going intravenous antibiotic treatment) you may be well enough to be discharged home the day after the procedure.

If you have any questions don't hesitate to ask any of the ward team or medical staff. In addition our Specialist Arrhythmia Nurses are available to advise and help.

## Arrhythmia Specialist Nurses

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## What did you think of your care?

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