



SPAGG

Coversheet for Specialist Palliative Audit and Guideline Group Agreed Documentation

This sheet is to accompany all documentation agreed by SPAGG. This will assist maintenance of the guidelines as well as demonstrating the governance process undertaken prior to members seeking local approval in their areas of work.

Document Title	Guideline for deactivation of cardioverter defibrillators towards the end of life
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References	See end of guideline
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Guideline for deactivation of cardioverter defibrillators towards the end of life

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Aim

To guide local organisations to establish logistical resources to support the use of the national guidance on ICD deactivation.

Introduction

Implantable Cardioverter Defibrillators (ICDs) are used for patients who have had either a sudden previous cardiac arrest or are at high risk of sudden cardiac death from an arrhythmic cause (NICE 2014).

An ICD can deliver either rapid burst pacing or a shock with the aim of terminating VT/VF arrhythmia and restore normal cardiac electrical function. Most ICDs also function as a pacemaker to either prevent bradycardia or as part of cardiac resynchronisation therapy (CRT). CRT devices synchronise contraction of the left and right ventricles and thereby reduce symptoms in some people with heart failure. These are referred to as CRT-D devices. The pacemaker and ICD function of each device is programmable independently of each other (Resuscitation Council UK, 2015).

Due to the increasing indications for ICD implantation, the number of people with ICDs has also increased. People are also living longer with these devices. As a result, an increasing number of patients with an ICD will deteriorate either with worsening cardiac failure or another non-cardiac condition and will have a terminal prognosis (Resuscitation Council UK 2015). Therefore, to ensure the person receives high-quality end-of-life care, they should have the opportunity to consider and discuss the option to deactivate the shock function of their ICD.

If the ICD is not deactivated, there is an increased risk that as a person reaches the last days of life, the ICD will deliver multiple, painful shocks which are distressing (R Stoevelaar et al, 2018). There is also a risk that the device may delay the person's natural death which the person would not have chosen if they had been given the opportunity to discuss deactivation.

Purpose & Scope:

This is a regional guideline for healthcare professionals caring for an adult who is approaching the end of their life with an active ICD, regardless of their care setting. It can be used in hospital, hospice, and community setting. However, it does not replace local policy or guidelines specific to where the patient is being cared for.

This ICD deactivation guideline has been adapted from the Resuscitation Council UK guidance.

Ethical and Legal considerations when considering ICD deactivation:

The decision to switch off an ICD must be a shared decision, with full involvement of the person and their loved ones, as well as the healthcare team caring for them. It must be based on a careful assessment of the person's individual circumstances. When a person lacks capacity, the decision must be made in their best interests as per the Mental Capacity Act (Department for Health, 2005). The views of those close to the person must be considered when making a best-interests decision.

Ideally, the initial discussion around when it would be appropriate to switch off an ICD should be at the time of insertion of the device. This should be revisited at any appropriate appointment such as device checks or day hospice appointments. A change in the patient's clinical condition should also trigger to re-visit the discussion around ICD de-activation.

Practical considerations:

Planned ICD deactivation:

This should be the aim for the majority of people who require ICD deactivation. This is performed via the cardiac physiologist either in an outpatient clinic setting, at a person's home, or other setting such as a hospice. It is a non-invasive, and painless procedure, which takes a few minutes. It is important that the person and their family understand that the deactivation of the shock function will not cause their immediate death, but that their ICD will no longer deliver shocks to treat an arrhythmia which could cause their death.

Emergency ICD deactivation:

Occasionally, situations may arise where someone is in their last days of life, either due to a sudden event or where the discussion of deactivation has not occurred in advance. In these situations, if a cardiac physiologist is not available, the ICD can be deactivated by taping a ring (donut) magnet securely to the skin overlying the device. Devices from Biotronik will be inhibited by a magnet for only 8 hours. Therefore, with a Biotronik device (or if manufacturer of device unknown) the magnet must be removed for a few seconds and reapplied every 7 and half hours. Arrangements should be made as soon as is practical for definitive deactivation.

Key Points to explain to people about ICD Deactivation:

- Near the end of your life, your ICD may deliver shocks that are painful and distressing, and will be of no benefit
- It is best to think and decide about deactivation in advance rather than in a crisis
- Deactivation will not cause death
- Once your ICD has been deactivated, if your heart has a rhythm change that can cause death, your ICD will not deliver treatment for it
- Deactivating the shock function does not deactivate its pacemaker function
- Deactivation is painless
- If your condition unexpectedly improves or you change your mind, the ICD can be reactivated

Practical Guide

1. Advance planning

Discussions to deactivate an ICD should be a routine part of advance care planning and should be included in the discussions about DNACPR. Outcomes of discussions should be recorded on the patient's ReSPECT form (or locally used ACP document). It must be clearly highlighted if the ICD has been deactivated or not.

2. Establish local contacts

It is helpful to establish local plans to highlight patients who may be approaching end of life and ensure early discussions and decisions about deactivation of the ICD.

LOCAL CONTACT DETAILS

ICD clinic opening times/contact number/Fax number:

Consultant Cardiologist via switchboard:

Cardiology physiologist:

On call cardiology physiologist:

On call palliative care team:

3. Deciding to deactivate

Patients should have equal access to deactivation facilities regardless of their current place of care and ideally the decision to deactivate should take place when a patient has mental capacity.

This will involve discussions on deactivation with the patient and the people who care for them. The heart failure team or palliative care team may be well placed to do this if they know the patient well.

Speed of deactivation will depend on urgency of need for specific guidance on this see [Deactivation of implantable cardioverter-defibrillators towards the end of life A guide for healthcare professionals from the Resuscitation Council UK the British Cardiovascular Society and the National Council for Palliative Care.](#)

The decision to deactivate should involve the MDT which can include medical team looking after them (primary and/or secondary care), the heart failure multidisciplinary team and the palliative care team may also be involved.

Once the decision is made these needs to be recorded in the patient's notes/system and a deactivation form is completed, this should accompany the patient to the ICD clinic at the time of deactivation.

Details of contacts for support should be documents both in and out of hours so that it is clear who to contact for support.

4. Documentation of decision to deactivate

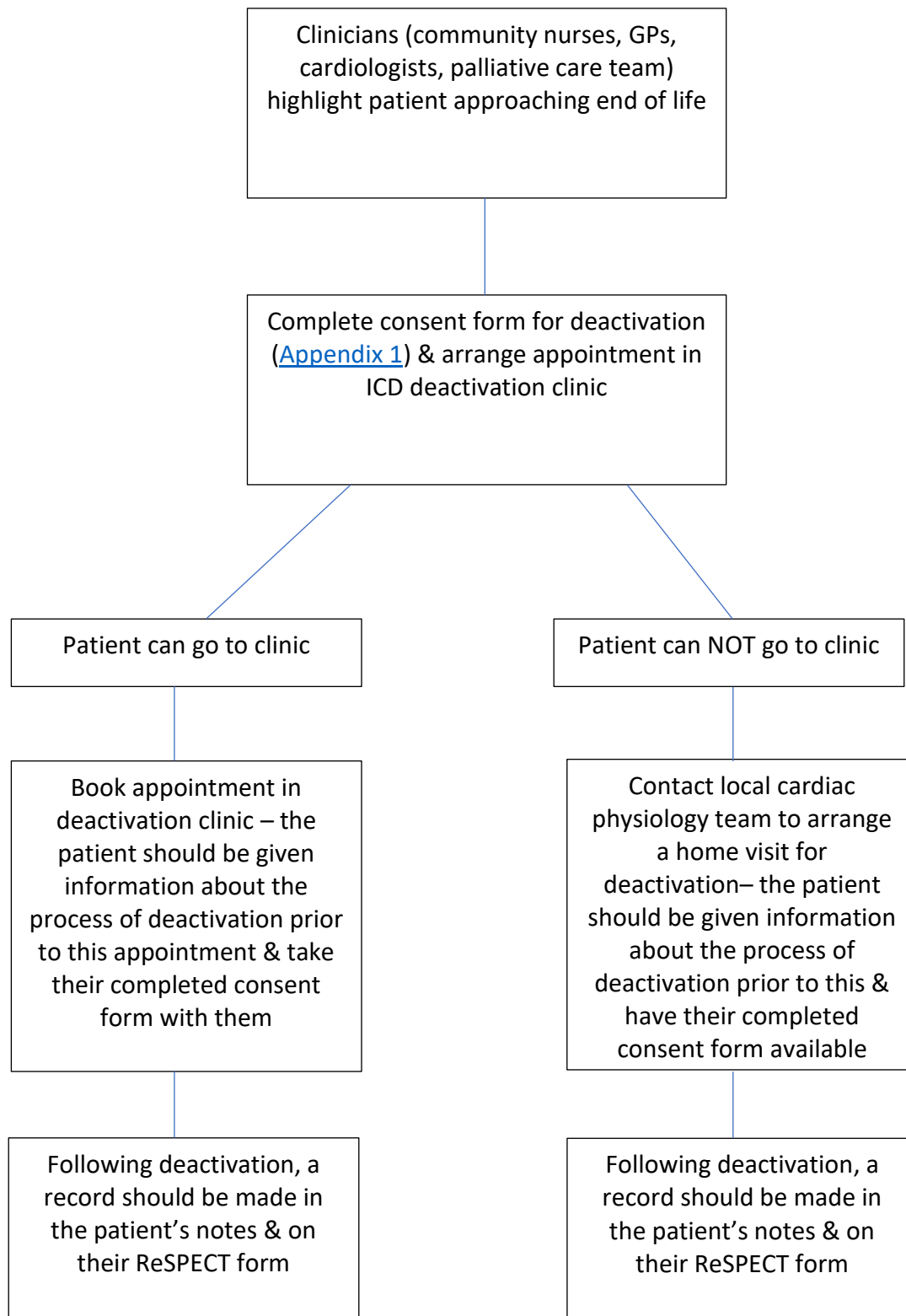
Any decisions regarding ICD deactivation should be recorded in the patient's electronic or paper notes. It must be communicated to all other healthcare professionals involved in the

person's care. When a patient consents to deactivation, written consent must be documented. The ICD deactivation consent form in [Appendix 1](#) can be used to do this or the local team may have their own form.

5. Referral for deactivation

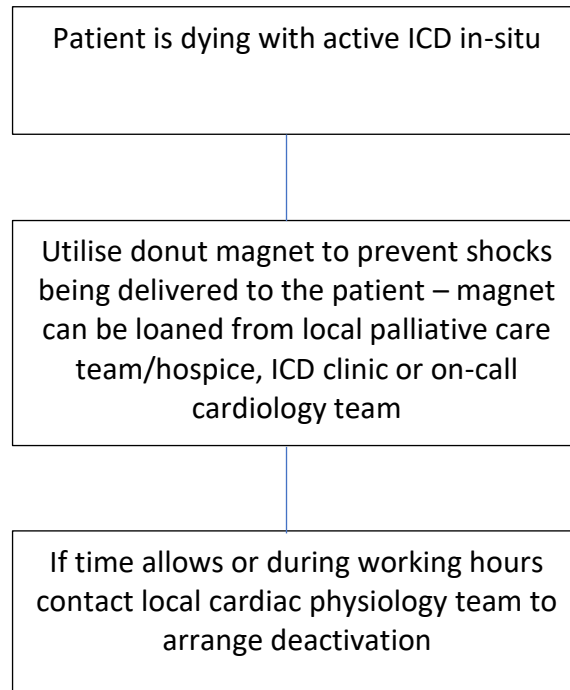
When referring for deactivation you can use form in [Appendix 2](#) to help the cardiac physiologists prioritise as an urgent referral.

Decision aid for deactivation of ICD – Routine cases



Decision aid for deactivation of ICD – Urgent Cases

Utilise this aid for patients who are actively dying with an active ICD in place (this should usually be avoided as deactivation discussion & arrangements should be made before the patient becomes too unwell).



How to apply a donut magnet

1. Ensure the patient is aware why you are placing the magnet and verbal consent is given and consent form is signed if possible.
2. Ask the patient to feel and point to where the ICD is located (if possible), if not then look for the scar usually located to the left below clavicle. Alternative placement could be on the right or down under the Left arm around 6th rib.
3. Feel for the ICD which will be a solid lump under the skin
4. Place the magnet over the lump – you may hear a quiet alarm as the magnet disables therapies.
5. Secure the magnet in place with micropore/transpore, as pictured below to ensure the magnet does not move.



PLEASE NOTE IF THE MAGNET IS APPLIED FOR OVER 8 HOURS, YOU MUST REMOVE AND REAPPLY

Please note the following:

- Donut magnet temporarily stops the ICD delivering shock therapies but ***only whilst in position over the ICD.***
- Normal function is restored as soon as it is removed.
- Applying magnet does NOT cause death, it just stops shocks occurring if the patient has an arrhythmia. This stops the ICD delivering any shock or ATP therapy but does not disable bradycardia pacing delivery.
- This is a temporary solution as the ICD will return to normal function as soon as the magnet is removed.
- The ICD will still require deactivation by a cardiac physiologist using a programmer as soon as is practicable.
- This deactivation method may be considered if a planned ICD deactivation was not arranged and a cardiac physiologist cannot get to a patient in time.

Device management after death

Pacemakers (PPM): In general, PPM do not require any immediate action when a patient dies however it must be highlighted on the cremation form (if applicable) so that it can be safely removed due to the risk of lithium battery explosion.

If a patient dies unexpectedly a cardiac physiologist should undertake early interrogation of the device to determine heart & device rhythm behaviour immediately before death. This information may be useful to the coroner

ICDs/CRTDs: A magnet should remain in place over the device after death until a cardiac physiologist can deactivate the ICD. Removal of the device should not be attempted until it has been deactivated as there is a risk that the operator may receive a shock.

As above, if the death is unexpected, the device should be interrogated by a cardiac physiologist at the earliest opportunity.

Appendices

Appendix 1: Consent for Deactivation of Implanted Cardioverter Defibrillator (ICD)

Patient Name:

Hospital/NHS number:

Date of Birth:

Address:

GP Name:

Address:

Telephone:

PATIENT CONSENT

I understand the reasons for deactivating my ICD and that the decision to deactivate can be reviewed if necessary. I have received the patient information leaflet and had the opportunity to ask questions about this. I agree to the deactivation of my ICD.

Signature of patient:

Date:

PROXY CONSENT

I understand the reasons for the deactivating the ICD of the patient named above and that the decision to deactivate can be reviewed if necessary. I agree to the deactivation of the named patient's ICD

Signature of next of kin/relative/carer (circle as appropriate):

Print name:

Date:

CLINICAL AUTHORISATION OF DEACTIVATION

Date of request:

Reason for request:

Signature of authorising Consultant/Physician/GP (circle as appropriate):

Any other comments:

ICD Details (most patients will have a card/leaflet with this information)

Manufacturer:

Implant hospital:

Cardiac Physiologist deactivating the device (sign/print):

DATE AND TIME DEVICE DEACTIVATED:

Appendix 2 Request for Deactivation of Implanted Cardioverter Defibrillator (ICD)

Patient Name: Hospital/NHS number:

Date of birth:

Address:

Point of contact for deactivation arrangements:

Who: Contact Tel number:

Patient consent has been given & “deactivation consent form deactivation form” has been signed by patient/proxy (please enclose)

A record of decision is documented in patient records by physician in charge if possible and /or consent to deactivate has been signed

Section A: Patient is near end of life (URGENT)

A magnet has been obtained from the centre below and taped securely over the patient's ICD as per community SOP for unplanned ICD deactivation

Please can you make arrangements within 72 hours for deactivation of the ICD by a cardiac physiologist using a programmer

Section B: Decision to deactivate has been made (PLANNED)

Patient **IS** able to attend clinic, please can you make reasonable arrangements for the patient to attend clinic for deactivation of the ICD by a cardiac physiologist using a programmer

Patient **IS NOT** able to attend clinic, please can you make reasonable arrangements for deactivation of the ICD by a cardiac physiologist using a programmer in the patient's home

Section C: Request for deactivation of ICD after Death

Please arrange deactivation by a cardiac physiologist using a programmer prior to post mortem and burial or cremation as soon as is practicable **(please state if urgent)**

Requested by (name/title):

Date:

Appendix 3: Deactivating your ICD – a patient’s guide

There may come a point in your life when you would prefer not to have a shock to correct a life-threatening heart rhythm. This may be if your heart condition has deteriorated or you have another medical condition which cannot be cured. This leaflet is designed to help you when considering this option.

When is deactivating an ICD considered?

Deactivation may be considered if receiving shocks is unlikely to prolong your life and may cause distress. This may be the case if you have been diagnosed with a terminal condition and are thought to be reaching the end of your life. For some people, their heart condition reaches a stage where it is no longer possible to maintain a good quality of life or to prevent rhythm disturbances that cause frequent shocks. It may be that you feel that dying suddenly from a heart rhythm disturbance is preferable to the prospect of a slow deterioration.

Who makes the decision to deactivate the ICD?

Ideally, this would be you, which is why we aim to raise the issue well before a decision is urgently needed. It is important that you are aware of this option early on so you have time to consider how you feel about deactivation and can play an active part in the decision making process. This ensures that people involved in your care know and understand your wishes. If you have not expressed your wishes and are not able to do so, a discussion will take place between your next of kin and the doctors involved in your care. The decision, made in your best interests, may then be made to deactivate your ICD.

How is the ICD deactivated?

The process is carried out by a trained clinician usually a cardiac physiologist and is similar to when you have an ICD check. A programming device is placed over your ICD and the settings are altered on a computer. The ICD can be deactivated so it will no longer deliver a shock but the pacing function is left unchanged. In an emergency when there is no time to deactivate the ICD as above this can be done temporarily by fixing a magnet over the device box. As above this does not affect pacing function of your ICD only shock therapies.

What happens when it is deactivated?

You will not feel any different. Deactivating the ICD does not cause your immediate or sudden death nor will it cause any pain or deterioration in your condition. Next time you have an abnormal heart rhythm, the ICD will not shock your heart out of this rhythm.

What if I change my mind?

Once it is deactivated, should you change your mind, it can be reactivated at any time.

Who can I talk to for further advice?

The choice to deactivate your ICD is primarily yours and there are people to advise and support you with your decision. If you would like to discuss this possibility, please talk to your heart failure CNS/ICD clinic on or you can discuss with your GP/palliative care team.

References

1. [NICE. Implantable cardioverter defibrillators for arrhythmias: technology appraisal guidance \[TA314\], June 2014](#)
2. [Resuscitation Council UK. Deactivation of implantable cardioverter-defibrillators towards the end of life: A guide for healthcare professionals from the Resuscitation Council UK, the British Cardiovascular Society, and the National Council for Palliative care, 2015](#)
3. R Stoevelaar, A Brinkman-Stoppelenburg, R Bhangwandien et al. The incidence and impact of implantable cardioverter defibrillator shocks in the last phase of life: An integrated review. *European Journal of Cardiovascular Nursing*. 17(6):477-485. 2018
4. [Department of Health. Mental Capacity Act, 2005](#)