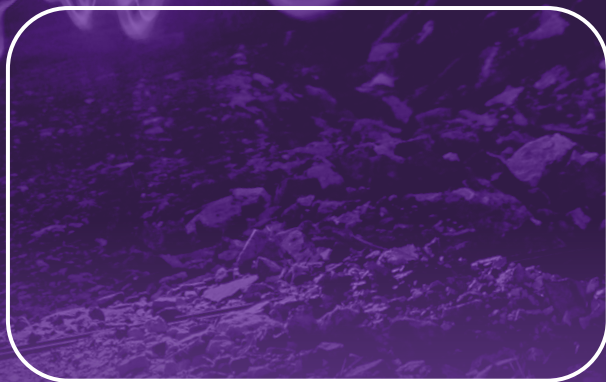


# NAVIGATING YOUR WAY AROUND HEART FAILURE TREATMENTS



This patient information leaflet has been supported by an educational grant from Medtronic



Help us make Heart Failure clearer for everyone  
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LET'S  
**B.E.A.T.**  
HEART FAILURE  
TOGETHER

# GLOSSARY

## Anaemia

Anaemia is a deficiency in the number or quality of red blood cells in your body.

## ACE Inhibitors/ARB

Angiotensin Converting Enzyme (ACE) inhibitors are heart medications that widen, or dilate, your blood vessels.

Angiotensin II Receptor Blockers (ARBs) have similar effects as ACE inhibitors but work differently.

## Angiogram

X-ray images created during an angiography are called angiograms. Angiography is used to check the health of your blood vessels and how blood flows through them.

## ARNi

Angiotensin Receptor Neprilysin Inhibitor (ARNi) is a medicine resulting from the combination of two anti-hypertensive drugs (sacubitril and valsartan) that reduce blood pressure.

## Beta Blockers

Beta blockers work mainly by slowing down the heart. They do this by blocking the action of hormones like adrenaline.

## Bundle Branch Block

Bundle branch block is a condition where there's a delay or blockage along the pathway that electrical impulses travel to make your heart beat.

## Congestion

Congestion is the build-up of fluid in the body.

## Diuretics

Diuretics are designed to increase the expulsion of water and salt from the body.

## ECG

An electrocardiogram (ECG) is a simple test that can be used to check your heart's rhythm and electrical activity.

## Echocardiogram

An echocardiogram is an ultrasound scan of the heart and nearby blood vessels.

## Ejection Fraction

Ejection fraction is the measurement of the percentage of blood leaving your heart each time it contracts.

## Electrical Conduction

The heart's electrical impulses travel through the heart via a network of specialised conduction tissue, nodes and cells to control the heartbeat.

## Impaired/Impairment

Impaired in this context means in a weakened or damaged state.

## Left Bundle Branch Block

Left bundle branch block is a problem with the conduction of electrical activity through the heart. The result is that the right and left sides of the heart may beat out of sync.

## MRA

Aldosterone receptor antagonists (MRAs) block the effects of a hormone produced naturally by your adrenal glands and affect the balance of water and salts going into your urine.

## MRI Scan

Magnetic Resonance Imaging (MRI) is a type of scan that provides detailed imaging of the inside of the body, without use of radiation.

## NT-pro BNP Test

NT-proBNP test is a blood test that is used to identify if someone needs further tests and investigations for a potential diagnosis of Heart Failure.

## Prognosis

Prognosis means the likely course of a medical condition.

## SGLT2 Inhibitors

SGLT2 inhibitors are medication that may lower your blood sugar levels. They may also be known as "Gliflozins".

## Urea and Electrolytes

A commonly requested blood test performed to assess kidney function and the level of circulating salts in the bloodstream.

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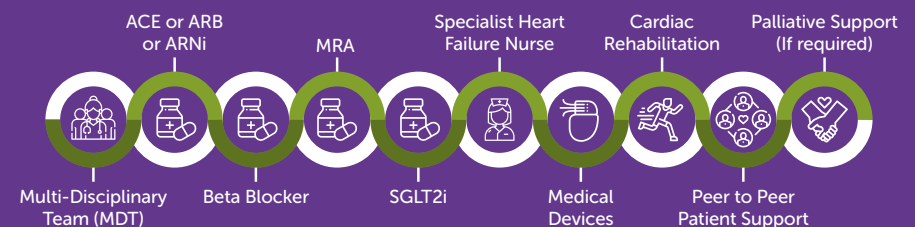


**You have been given this leaflet because you have Heart Failure, a condition which impairs your heart's ability to pump blood around the body.**

**People with Heart Failure often have symptoms such as breathlessness, tiredness and ankle swelling. Heart Failure can make ordinary activities, like walking upstairs, feel insurmountable – in other instances some patients may have no symptoms when they are first diagnosed.**

**This map of Heart Failure attached summarises what may happen following a diagnosis. It is designed to summarise the initial management of Heart Failure and gives an introduction to the medications and cardiac devices commonly used in its management.**

## THE 10 PILLARS OF SUPPORT FOR PEOPLE WITH HEART FAILURE

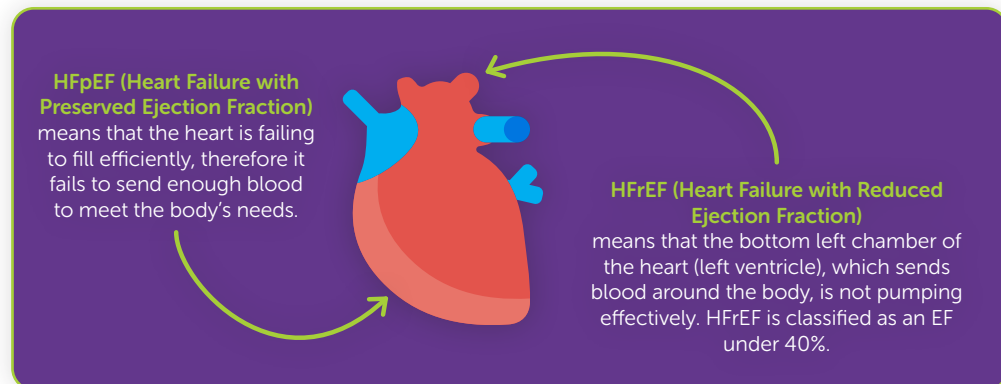


**UNDERPINNED BY A PATIENT-FRIENDLY CARE PLAN**

## DIAGNOSIS OF HEART FAILURE

Although there are many different causes of Heart Failure, the diagnosis is broadly based on the results of an echocardiogram or MRI scan of the heart, performed in order to establish whether the heart muscle's pumping function is reduced (Heart Failure with reduced Ejection Fraction HFrEF), or preserved (Heart Failure with preserved Ejection Fraction HFpEF).

As the treatment for Heart Failure varies depending on whether the ejection fraction is preserved or reduced, the information contained here summarises the management of patients who have Heart Failure with reduced Ejection Fraction.



## MEDICATIONS USED TO IMPROVE/STABILISE HEART FUNCTION IN PATIENTS WITH HEART FAILURE AND REDUCED EJECTION FRACTION

Several medications are designed to improve/stabilise the heart muscle's pumping function. The type of medication used may vary depending on your ejection fraction.

**These medications are designed to:**

1. Relieve congestion
2. Improve heart function
3. Reduce the risk of you being hospitalised due to Heart Failure
4. Improve your prognosis and reduce your risk of dying prematurely

**For Heart Failure patients with reduced heart pumping function (ranging from mildly impaired, to more significantly moderate or severe impairment), up to 5 different types of medications may be used in your treatment, such as:**

1. Diuretics (water tablets)
2. Beta blockers
3. ACE inhibitors ARB or ARNi (patients may be prescribed any one of these medications designed to improve and stabilise heart function. In a majority of cases your specialist may discuss switching an ACE inhibitor or ARB over to ARNi.)
4. MRA
5. SGLT2 inhibitors

### Mild to moderately reduced heart muscle pumping function

In selected patients with less severe heart muscle impairment (mild–moderately impaired), only some medications may be indicated. These may include:

- Diuretics (water tablets)
- Beta blockers
- ACE inhibitors/ARB



## TESTS TO INVESTIGATE THE UNDERLYING CAUSE OF HEART FAILURE

Several investigations may be undertaken to try and establish the underlying cause of your Heart Failure. Common first-line investigations may include:

- Echocardiogram
- ECG
- Cardiac MRI scan
- Angiogram
- Blood tests, including an NT-proBNP test – a widely available blood test that can help diagnose when a patient has Heart Failure.

## MONITORING YOUR HEART FAILURE: BLOOD TESTS AT LEAST EVERY 6-MONTHS

- Routine blood testing is performed to monitor your kidney function and blood count at least every six months, or more frequently for those with impaired renal function, and after a change in certain medications.

**Commonly requested blood tests include:**

- Urea and electrolytes (test of kidney function)
- Full blood count (test to ensure you do not have anaemia)
- NT-pro BNP (test to monitor heart hormone levels which are elevated in patients with Heart Failure)

## TYPES OF CARDIAC DEVICES USED IN PATIENTS WITH HEART FAILURE

While pacemakers are commonly used to treat slow heartbeats, in patients with Heart Failure where the heart muscle pumping function is significantly impaired, more complex devices with specialist functions may be indicated. Their role is summarised on the next page.

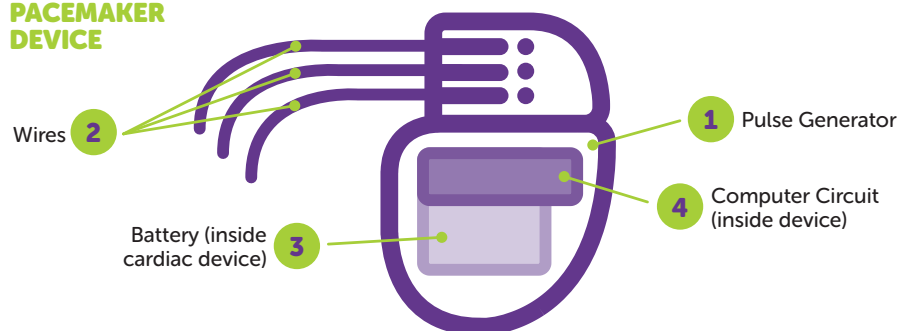
## THE ROLE OF CARDIAC IMPLANTABLE ELECTRONIC DEVICE

- In instances where your heart function improves significantly after medication, a cardiac device may no longer be required, or deferred.
- However, up to one-third of patients with Heart Failure may benefit from a cardiac implantable electronic device. In this instance your clinical care team are likely to discuss this with you.
- Sometimes this discussion occurs soon after diagnosis. In other cases your heart care team may wait until you have been stabilised on medications for a few months before reassessing your heart function and deciding whether a cardiac device is indicated.

### 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.

### PACEMAKER DEVICE



## TYPES OF CARDIAC IMPLANTABLE ELECTRONIC DEVICES 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 to 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 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.



## TYPES OF CARDIAC IMPLANTABLE ELECTRONIC DEVICES CARDIAC RESYNCHRONISATION THERAPY: 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.
- Most people with left bundle branch block have no symptoms and do not require treatment.
- 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) (REF).

Brambatti M, et al. Cardiac resynchronization therapy improves ejection fraction and cardiac remodelling regardless of patients' age, EP Europace, 2013; 15: 704–710.

Daubert JC, et al. 2012 EHRA/HRS expert consensus statement on cardiac resynchronization therapy in Heart Failure: implant and follow-up recommendations and management. Europace. 2012;14:1236–86.

Lewis GF, Gold MR. Developments in Cardiac Resynchronisation Therapy. Arrhythm Electrophysiol Rev. 2015;4(2):122-128.

### 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

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