ESC
European Society
of Cardiology

ESC Clinical Practice Guidelines on

The Management of Chronic and Acute Heart Failure: What Patients Need to Know

Image is of model used for illustrative purposes only

What Are Clinical Practice Guidelines?

Clinical Practice Guidelines are written by a team of healthcare professionals and scientists and are mainly intended for healthcare professionals. They provide diagnosis and treatment recommendations based on medical and scientific evidence to ensure that patients receive appropriate care.

This document is for patients with heart failure and their caregivers and is based on the longer European Society of Cardiology (ESC) Clinical Practice Guidelines for the diagnosis and treatment of acute and chronic heart failure.

What Will This Document Tell Me?

This guide for patients aims to provide you with an overview of the latest evidence-based recommendations for the diagnosis and treatment of your condition. In particular, it should help you to understand the:

- main types of heart failure
- medicines you may be offered
- devices that might be considered appropriate
- importance of being treated by a multidisciplinary team
- importance of rehabilitation
- importance of looking after yourself and managing your condition

This document is not intended as a guide on how the heart works, nor can it be exhaustive. The topics included in this document have links that will direct the interested reader to the appropriate sections in the 2021 ESC Clinical Practice Guidelines[1].

People seeking more general information about heart failure should visit **www.heartfailurematters.org**

If you are a healthcare professional, the ESC hopes that this document, translated into the language of your patients, will provide them and their caregivers with an understanding of their diagnosis and treatment as a patient with heart failure. Please disseminate it widely.

How Will This Document Help Me?

This document is intended to contribute to your understanding of your condition and give you the knowledge and confidence to be involved in shared decision-making with your healthcare providers regarding treatment and other aspects of your health. It also provides suggestions on ways to look after yourself, which is essential in the effective management of heart failure.

[1] https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Acute-and-Chronic-Heart-Failure

What is Heart Failure?

Heart failure is not a single disease but a '**syndrome**' made up of **symptoms**, such as breathlessness or fatigue, that may appear alongside **signs** such as swollen ankles, caused by something wrong in the heart.

Heart failure can be **acute** (comes on quickly and severely, requiring urgent attention) or **chronic** (long-lasting, with the coming-and-going of symptoms). This document mainly refers to **chronic heart failure**.

Types of Heart Failure

Heart failure occurs when the **pumping action** of the heart is impaired. This impairment may be mild or severe.

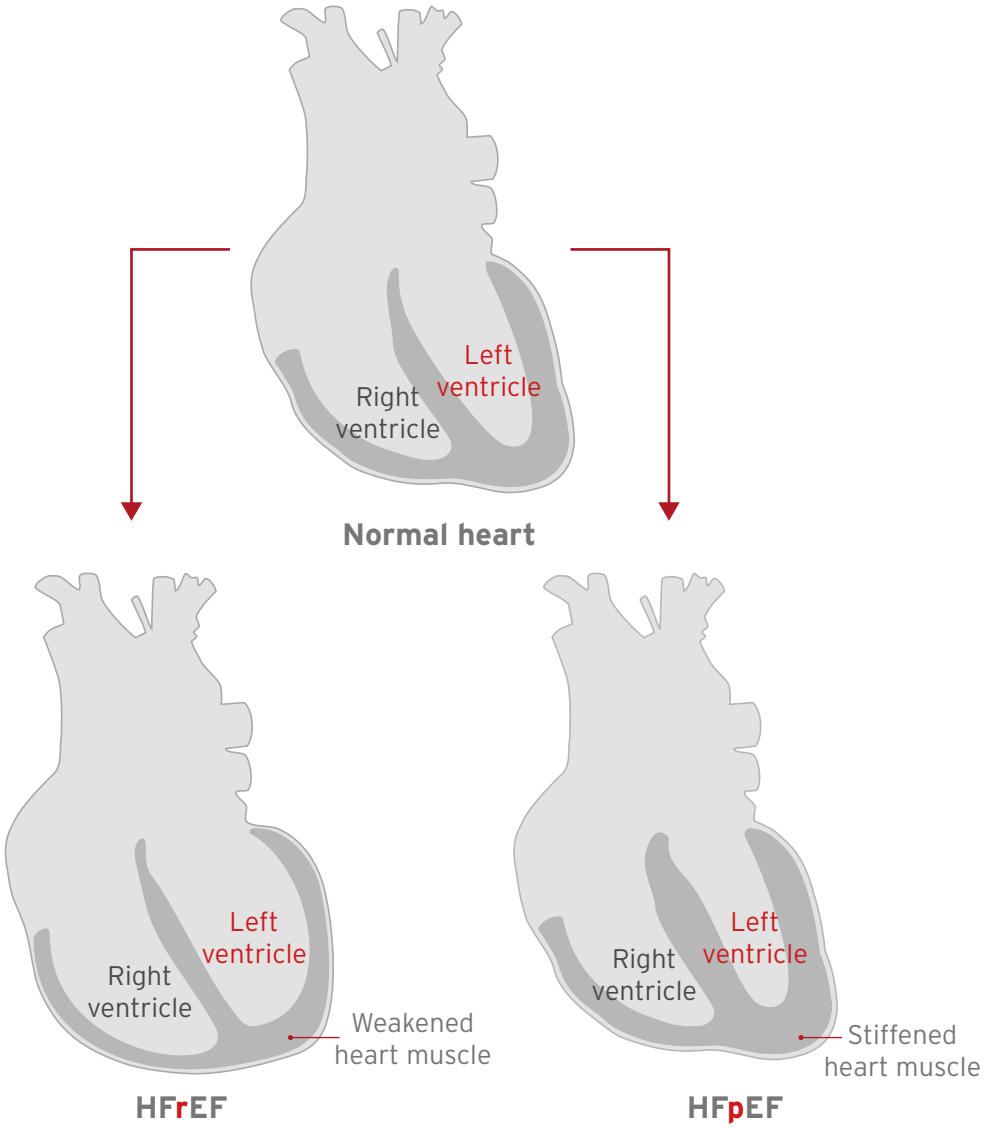
Generally, there are three types of chronic heart failure based on the amount of blood that is pumped out of the heart's main pumping chamber, the **left ventricle**, during each heartbeat. This is known as the '**left ventricular ejection fraction**'.

The three types of chronic heart failure are:

- Heart Failure with **reduced** Ejection Fraction (**HFrEF**)
- Heart Failure with **mildly reduced** Ejection Fraction (**HFmrEF**)
- Heart Failure with **preserved** Ejection Fraction (**HFpEF**)

	HFrEF	HFmrEF	HFpEF
Left ventricular ejection fraction	<40%	≥40 to <50%	≥50%
Changes in heart structure	In HFrEF, the heart is usually **enlarged** compared with a normal heart and **pumping weakly**	HFmrEF is **between** HFrEF and HFpEF	In HFpEF, the heart is **less enlarged** than in HFrEF; the left ventricle is **smaller** compared with the HFrEF heart and **stiffened**
Changes in heart function	The left ventricle fills with higher pressure than is normal. There is higher pressure in the lungs, veins and liver that can lead to breathlessness and/or oedema (swelling)		

The changes associated with each type of chronic heart failure are shown below:



Advanced Heart Failure

Advanced heart failure is a **development** of chronic heart failure when symptoms cannot be fully controlled despite maximum therapy. This is sometimes referred to as '**resistance to treatment**'.

Advanced heart failure is **different** from when acute heart failure arises in a patient with chronic heart failure, which describes the rapid onset of a change in heart function that requires urgent attention.

Image adapted from: Bloom MW, et al. Nat Rev Dis Primers. 2017;3:17058. https://doi.org/10.1038/nrdp.2017.58

Diagnosis of Heart Failure

To be diagnosed with heart failure, you must have **symptoms and/or signs** of heart failure as well as **abnormalities and functional problems** in the heart as seen on tests.

The types of tests and investigations you may have to diagnose your condition are shown below:

Blood tests, such as BNP/ NT-proBNP

Electrocardiogram (ECG), checks electrical activity of the heart

X-ray

Echocardiogram (echo), ultrasound of the heart

These tests will identify which **type** of heart failure you have (HFrEF, HFmrEF, or HFpEF) and guide the appropriate course of treatment.

You may need **further tests** for better evaluation of the features of your heart failure and how your condition will develop.

A magnetic resonance imaging (**MRI**) scan is sometimes used instead of or with an echo to identify particular characteristics of the heart, including scarring of the heart muscle.

The types of treatments that you receive will be chosen depending on how much help your heart needs to function. The more that is known about your diagnosis, the better your doctors can **personalise** your treatment options, which may improve your symptoms and/or outcomes.

Severity Classification of Heart Failure

Following diagnosis, doctors will often classify your condition using the **New York Heart Association (NYHA) Functional Classification** system, according to the severity of your symptoms and how they affect your physical activity:

NYHA class	Description
Class I	No limitation of physical activity. Ordinary physical activity does not cause excessive symptoms, e.g., breathlessness, fatigue or palpitations (more noticeable or 'skipping' heartbeats)
Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity causes excessive symptoms
Class III	Significant limitation of physical activity. Comfortable at rest, but less than ordinary physical activity causes excessive symptoms
Class IV	Unable to do any physical activity without discomfort. Symptoms can be present even at rest. If any physical activity is done, discomfort is increased

Hereditary Forms of Heart Failure

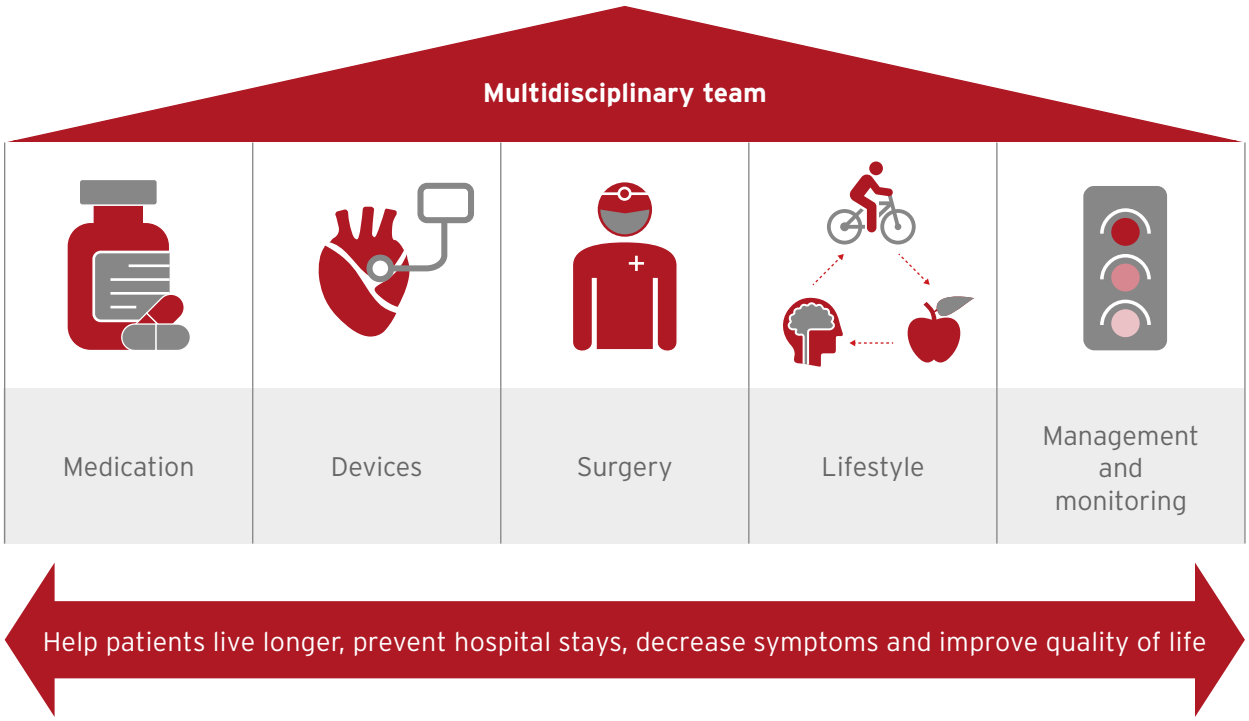
Some causes of heart failure, such as a disease of the heart muscle called cardiomyopathy, may be '**hereditary**', meaning they can be passed down in your family. Genetic testing should be considered in people who may have cardiomyopathy depending on age, family history and heart structure.

Treatment for Heart Failure

Care from a **multidisciplinary team** (healthcare professionals across different specialities) is key to meeting the three major goals of treatment for people with heart failure:

1. longer life
2. prevent hospital stays due to worsening heart failure
3. decrease symptoms and improve quality of life

Some of the ways that you and your multidisciplinary team can help to achieve these goals are shown below:



Medications for People with HFrEF

Medicines are the **first** treatment for HFrEF and should be started as early as possible, before devices or other non-medicinal treatments are used.

The ESC Clinical Practice Guidelines currently recommend four different types of medicines for people with HFrEF: Angiotensin converting enzyme inhibitors (ACE-I) or angiotensin receptor neprilysin inhibitors (ARNI), beta-blockers (BB), mineralocorticoid receptor antagonists (MRA) and sodium-glucose cotransporter-2 (SGLT2) inhibitors. The table below explains how the different medicines work:

Type of medicine	What it does
Angiotensin converting enzyme inhibitors (ACE-I)	Relax blood vessels and reduce how hard the heart has to work
Angiotensin receptor neprilysin inhibitors (ARNI)	Work in a similar way to ACE-I (above) and have additional heart-protective effects
Beta-blockers (BB)	Slow down the heart so that it doesn't have to work as hard, and protect the heart from future heart attacks
Mineralocorticoid receptor antagonists (MRA)	Reduce build-up of fluid and sodium, reducing scarring of heart muscle, and thus protect the heart
Sodium-glucose cotransporter-2 (SGLT2) inhibitors	Help remove fluid and sodium, protecting the heart and kidneys[2]

You may also receive other types of medications to control your symptoms or improve your condition, e.g., **diuretics** ('water pills', which help your body get rid of salt [sodium] and water) are recommended to reduce excess fluid and lower pressures within the heart.

Medications for People with HFmrEF

Most research into medications for people living with heart failure has been focused on treatment of people with HFrEF. However, many medications used for HFrEF may also help people with HFmrEF, including diuretics.

[2]The scientific evidence on the benefit of SGLT2 inhibitors for patients with HFrEF and HFpEF was published after the ESC Clinical Practice Guidelines for the diagnosis and treatment of acute and chronic heart failure.

Medications for People with HFpEF

Recently, SGLT2 inhibitors have also been shown to help people with HFpEF live longer, prevent hospital stays, decrease symptoms and improve quality of life[2].

Other medications can be used to help relieve symptoms for people with HFpEF, such as diuretics to reduce breathlessness. As most people with HFpEF have underlying high blood pressure and/or coronary artery disease, many are treated with ACE-I/ angiotensin II receptor blockers (ARB), BB or MRA.

Managing Heart Failure Alongside Other Health Conditions

Many people with heart failure also have other health conditions such as diabetes, kidney disease or chronic obstructive pulmonary disease.

Your heart failure treatment might be **changed** if you have one of these conditions, are pregnant or have another condition such as congenital heart disease.

For people with heart failure and **atrial fibrillation**, anticoagulants ('blood thinners') are often needed to prevent stroke, and digoxin is sometimes given to slow a high heart rate.

For people who don't have enough **iron**, an iron infusion can be given to improve symptoms and prevent hospitalisation.

[2]The scientific evidence on the benefit of SGLT2 inhibitors for patients with HFrEF and HFpEF was published after the ESC Clinical Practice Guidelines for the diagnosis and treatment of acute and chronic heart failure.

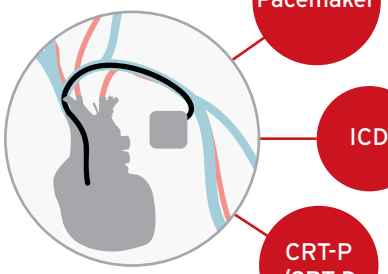
Devices and Surgery for Heart Failure

Devices

Medical devices can help support the heart by using **electrical signals** to keep it beating regularly and/or improve how it works.

These devices, placed under the skin near the collarbone, may not only **improve symptoms** but have been shown to help people with heart failure **live longer**.

Three types of devices that may be recommended to you are shown below:



Pacemaker
A pacemaker monitors heart rate and sends **small and painless electrical impulses** to the heart to start each heartbeat if needed

ICD
An Implantable Cardioverter Defibrillator (ICD) is a pacemaker-like device that can deliver either a **painless electrical impulse** or a **more noticeable shock** to the heart to correct the heart rhythm if it senses a serious problem that could lead to sudden cardiac arrest

CRT-P /CRT-D
A cardiac resynchronisation therapy pacemaker (CRT-P) is a **special type of pacemaker** that makes the different parts of the heart pump together. It can be combined with an ICD (CRT-D)

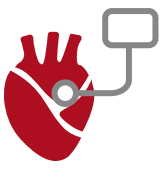
People with HFrEF are at increased risk of **cardiac arrest**, where the heart suddenly stops pumping.

Pacemakers may be recommended for people with a heartbeat that is too slow or too fast.

People who have recovered from cardiac arrest and those with a history of heart attack are most likely to receive an **ICD**. In people with other heart disease not related to the blood vessels of the heart, ICDs are most helpful in those **under 70 years old**.

A **cardiac resynchronisation therapy** (CRT) device may be used in certain people to improve heart function and quality of life, depending on the results of an **ECG** as well as how well and for how long medications are working.

Some of the important steps in the process of receiving or replacing an implanted device are shown below:



If you have a **left ventricular ejection fraction ≤35%**, you should be considered for an **implanted device (ICD or CRT)**

You should receive **education around the purpose** of the device and **potential complications**

A **review of medications** (particularly diuretic therapy) is advised **after receiving a CRT**

You should be **evaluated by an experienced cardiologist before your device is replaced**, in case management goals or needs have changed

Time

Surgery

Some people with underlying cardiac diseases that are causing heart failure will benefit from **surgery** or other procedures.

Some of the common surgical or catheter procedures for heart failure, who they are for, and what they do and how, are listed below:

Procedure/ surgery	Who's it for?	What it does and how
Catheter ablation	People with worsening heart failure symptoms due to atrial fibrillation	Restores normal heart rhythm by blocking extra electrical impulses coming into the heart
Coronary artery bypass grafting	People with narrowing of the coronary arteries, symptoms of angina and left ventricular ejection fraction ≤35%	Diverts blood around narrowed parts of the arteries to improve blood flow and oxygen supply to the heart
Valve repair or replacement	People who develop problems with their heart valves, including aortic stenosis (narrowing of the opening of the left ventricle)	Surgery may be done to repair or replace the valve. In patients with severe aortic stenosis, surgical or catheter replacement of the aortic valve is recommended
Mitral valve procedures	People who have symptoms despite medications and in whom the procedure is likely to reduce heart failure hospitalisation	Prevents abnormal blood flow between heart chambers
Mechanical circulatory support	People with advanced heart failure	Implanted device that takes over the pumping function of the heart. It can be used until a heart transplant is available or as a long-term treatment
Heart transplantation	People with advanced heart failure	Optimal treatment for limited group of patients

Lifestyle Modifications for People with Heart Failure

People with heart failure can make **lifestyle modifications** to improve their symptoms and the condition itself.

Your healthcare team should refer you to **rehabilitation** where you can learn more about your condition and how to look after yourself.

Looking after yourself is **essential** in the effective management of heart failure and you should discuss any lifestyle recommendations with your healthcare team.

Some examples of lifestyle modifications are shown below:

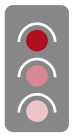
Exercise according to physical ability

Reduce **sedentary habits**, cigarettes and alcohol

Maintain a **healthy diet** and **body weight**

Plan travel and leisure activities according to physical ability

Seek help if experiencing **depression, anxiety or low mood**



Monitor, recognise and react to changes in signs/symptoms

Management and Monitoring of Heart Failure

Regular monitoring is important to maintain symptom control.

You may meet with your healthcare providers in the following ways:

A **multidisciplinary team** (which combines healthcare professionals from different specialities) is recommended to ensure correct tests, accurate diagnosis and appropriate therapy, education and follow-up

Regular follow-up is important, even if your condition is stable. The ESC Clinical Practice Guidelines recommend **at least every 6 months** to check things like heart rhythm, blood pressure and kidney function

If you've recently been discharged from hospital, follow-up should be more frequent, including a visit **1–2 weeks after leaving hospital** to check your symptoms and how well the medications are working

Telemonitoring, where you may send information such as your symptoms, weight or blood pressure to your healthcare provider, may be used **to adjust treatment or get further advice**

Each person's experience with heart failure is **different**; despite the best medications, devices and surgical treatments, symptoms can get worse.

A supportive approach from all members of your **multidisciplinary team** can improve quality of life by balancing medical treatment and symptom control with particular reference to mental and spiritual wellbeing.

This guide for patients is a simplified version of the ESC's Clinical Practice Guidelines for the diagnosis and treatment of acute and chronic heart failure. The full guidelines are available in English on the ESC website (https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Acute-and-Chronic-Heart-Failure); your cardiologist will be familiar with its content and recommendations. Online translator tools may be able to translate the text and present it in an alternative language, with limitations.

If you are interested in more information about heart failure and its diagnosis and treatment or the terms used in this document, the Heart Failure Matters website (https://www.heartfailurematters.org/) is a good place to start. It contains details about heart failure and the medicines used to treat it (presented in 10 different languages).

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Disclaimer

The following material was adapted from the ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure (European Heart Journal 2021 - doi:10.1093/eurheartj/ehab368) as published on 27 August 2021 and revised on 14 October 2021.

This material was adapted from the ESC Guidelines as an aid to patients and carers. It represents the views of the ESC and was produced after careful consideration of the scientific and medical knowledge and the evidence available at the time of their publication. The ESC is not responsible in the event of any contradiction, discrepancy and/or ambiguity between the ESC Guidelines and any other official recommendations or guidelines issued by the relevant public health authorities, in particular in relation to good use of healthcare or therapeutic strategies. Please refer to the preamble of the original guidelines, for further details of the role of Clinical Practice Guidelines and the individual responsibility of health professionals when making decisions for the care of patients.

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