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STEP-ONE in HF



Supportive Training and Essential Preparation for Optimal Nursing Education

HEART FAILURE NURSING: FROM THEORY TO PRACTICE



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Preface

Heart failure remains a challenge for individual patients and healthcare services across the world. As a heart failure nurse, you will play a key role in the care of your patients.

You will also be a vital member of the multidisciplinary team. Specialist heart failure nurses working in a multidisciplinary team have been found to improve outcomes, functional capacity and quality of life, and reduce unscheduled hospitalizations and readmissions in patients with heart failure.

The aim of this handbook is to prepare you for your role as a heart failure nurse by adding to your clinical knowledge and helping you to improve your leadership, communication and patient education skills. It is recommended to review this handbook together with the dedicated handbook prepared for patients with heart failure, which is also available as part of the course materials. Overall, this will help you to work effectively with your patients to keep them functioning well and out of hospital for as long as possible.



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Abbreviations and acronyms

ACE inhibitor – angiotensin-converting enzyme inhibitor
ARB – angiotensin-2 receptor blocker
ARN inhibitor – angiotensin receptor neprilysin inhibitor
BMI – body mass index
BNP – B-type natriuretic peptide
BP – blood pressure
CABG – coronary artery bypass graft
CAD – coronary artery disease
CDC – Centers for Disease Control and Prevention
COPD – chronic obstructive pulmonary disease
COVID-19 – coronavirus disease 2019
CRP – C-reactive protein
CRT – cardiac resynchronization therapy
CT – computed tomography
ECG – electrocardiography
EF – ejection fraction
ESC – European Society of Cardiology
FDA – Food and Drug Administration
HF – heart failure
GDMT – guideline-directed management and therapy
HFA – Heart Failure Association
HFieEF – heart failure with improved ejection fraction
HFmrEF – heart failure with mid-range ejection fraction
HFpEF – heart failure with preserved ejection fraction
HFrEF – heart failure with reduced ejection fraction
HFSA – Heart Failure Society of America
ICD – implantable cardioverter defibrillator
JHFS – Japanese Heart Failure Society
LVEF – left ventricular ejection fraction
MRA – mineralocorticoid receptor antagonist
MRI, magnetic resonance imaging
NSAID – non-steroidal anti-inflammatory drug
NT-proBNP – N-terminal pro hormone BNP
NYHA – New York Heart Association
QoL – Quality of life
PET – positron emission tomography
PCI – percutaneous coronary intervention
SARS-CoV-2 – severe acute respiratory syndrome coronavirus 2
SGLT2 inhibitor – sodium-glucose co-transporter-2 inhibitor
WHO – World Health Organization



1. Heart failure and heart failure nursing

1.1. How common is heart failure?

- Heart failure (HF) is a major public health issue affecting approximately 64 million people worldwide.¹
- The prevalence of HF varies across the world, but in developed countries approximately 1–2% of the adult population have the disease.¹
- Data from the Heart Failure Association (HFA) Atlas indicates an overall HF incidence of 1–4 cases per 1000 person-years and a prevalence of 10–30 cases per 1000 people.² The median annual incidence of HF per 1000 person-years was 3.20 cases, ranging from fewer than 2 cases in Italy to at least 6 cases in Estonia and Germany, and the median prevalence of HF per 1000 people was 17.20 cases, ranging from not more than 12 cases in Greece and Spain to more than 30 cases in Lithuania and Germany.
- In Europe, the overall lifetime risk of HF has been estimated at approximately 20–45%.^{1,3,4}
- The report on the global burden of cardiovascular disorders has shown a growing prevalence of hypertensive heart disease (defined as symptomatic HF caused by direct, long-term effects of hypertension) due to population growth and ageing.⁵
- Improved treatments have allowed more and more patients to live with the disease.
- As populations age, the overall incidence and prevalence of HF and the hospitalization rate and mortality for HF are expected to increase.

1.2. What are the impacts of heart failure?

1.2.1. Quality of life

- Quality of life (QoL) is a multidimensional concept, and HF has a significant negative impact on a patient's quality of life for a variety of reasons.

- Work, leisure and social activities often become difficult for those with even moderate symptoms.
- Recurring hospital stays, and the severity and stage of HF can be highly detrimental to a patient's quality of life.
- Patients may experience anxiety and depression related to their condition, and to the impact it has on their life satisfaction and ability to live their life as they wish.

- HF can also place a high emotional burden on caregivers looking after family members with the disease.
- Lower quality of life correlates with prolonged length of hospital stay, increased mortality, higher costs to healthcare systems, and increased burden on caregivers of patients with HF.⁵⁵

1.2.2. Hospitalization

- HF is the primary diagnosis in 1–4% of all hospitalizations in developed countries.⁶ In Europe, this adds up to more than 1 million admissions per year.⁷
- It is one of the leading causes of hospitalization in people 75 years of age and older.
- Patients with HF have high hospital readmission rates, and often experience multiple readmissions. There has been a trend of growing numbers of recurrent HF hospitalizations in recent decades (contrary to a relatively stable situation regarding mortality). Almost 25% of patients are readmitted within 30 days of discharge.⁸ The rates of both cardiovascular and non-cardiovascular-related hospitalizations are increasing for patients with HF.
- HF is a significant problem in terms of the number of days spent in hospital, which ranges from not more than 6 days in Denmark and Poland to at least 11 days in Croatia, Iceland and Belgium.²
- HF has a high economic cost and much of this cost is associated with recurrent HF, prolonged hospital stays, high mortality and poor quality of life.^{9,10} The disease currently accounts for 1–3% of total healthcare expenditure across the world, and this figure is expected to rise substantially.¹¹
- Hospitalization for HF is associated with higher mortality. For patients admitted to hospital for HF, the estimated in-hospital mortality is 2–17%, the 30-day mortality is 6.5% and 1-year mortality can be up to 45%.¹¹ The majority of these patients die within 5 years of hospitalization.
- Repeat hospitalizations for HF are also a strong predictor of mortality.^{12,13}

1.2.3. Mortality

- There have been some decreases in HF mortality in recent years, but survival rates generally remain poor. Overall, the 5-year mortality for patients with HF is 50% and 10-year mortality is 75%. This equates to a rate of 7.3% of patients dying per year.¹¹
- The majority of cardiovascular deaths occur in patients with HF, with a particular preponderance of sudden deaths (which are quite common in mild HF) and deaths due to progression (which are common in advanced HF). Mortality from all causes is generally higher in HF with reduced ejection fraction (HF_rEF) than in HF with preserved ejection fraction (HF_pEF).^{14,15}
- The predictors of all-cause mortality among patients with advanced HF include: older age; hypotonia; hepatic or renal dysfunction; previous stroke; diabetes; chronic obstructive pulmonary disease (COPD), aortic stenosis, lower ejection fraction (EF); and pulmonary or peripheral congestion.¹⁶

1.2.4. Heart failure in the elderly

- The elderly with HF are a specific and challenging patient population, because they show a different clinical profile compared with younger patients. These patients have complex comorbidities, which can make treatment and care goals more complicated.
- Comorbidities and polypharmacy in elderly patients with HF pose a greater risk of side effects, including poorer treatment outcomes, disability, reduced mobility and dependence on others.¹⁷
- Elderly patients with HF experience progressive functional decline, high rates of institutionalization, and mobility problems, which result in difficulty in performing daily activities.¹⁸
- A holistic approach, including a multidisciplinary clinical evaluation, can help to determine the prognosis and to facilitate elderly patient-centred management.

1.3. What can be done about heart failure?

- Many cases of HF are preventable through lifestyle-based interventions and optimal treatment of diseases that are HF risk factors (e.g. hypertension, coronary artery disease [CAD] and diabetes).
- However, public awareness of HF risk factors like smoking, lack of physical exercise and obesity remains poor, and opportunities to reduce the incidence of preventable HF are often missed.¹⁹
- Poor awareness of HF symptoms means that many patients receive a diagnosis of HF when they are hospitalized, after the damage to their heart has been done.¹⁹

- Education campaigns can help to increase awareness of HF.
- Support programmes can help individuals to reduce their risk factors.
- Such programmes may help to reduce the number of new cases of HF.

- Significant efforts are also needed to help the millions of patients already living with HF to manage their symptoms, and to reduce their risk of hospitalization or rehospitalization and the risk of death.
- HF is a complex disease and managing it requires a multidisciplinary approach.

- In effective multidisciplinary care, healthcare professionals in many different healthcare settings work together to manage a patient's disease and determine the best course of treatment for that patient.
- This involves doctors, nurses and pharmacists, as well as dietitians and physiotherapists, to help patients to make healthy lifestyle changes, and psychologists to help them to manage the emotional burden of living with a chronic disease.

- Guideline-directed management and therapy (GDMT) can prevent hospitalization due to HF and improve HF symptoms, physical and functional performance, and quality of life of patients.
- Patients with HF are predisposed to the development of arrhythmias. Cardiac arrhythmias can exacerbate the symptoms of HF by reducing effective cardiac output. In patients who

have cardiac arrhythmias or conduction abnormalities, implantable devices may be effective, such as:

- ▶ **a standard pacing system** (in bradyarrhythmia)
- ▶ **cardiac resynchronization therapy (CRT)** – improves cardiac function, reduces symptom severity, reduces morbidity and mortality, and improves quality of life.³⁵
- ▶ **an implantable cardioverter defibrillator (ICD)** – provides cardiac pacing and can treat life-threatening ventricular arrhythmias
- ▶ **a CRT-D device** – a combination of a CRT system and an ICD.

- Some individuals with HF may need to be treated with procedures like ablation (using heat or cold energy), which can be an effective treatment strategy in patients with HF and coexisting arrhythmia.

- ▶ **Ablation**, an invasive treatment for arrhythmia, is particularly helpful in cases of insufficient response to ongoing pharmacotherapy.
- ▶ The indications for ablation in some cases are atrial fibrillation, supraventricular arrhythmias and ventricular arrhythmias.
- ▶ In addition, appropriate antiarrhythmic and antithrombotic treatment should be considered.

- The optimal management of the presence of comorbidities is an important part of a holistic approach to HF treatment.

1.4. What is the role of the heart failure nurse?

- Studies have found that specialist HF nurses working within a multidisciplinary care team improve patient outcomes and functional capacity, and reduce unscheduled hospitalizations and rehospitalizations for HF.²⁰⁻²⁴
- As an HF nurse, you will play a central role in your patients' treatment. This may include:

- monitoring your patients' physical and mental condition
- coordinating their hospital care and discharge and post-discharge 'journey'
- ensuring that they take their prescribed medications correctly
- educating them about self-care and lifestyle changes.

- You will work as part of a multidisciplinary care team, and you will need to maintain effective communication between yourself, the patient, their family and the rest of the care team.
- As a result, you will help to keep your patients out of hospital and in their communities for as long as possible, and functioning well in their day-to-day lives.



Figure 1. HF nurse role in patients' treatment.



2. Heart failure clinical background

2.1. What is heart failure?

- HF is a complex clinical syndrome of varying aetiology and pathophysiology.
- HF has a recognizable group of signs and symptoms, including the presence of at least some of the following symptoms: dyspnoea, fluid retention/oedema, fatigue, activity intolerance and exercise limitation. An HF diagnosis also requires some form of structural or functional heart disease.
- The available definitions of HF include three elements: *signs of structural heart disease, history of symptoms commonly reported in HF, and objective symptoms commonly observed in HF.*
- The Heart Failure Society of America (HFSA), the HFA of the European Society of Cardiology (ESC) and the Japanese Heart Failure Society (JHFS) proposed a universal definition of heart failure, the *Universal Definition and Classification of Heart Failure*.²⁵ This new proposal will standardize the language and practices regarding the definition and classification of HF.
- HF is defined as a clinical syndrome with current or prior symptoms and/or signs caused by a structural and/or functional cardiac abnormality (as defined by an EF of 15%, moderate/severe ventricular hypertrophy, or moderate/severe valvular obstructive or regurgitant lesion).

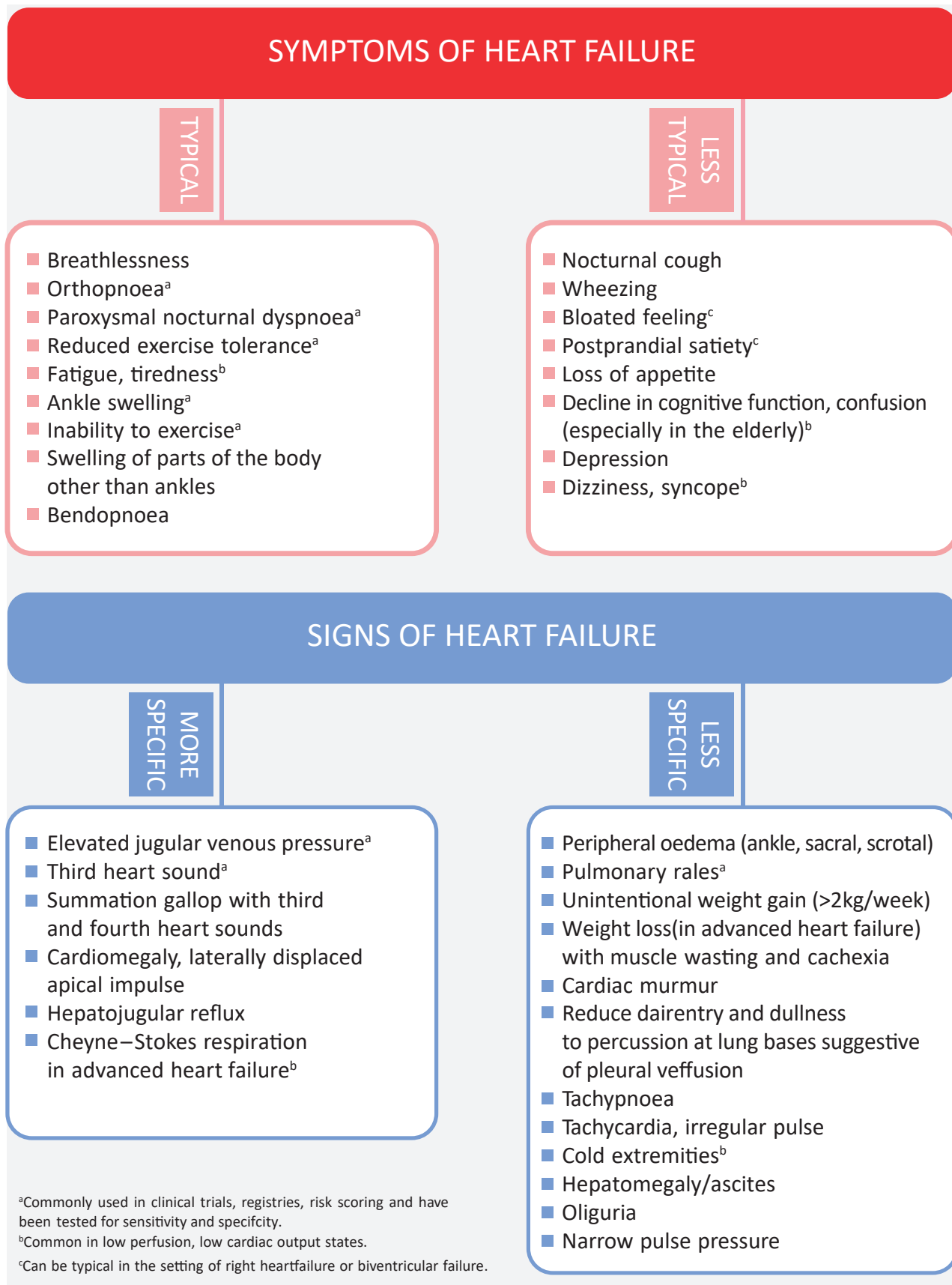


Figure 2. Symptoms and signs of heart failure.

- HF is corroborated by at least one of the following.

- ▶ **Elevated natriuretic peptide levels:**

- ◆ **ambulatory** – B-type natriuretic peptide (BNP) ≥ 35 pg/mL, Nterminal pro-B-type natriuretic peptide (NT-proBNP) ≥ 125 pg/mL
- ◆ **hospitalized/decompensated** – BNP ≥ 100 pg/mL, NT-proBNP ≥ 300 pg/mL

- ▶ **Objective evidence of cardiogenic pulmonary or systemic congestion diagnosed using:**

- ◆ **imaging** (e.g. by chest radiograph)
- ◆ **echocardiography** (to measure elevated filling pressures)
- ◆ **haemodynamic measurement** (e.g. right heart catheterization, pulmonary artery catheter) at rest or with provocation (e.g. exercise)

2.1.1. Categorization of heart failure: types of ventricular failure

- The types of ventricular failure in HF commonly include **left ventricular failure**, **right ventricular failure**, and combined left and right ventricular failure, usually termed **biventricular failure**.
- The most common cause of right-sided HF is left-sided HF.
- Right-sided HF is characterized by the signs and symptoms of right-sided HF, but also by right atrial enlargement or right ventricular dysfunction. The presence of right-sided HF in left-sided HF conditions is usually caused by post-capillary pulmonary hypertension.

2.1.2. Categorization of heart failure: left ventricular ejection fraction

- Left ventricular ejection fraction (LVEF) is the volume of blood ejected from the left ventricle with each contraction.
- Categorization according to LVEF is important because patients with different LVEFs may have different responses to therapies and responses to life-prolonging therapy.
- **There are four categories of HF according to LVEF:**

| HFrEF | HFmEF | HFpEF | HFieF |
|--|---|--|---|
| <p>HF with reduced EF HF with LVEF $\leq 40\%$</p> | <p>HF with mildly reduced EF HF with LVEF 41–49%</p> | <p>HF with preserved EF HF with LVEF $\geq 50\%$</p> | <p>HF with improved EF HF with a baseline LVEF $\leq 40\%$, at least a 10-point increase from baseline LVEF and a second measurement of LVEF of $> 40\%$.</p> |

Figure 3. Categorization of heart failure.

- In HFrEF, the left ventricular muscle becomes weaker and cannot pump as much blood around the body. The left ventricle wall also becomes thinner, and the ventricle stretches when it fills with blood between contractions. As a result, the heart appears enlarged.
- In HFpEF, the left ventricular muscle does not relax enough after contraction, so the left ventricle does not fill with blood properly. The ventricle walls may become stiffer and thicker, but the heart usually remains the same size as a healthy heart.
- HFpEF is now more common than HFrEF and it can be more challenging to identify and manage.
- In HFmrEF, patients have heart characteristics between those of patients with HFrEF and patients with HFpEF.

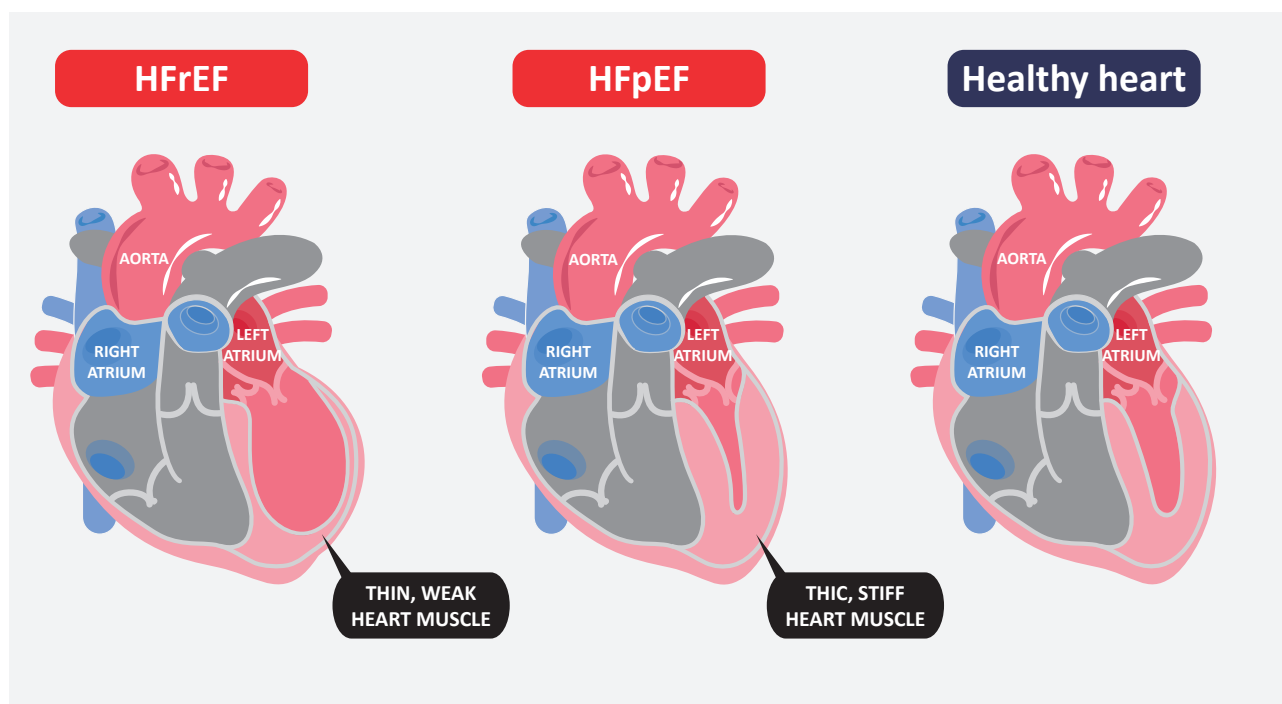


Figure 4. Normal heart function versus systolic (HFrEF) and diastolic dysfunction (HFpEF).

2.1.3. Categorization of heart failure: new-onset heart failure versus heart failure with a history

- A de novo diagnosis of HF is referred to as new-onset HF. New-onset HF may increase the risk of adverse clinical outcomes because the optimal GDMT has not been used prior to the time of diagnosis.

2.1.4. Categorization of heart failure: stable versus decompensated (acute)

- HF can also be categorized by whether the heart is able to meet the demands of the rest of the body.
- In stable HF, the heart works harder than a healthy heart to 'compensate' for working less well, but it is still able to provide the physiological needs of the body. Any symptoms are generally stable and easy to manage, and your patient may not notice any problems.

- In decompensated HF, the heart is no longer able to keep up with the demands of the body, leading to a deterioration of symptoms.

- ▶ **Decompensated HF** applies to patients who require escalation of outpatient therapies, such as diuretics, even require hospitalization or urgent care.
- ▶ **Decompensation** may be caused by acute or recurrent events like ischaemia, arrhythmias, infections or non-adherence to medications or diet.
- ▶ It can occur slowly or suddenly.

- It is important to note that in HF, the disease trajectory may not always be linear and unidirectional. A patient's EF may improve and then decline, or vice versa, depending on the underlying aetiology, duration of disease, adherence to GDMT, comorbidities or re-exposure to cardiotoxins.
- Patients with HF are always at residual risk of hospitalization or sudden cardiac death, even if they are minimally symptomatic or asymptomatic and receiving optimal treatment. Therefore, it is better to use the term remission HF rather than 'stable' HF.²⁶

2.1.5. Categorization of heart failure: severity of symptoms

- HF can be categorized by the severity of symptoms using the New York Heart Association (NYHA) functional classification.
- Patients are **categorized as NYHA class I–IV** based on how their symptoms limit their ability to carry out physical activity (Table 1).

Table 1. New York Heart Association (NYHA) functional classification.

| PATIENTS SYMPTOMS | |
|-------------------|--|
| class I | No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitations (a feeling that your heart has skipped or added a beat), or shortness of breath. |
| class II | Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitations or shortness of breath. |
| class III | Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitations or shortness of breath. |
| class IV | Unable to carry out any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases. |

- It is important to determine the NYHA functional class at baseline after initial diagnosis and after any treatment throughout the care of a patient with HF.
- Deteriorating NYHA functional class is associated with a worse prognosis in patient with symptomatic HF (NYHA II–IV). These patients require optimization of their GDMT.

2.1.6. Categorization of heart failure: disease progression

- The American Heart Association classification system can be used to categorize patients as stage A, B, C or D, depending on the presence of HF symptoms and signs and cardiac structural change HF.

- **At risk for HF (stage A):** patients who are at risk for HF, but do not present current or prior symptoms or signs of HF and do not have structural cardiac changes or elevated biomarkers of heart disease. Not every patient in this stage will develop HF, but risk factor interventions are warranted. Risk factors are hypertension, atherosclerotic cardiovascular disease, diabetes, obesity, known exposure to cardiotoxins, a positive family history of cardiomyopathy or genetic cardiomyopathy.
- **Pre-HF (stage B):** patients who do not present current or prior symptoms or signs of HF, but have evidence of one of the following: structural heart disease, abnormal cardiac function, elevated natriuretic peptide levels, exposure to cardiotoxins.
- **HF (stage C):** patients who have current or prior symptoms and/or signs of HF caused by structural and/or functional cardiac abnormality.
- **Advanced HF (stage D):** patients who have severe symptoms and/or signs of HF at rest, have recurrent hospitalizations despite GDMT, are refractory or intolerant to GDMT, or require consideration for advanced therapies such as transplantation, mechanical circulatory support or palliative care.

2.2. Why is my patient's heart failing?

2.2.1. Causes

- There are many medical conditions that can damage the heart and contribute to the development of HF. These conditions may lead to abnormalities, mainly structural and/or functional changes in myocardium itself, but also in the heart valves, rhythm, blood vessels, muscle or lining by remodelling the heart's structure.
- Patients with HF often have comorbidities, and many of these can cause or contribute to HF. These include hypertension, myocardial infarction, CAD, congenital heart defects, valvular heart disease, heart arrhythmias (e.g. atrial fibrillation), infection with certain viruses (e.g. hepatitis B and C, rubella, HIV), and other chronic diseases such as diabetes and hypo- or hyperthyroidism.

- Other aetiologies of HF include toxic damage (e.g. drugs, radiation, substance abuse), severe anaemia, complex malnutrition (e.g. anorexia nervosa, AIDS), obesity, pathologies related to pregnancy and peripartum, amyloidosis, sarcoidosis and lysosomal storage diseases (e.g. Fabry disease).
- In chronic HF, several different cardiovascular and non-cardiovascular aetiologies may contribute to the development and progression of HF over a long period of time.
- Conversely, acute HF can occur as a result of a specific event, when one or more triggers will be present, such as an infection, heart attack, rapid rise in blood pressure (BP), arrhythmias, lack of adherence to recommendations (medication, fluid restriction, dietary).

2.2.2. Risk factors

- Lifestyle and social history risk factors associated with HF development and progression include tobacco use, alcohol use, physical inactivity, a high salt or high fat diet, obesity, chronic stress, social isolation and socioeconomic deprivation.²⁷
- Certain medications are also associated with an increased risk of HF, including some type 2 diabetes medications (thiazolidinediones), non-steroidal anti-inflammatory drugs (NSAIDs), some anaesthesia medications, some antiarrhythmic medications and some antihypertensive medications (e.g. calcium channel blockers and α_1 -blockers).²⁸
- Certain chemotherapy drugs can induce or worsen LVEF and HF systolic dysfunction, such as anthracyclines (e.g. doxorubicin), trastuzumab and tyrosine kinase inhibitors.²⁹
- Mediastinal irradiation is cardiotoxic and may lead to various long-term cardiovascular complications.³⁰

2.3. What are the complications of heart failure?

- Common complications arising from HF include **liver damage or failure** and **kidney damage or failure**.

- ▶ This can happen when the failing heart is unable to pump enough blood to these organs for them to work properly.
- ▶ Fluid retention can also put strain on these organs.

- Other complications of HF include **heart arrhythmias** and **heart valve problems**.
- Patients with HF are often affected by **frailty**. Frailty is defined as a decline in reserve and function across multiple physiologic systems, resulting in physical, cognitive and social impairments that increase a patient's vulnerability to stressors and predisposes them to morbidity. Frailty syndrome is a predictor of early disability, mortality, readmission to hospital and reduced quality of life.³¹

- **Cardiac cachexia** may develop during the progression of HF. It is an important indicator of deteriorating health. Cardiac cachexia refers to an unintentional, oedema-free weight loss of > 5.0–7.5% of body mass over 6–12 months or body mass index (BMI) < 20 kg/m², and high C-reactive protein (CRP) and low albumin levels. Cachexia may be associated with increased symptoms, decreased exercise capacity and more frequent hospitalizations.
- **Skeletal myopathy** in patients with HF is caused by an anabolic hormone deficiency or iron deficiency, and malnutrition. Skeletal and respiratory muscle dysfunction in HF is associated with impaired energy metabolism of muscle cells, which is in turn related to iron deficiency. Skeletal myopathy is an important mechanism in the pathogenesis of HF and promotes disease progression.³²
- **Sarcopenia** can be an important factor in the pathophysiology and progression of HF. Sarcopenia is defined as a reduction of strength and muscle mass, which often manifests as decreased muscle strength and mobility. Patients with HF with sarcopenia may have more frequent hospitalizations than those without sarcopenia. Sarcopenia has recently received intense analysis in patients with HF – changes in muscle function and composition are considered critical determinants in the pathophysiology and progression of this condition.
- **Age-related muscle weakness**, which overlaps skeletal myopathy, may be one of the most important causes of low physical performance and reduced cardio-respiratory efficiency in elderly patients with HF.³³
- Patients with HF may also have psychological problems such as **depression** and **anxiety disorder**. These disorders are common, still underrecognized, and may lead to negative health and cardiovascular outcomes. Depressive disorder in patients with HF may be the cause of increased risk of death or cardiac events.³⁴

2.4. How is heart failure diagnosed?

- Full diagnosis of HF relies on clinical judgement based on a combination of a patient's medical and social history, a physical examination and diagnostic tests.
- These investigations can help to identify the cause of a patient's HF, which may guide treatment choices.
- They may also help to identify comorbidities so that these can be treated as well.
- It is important to remember that HF can coexist with other diseases, posing some diagnostic difficulties. Many conditions can follow a similar disease trajectory and mimic each other, both in isolation (mimicry) and when coexisting with HF (comorbidity).

2.4.1. Signs and symptoms

- The signs and symptoms of HF are often unspecific and may be difficult to identify in patients with comorbidities.
- Patients with HF may display symptoms such as: fatigue, weakness or exhaustion; palpitations; breathlessness or rapid breathing; dizziness or fainting; swollen legs and ankles or swollen abdomen; nausea; chest pain; and difficulty concentrating or mental confusion.
- Symptoms like fatigue and breathlessness may be present at rest, or they may be brought on or exacerbated by physical activity.
- **Signs of HF** include: elevated jugular venous pressure (patients frequently have a bulging jugular vein); hepatojugular reflux; fast or irregular heartbeat (e.g. gallop rhythm); peripheral oedema; persistent cough or coughing up blood-tinged, foamy mucus; rapid weight gain or anorexia; reduced ability to exercise; and an enlarged liver.
- **Symptoms/signs of congestion (left-sided)** include orthopnoea, paroxysmal nocturnal dyspnoea, pulmonary rales (bilateral) and peripheral oedema (bilateral).
- **Symptoms/signs of congestion (right-sided)** include jugular venous dilatation, peripheral oedema (bilateral), congested hepatomegaly, hepatojugular reflux, ascites (abnormal fluid build-up in the abdomen) and symptoms of gut congestion.
- If a patient's symptoms appear or get worse very rapidly, they may be experiencing acute HF.

- ▶ **Acute HF is a medical emergency and requires urgent evaluation and treatment.**
 - ▶ **It usually results in hospitalization.**
- Decompensation of HF can occur without known determined factors, but such as uncontrolled hypertension, rhythm disturbance, nonadherence with drugs/diet, infection or other can be triggers which aggravate HF:

Table 2. Factors triggering acute heart failure.

| | |
|---|---|
| Acute coronary syndrome. | Exacerbation of chronic obstructive pulmonary disease. |
| Tachyarrhythmia (e.g. atrial fibrillation, ventricular tachycardia). | Pulmonary embolism. |
| Excessive rise in blood pressure. | Surgery and perioperative complications. |
| Infection (e.g. pneumonia, infective endocarditis, sepsis). | Increased sympathetic drive, stress-related cardiomyopathy. |
| Non-adherence with salt/fluid intake or medications. | Metabolic/hormonal derangements (e.g. thyroid dysfunction, diabetic ketosis, adrenal dysfunction, pregnancy and peripartum related abnormalities). |
| Bradyarrhythmia. | Cerebrovascular insult. |
| Toxic substances (alcohol, recreational drugs). | Acute mechanical cause: myocardial rupture complicating ACS (free wall rupture, ventricular septal defect, acute mitral regurgitation), chest trauma or cardiac intervention, acute native or prosthetic valve incompetence secondary to endocarditis, aortic dissection or thrombosis. |
| Drugs (e.g. NSAIDs, corticosteroids, negative inotropic substances, cardiotoxic chemotherapeutics). | |

- One of the elements that can be helpful in the early stages of the disease, during the planning of therapy and to give prognostic information, is the classification of HF into one of the following four groups.

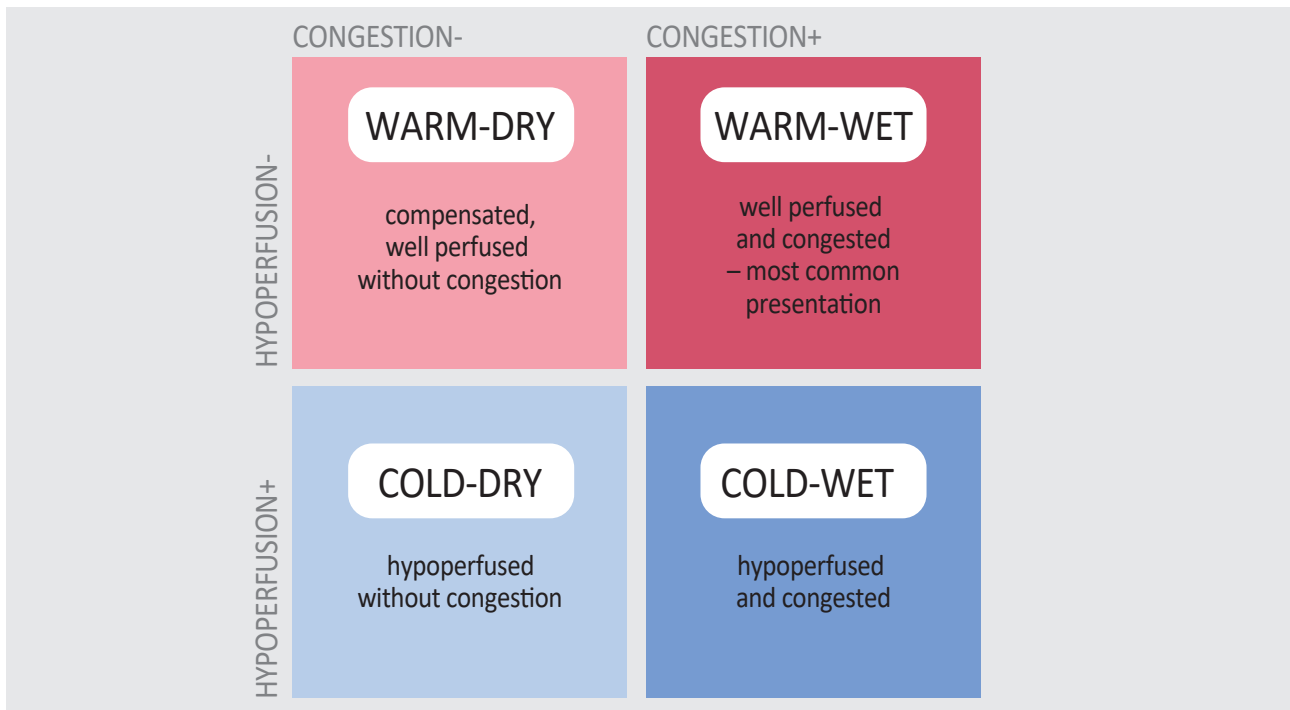


Figure 5. Clinical profiles of patients with acute heart failure based on the presence/absence of congestion and/or hypoperfusion.

2.4.2. Diagnostic tests

- The most important clinical tests for determining whether a patient has HF are blood tests for natriuretic peptides, electrocardiography (ECG) and echocardiography.

- **Blood tests for natriuretic peptides are usually used to exclude an HF diagnosis.**

- ▶ These tests measure the plasma concentrations of BNP or its precursor NT-proBNP.
- ▶ Patients with serum BNP lower than 35 pg/mL or serum NT-proBNP lower than 125 pg/mL are unlikely to have HF.

- **ECG is usually used to exclude an HF diagnosis.**

- ▶ ECG measures the electrical activity of the heart and can detect arrhythmias.
- ▶ It can provide important information on heart rate and can help optimization of beta blockers and ivabradine.
- ▶ In addition, the ECG also gives information about QRS interval width and possible indications for CRT, and information about myocardial scarring and features of myocardial hypertrophy.
- ▶ Patients with normal ECGs are unlikely to have HF.³⁵

■ **Echocardiography is the most useful confirmatory test for HF.**

- ▶ Echocardiography is a type of ultrasound scan that looks at the structure of the heart chambers and valves.
- ▶ It can also be used to determine a patient's LVEF, so it can help to determine what kind of HF a patient has.
- ▶ Echocardiograms (or 'echos') can be performed transthoracically (through the chest) or transoesophageally (through the oesophagus).
- ▶ Stress echocardiograms may be performed during or after physical activity.

■ **Other tests that may be carried out include:**

- ▶ X-rays and tests of lung function (e.g. spirometry) to rule out lung diseases;
- ▶ positron emission tomography (PET) scans,
- ▶ cardiac magnetic resonance,
- ▶ exercise test,
- ▶ cardiopulmonary exercise test,
- ▶ computerized tomography (CT) scans and coronary angiograms to look at the coronary blood vessels and muscle,
- ▶ blood tests for glucose and cholesterol levels and thyroid, liver or kidney function.

2.4.3. Assessing patients with potential heart failure

- When meeting a patient with suspected HF for the first time, you should assess their likelihood of having HF using:

- ▶ **their medical history** (e.g. hypertension, heart attack, cardiomyopathies)
- ▶ **their symptoms**
- ▶ **a physical examination** (e.g. for pulmonary crackles, pitting oedema, heart arrhythmias or jugular venous distension)
- ▶ **their ECG results.**

- If any of these elements are abnormal, the patient should be referred for natriuretic peptide testing, which should be used to assess whether they require echocardiography.³⁵

2.5. How is heart failure managed?

- HF is a preventable and treatable condition, but it requires long-term treatment.
- Management can slow disease progression and control/relieve symptoms.
- Recovery from HF may be possible in some situations.

→ HF caused by cardiomyopathy due to hypertensive heart disease, alcoholic cardiomyopathy, peripartum cardiomyopathy or tachycardia-induced cardiomyopathy can be reversible or treatable.

- Among these patients, GDMT can promote recovery from HF, with resolution of HF symptoms and normalization of EF and cardiac structure.
- However, this group of patients requires close follow-up, and treatment should be continued to ensure that symptoms or left ventricular dysfunction do not reoccur in the future.³⁶

- In HF, a combination of drug treatment, lifestyle adjustments, self-care and self-monitoring are extremely important to successfully manage the disease. There are many pharmacological and non-pharmacological interventions available to patients with HF.
- Disease management is intended to be a starting point for achieving the treatment goals of patients with HF, which include improving their clinical status, exercise capacity and quality of life, as well as preventing hospitalizations and reducing mortality.
- The recommendations for HF disease management are as follows.

- Appropriate disease management (e.g. diuretic dose modification and symptom monitoring) is expected to reduce recurrent HF hospitalization and mortality.
- In patients with HF, comorbidities (e.g. CAD, hypertension, diabetes mellitus, pulmonary disease, iron deficiency, cachexia, sarcopenia and cancer) may influence the course of pharmacological treatment but also worsen HF. Treatment of comorbidities should be a key component in the holistic management of patients with HF.
- Patients who are refractory to treatment (i.e. patients who have progressive worsening of HF and have been unsuccessful with intensification of treatment) need to be evaluated for advanced treatment options, such as mechanical circulatory support or heart transplantation. If they are not eligible for advanced treatments, clinicians may consider referring these patients to palliative care.

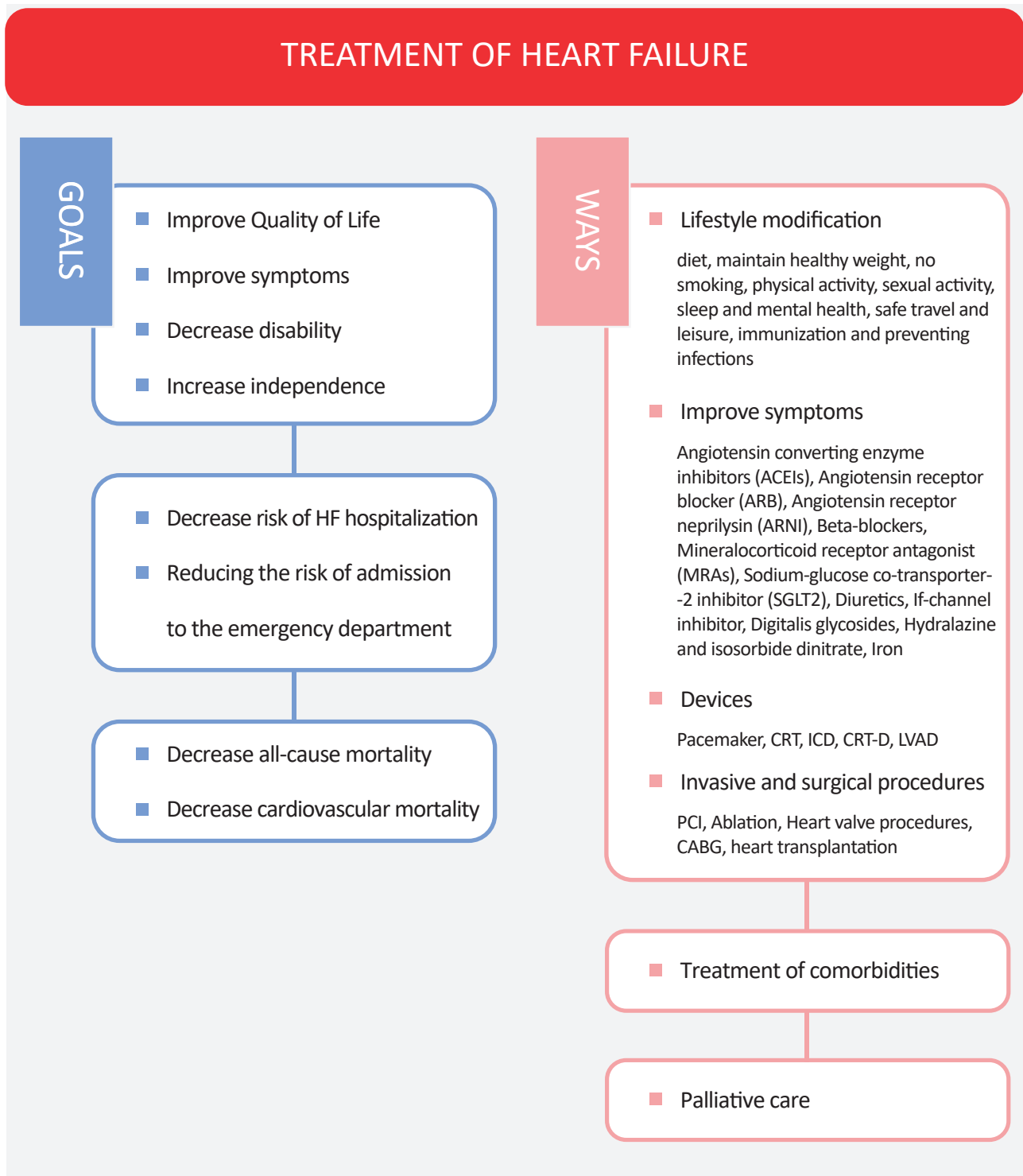


Figure 6. Treatment of heart failure.

2.5.1. Medications

- Medicines have an important role in the treatment of HF.

The main goals of HF treatment are to alleviate symptoms, reduce the risk of hospitalization, improve quality of life and reduce mortality.

- Your patients may be on several medications and they will usually take them for the rest of their lives.
- The drugs that are recommended for the treatment of HF are angiotensin-converting enzyme (ACE) inhibitors, angiotensin-2 receptor blockers (ARBs), angiotensin receptor neprilysin (ARN) inhibitors, β -blockers, mineralocorticoid receptor antagonists (MRAs), sodium-glucose co-transporter-2 (SGLT2) inhibitors, diuretics, ivabradine, digoxin and hydralazine with nitrate.
 - ▶ **ACE inhibitors** relax and open blood vessels, making it easier for the heart to pump blood around the body. ACE inhibitors decrease BP, but they may cause kidney problems. The most common side effect of ACE inhibitors is a dry, irritating cough. If this occurs, ACE inhibitors can be replaced with ARBs.
 - ▶ **ARBs** are similar to ACE inhibitors.
 - ▶ **ARN inhibitors** are a combination of an ARB and a neprilysin inhibitor. The most common side effects of this drug can be hypotonia, high potassium levels and kidney problems.
 - ▶ **Beta blockers** decrease heart rate. They may have some side effects such as dizziness, tiredness and blurred vision.
 - ▶ **MRAs** increase urination and decrease BP, but do not reduce potassium levels. Spironolactone may cause enlarged breasts in men (gynaecomastia) and breast tenderness and increased hair growth in women. Eplerenone can cause sleeping difficulties, dizziness and headaches. It is important to monitor potassium levels while the patient is taking this medication because it can increase potassium levels.
 - ▶ **SGLT2 inhibitors** lower blood sugar by causing the kidneys to remove sugar from the body through the urine. The US Food and Drug Administration (FDA) warns that this group of drugs can lead to a rare but serious infection of the genitals and area around the genitals. SGLT2 inhibitors help to decrease glycated haemoglobin levels, weight and systolic BP. Additionally, SGLT2 inhibitors reduce cardiovascular death and hospitalization for HF among patients with type 2 diabetes at high risk for cardiovascular events when compared with placebo.³⁵
 - ▶ **Diuretics** help to relieve ankle swelling and breathlessness by increasing urination. Diuretics may cause dehydration and reduced levels of sodium and potassium in the blood.
 - ▶ **Ivabradine** can help to reduce heart rate. Ivabradine can be used as an alternative or complement to beta blockers. Side effects include headaches, dizziness and blurred vision.
 - ▶ **Digoxin** can alleviate symptoms by strengthening heart muscle contractions and slowing down heart rate. This treatment is only recommended when the patient has symptoms despite treatment with ACE inhibitors, ARBs, beta blockers and diuretics. Patient-reported

symptoms may include dizziness, blurred vision, feeling and being sick, diarrhoea and an irregular heartbeat.

- ▶ **Hydralazine with nitrate** is recommended for patients who are unable to take an ACE inhibitor or ARB. Monitor your patient for side effects such as headaches, a fast heartbeat and a pounding, fluttering or irregular heartbeat (palpitations).

- Taking medications is essential for the control of BP, heart rate and weight, and these parameters should be monitored regularly.

Table 3. Possible side effects of heart failure medications.

| Medication | Possible side effects | | | | |
|---|-----------------------|-------------|-----------|------------------|---|
| | Hypotonia | Bradycardia | Dizziness | Renal impairment | Other |
| Angiotensin-converting enzyme inhibitors (ACEIs) <i>Captopril, enalapril, lisinopril, ramipril, trandolapril</i> | Yes | - | Yes | Yes | Dry cough, skin allergies |
| Angiotensin receptor blockers (ARBs) <i>Candesartan, losartan, valsartan</i> | Yes | - | Yes | Yes | - |
| Angiotensin receptor neprilysin inhibitors (ARNIs) <i>Sacubitril/valsartan</i> | Yes | - | Yes | Yes | - |
| Beta-blockers <i>Bisoprolol, carvedilol, metoprolol succinate CR/XL, nebivolol</i> | Yes | Yes | Yes | - | Headache, cold hands and feet |
| Mineralocorticoid receptor antagonists (MRAs) <i>Eplerenone, spironolactone</i> | - | - | - | Yes | Spironolactone may cause gynecomastia |
| Sodium-glucose co-transporter-2 inhibitors (SGLT2Is) <i>Dapagliflozin, empagliflozin, canagliflozin</i> | - | - | Yes | - | Glucose in urine, urinary tract infections |
| Diuretics <i>Furosemide, bumetanide, torasemide, hydrochlorothiazide, metolazone, indapamide</i> | Yes | - | Yes | Yes | Thirst, loss of appetite |
| If-channel inhibitors <i>Ivabradine</i> | Yes | Yes | Yes | Yes | Luminous phenomena as flashing lights |
| Digitalis glycosides <i>Digoxin</i> | - | Yes | Yes | - | Nausea or vomiting, loss of appetite, vision changes (such as blurred or yellow/green vision) |
| Hydralazine and isosorbide dinitrate | Yes | - | Yes | - | Nausea or vomiting |

2.5.2. Implantable devices

- **ICDs** correct arrhythmias and can reduce the risk of sudden death and all-cause mortality in patients with symptomatic HF. ICDs can also be used for remote monitoring of arrhythmias and fluid accumulation in the lungs.
- **CRT pacing devices** (also called biventricular pacemakers) resynchronize ventricular contractions, reduce HF morbidity and mortality, improve cardiac function, reduce symptom severity and improve quality of life.³⁵
- **Other implantable devices** can be used to monitor pulmonary artery pressure.

2.5.3. Surgical and invasive procedures

- **A percutaneous coronary intervention** (PCI; also called an angioplasty) or **a coronary artery bypass graft** (CABG) may be performed if a patient's HF is related to CAD.
- Similarly, **valve repair or replacement surgery** may be performed if their HF is related to valvular defects.
- One therapeutic option in high-risk or inoperable patients with HF is the use of **transcatheter heart valves**, such as MitraClip and transcatheter aortic valve implantation. These procedures have appropriate feasibility, safety and efficacy of therapy.³⁸ MitraClip can improve quality of life³⁹ and decrease the risk of HF hospitalization and mortality.⁴⁰
- For severe HF, patients may require **ventricular assist devices** (mechanical pumps that provide circulatory support) or **heart transplantation**.
- **Ablation** is another therapeutic option for symptomatic arrhythmias and supraventricular and ventricular arrhythmias that cannot be adequately treated with antiarrhythmic drugs.

2.5.4. Lifestyle changes

- Lifestyle changes are an important part of patient self-care.
- Patients can slow the progression of their HF by maintaining a healthy weight, optimizing salt and fluid intake, and abstaining from alcohol.
- Regular exercise is also recommended because it improves symptoms and quality of life, and may reduce the risk of hospitalization due to HF.
- Other beneficial lifestyle changes include stopping smoking, getting sufficient sleep and managing stress.
- To maintain good health and minimize the risk of contracting infections that can worsen the symptoms of HF, such as influenza, pneumonia or coronavirus disease 2019 (COVID-19), patients with HF should get vaccinated.

2.5.5. Multidisciplinary care

- Multidisciplinary care management programmes, which aim to integrate care in the community and in hospital throughout a patient's care pathway, can reduce the risk of HF-related hospitalization and mortality.
- Effective programmes require coordination of patient care across multiple healthcare services and between many healthcare professionals, including cardiologists, HF nurses, primary care physicians, pharmacists, dietitians, physiotherapists, psychologists, palliative care providers and social workers.



3. Leadership in heart failure nursing



Good nurse leaders are able to...

- ✓ Create and manage nursing teams.
- ✓ Identify appropriate goals and objectives for their teams and their patients.
- ✓ Make effective decisions.
- ✓ Plan and prioritise tasks.

Figure 7. Good nurse leader are able to...

- Overall, this translates into better quality of care for patients and their caregivers.
- Leadership is especially important in HF nursing, in which you may work as part of a multidisciplinary team and will need to manage those team relationships.
- You will also provide education to your patients based on their individual needs, and so you will need to use leadership to identify and select the most appropriate approach on a case-by-case basis.
- As an HF nurse, by taking a leading role within the multidisciplinary team you can:
 - reduce unplanned hospital admissions, length of stay and associated costs
 - improve quality of care, quality of life and patient experience
 - support patients with HF to manage their disease independently
 - facilitate communication between primary care physicians and cardiologists
 - support integrated patient management
 - encourage a holistic approach to care that considers the psychological and social needs of the patient.



4. Patient self-care in heart failure management

4.1. What is self-care?

- Self-care is a process in which patients carry out activities that promote and maintain their health, prevent disease (or disease progression) and help them to cope with their illness.⁴¹
- Self-care is vital in the long-term management of HF.
- It consists of three key parts:

- ▶ **maintenance** (e.g. eating a healthy diet, exercising appropriately, taking medications as prescribed)
- ▶ **monitoring** (e.g. monitoring symptoms, measuring changes in weight, measuring BP)
- ▶ **management** (e.g. adjusting medications when necessary to manage symptoms, seeking help and support when necessary).

- All aspects of self-care relevant to patients with HF are presented in this section.

4.2. Why is preparing patients for self-care so important?

- Patients with HF often have extensive self-care needs.
- Poor knowledge and understanding about these needs can lead to inadequate self-care and worse outcomes.
- Patients with HF who have more effective self-care habits tend to have a better quality of life, lower mortality and lower hospital readmission rates than patients with lower levels of self-care.⁴²
- Therefore, effective patient education about the benefits of self-care, and how to carry out self-care, is vital.
- You may need to educate your patient's family members and caregivers about self-care too.
- In your daily clinical practice, any advice to patients with HF should be given according to current guidelines, and should take into account the patient's needs, preferences and values.
- When educating a patient about lifestyle choices, it is important not to make judgements about their current lifestyle and behaviours.
- Note that, although self-care is important for slowing disease progression in most patients, for patients with severe HF and a short life expectancy, comprehensive and restrictive lifestyle changes may not be helpful.

Maintenance

Those behaviours used by persons with a chronic illness to maintain physical and emotional stability.

- Restrict sodium when needed
- Restrict fluids when needed
- Limit/refrain from alcohol
- When nutritionally deficient, consider food supplements
- Get vaccinated
- Be physically active
- Take medication as prescribed
- Recognize mood disturbances
- Maintain healthy sleep
- Don't smoke or take drugs
- Adapt travel and leisure if needed

Monitoring

The process of observing oneself for changes in signs and symptoms.

| | |
|-----------------------------|----------------------------------|
| Shortness of breath/dyspnea | Dizziness |
| Oedema | Activity level |
| Chest pain | Body mass |
| Decreased appetite/nausea | Pulse, blood pressure |
| Fatigue, tiredness | Need for support |
| Cough, wheezing | Nutritional status |
| Thirst | Fever, diarrhoea, vomiting |
| Palpitations | Feelings of depression, low mood |

Management

Response to signs and symptoms when they occur.

- Adjust diuretics
- Adjust other medications
- Adapt activity level
- Adap diet
- Ask for support
- Consult a healthcare professional

Figure 8. Self-care maintenance, monitoring and management of heart failure. Adapted from Jaarsma et al. 2020.

4.3. Self-care maintenance

4.3.1. Food and drink and body mass

■ Eating a healthy and varied diet

- ▶ You should discuss appetite and diet with your patients at all routine appointments and when they are hospitalized.
- ▶ Nutritional advice should always be adapted to the individual patient's current state of health, their dietary and nutritional requirements, and any medications they take.
- ▶ As part of multidisciplinary care, you may wish to consult with a dietitian about your patient's dietary plan. Sometimes patients with HF should be supplied with professional dietary products rich in proteins, amino acids, etc.
- ▶ Your patient should be regularly tested for their levels of iron, total iron-binding capacity, ferritin and other micronutrients. Deficiencies in selenium, coenzyme Q10, zinc, protein or thiamine, vitamin B12 and folic acid may also be present in patients with HF.
- ▶ Ask your patient about any dietary supplements they take, and try to identify the reason for their use. Be aware that some supplements can interact with medications.
- ▶ Routine micronutrient supplementation is not recommended for patients with HF, but intravenous iron supplementation can improve patients' quality of life, peak oxygen consumption and exercise capacity, and can reduce the risk of hospitalization.
- ▶ Be aware of electrolyte abnormalities, such as hypo- and hyperkalaemia, hyper- and hyponatraemia, and magnesium deficiency, which can be caused by some HF medications and dietary supplements. This is especially important for elderly patients because these abnormalities can cause worsening of overall health, and consequently worsening of HF symptoms.

■ Body mass and weight changes

- ▶ If your patient has reduced functionality due to overweight or obesity, you should discuss weight loss measures with them. However, remember that this can be very challenging for patients with HF who may have a reduced physical capacity.
- ▶ Monitor your patient at least once a year for unintentional weight loss.
- ▶ Cardiac cachexia is severe and unintentional weight loss caused by HF. It is characterized by unintentional, oedema-free weight loss of > 5.0–7.5% of body mass over 6–12 months or BMI < 20 kg/m², and high CRP and low albumin levels. It may be accompanied by sarcopenia.
- ▶ Cardiac cachexia often occurs in the final stages of HF, and it is a predictor of increased mortality in patients with HF.
- ▶ Patients with cachexia require significant support to optimize their nutrition and physical activity.

■ Fluid intake

- ▶ Patients with severe HF are recommended to limit their fluid intake to 1.5–2.0 L/day or to increase their diuretic dose.
- ▶ During hot and humid weather, they should increase their fluid intake and/or reduce their diuretic dose.

■ Salt intake

- ▶ Patients should consume no more than 5 g/day of salt.
- ▶ Processed foods, fast food and food in restaurants are often high in salt and should be avoided.
- ▶ Patients should also avoid adding salt to food during cooking and before eating.
- ▶ Foods with a low salt content include cottage and homogenized cheeses, fresh meat and fish, herbs and spices, unsalted nuts and seeds, and fresh or frozen vegetables.

■ Alcohol consumption

- ▶ The recommended levels of alcohol for patients with HF are 2 units/day for men and 1 unit/day for women. Heavy episodic drinking or binge drinking must be avoided.
- ▶ One unit corresponds to 10 mL of pure alcohol (e.g. a glass of vodka, 25 mL; a glass of beer, 190 mL; a glass of wine, 80–90 mL).
- ▶ Exceeding these recommended levels is associated with cardiac arrhythmias and exacerbation of HF symptoms.
- ▶ Complete alcohol abstinence must be recommended for patients with alcoholic cardiomyopathy.

4.3.2. Exercise

■ General considerations

- ▶ You should discuss physical activity and exercise tolerance with your patients at all routine appointments.
- ▶ Patients with recently diagnosed HF and patients who have experienced a recent worsening of symptoms may be nervous about exercise. You should reassure them that it is safe to exercise so long as their HF is compensated and is being treated appropriately.
- ▶ Encourage patients to make exercise a routine part of their life by explaining that it will improve their functional capacity and reduce their risk of hospital admission.
- ▶ You could also advise them to take part in a targeted cardiac rehabilitation programme.
- ▶ If your patient is able, encourage them to use mobile apps to monitor their exercise progress.
- ▶ During exercise, heart rate should be the sum of resting heart rate and 40–80% of heart rate reserve.

■ What kinds of exercise should my patient do?

- ▶ When recommending an appropriate type of physical activity, you should take into account the abilities, preferences, age, comorbidities, and work and leisure activities of your patient, as well as logistical constraints such as the availability of exercise facilities and equipment.
- ▶ Patients with HF should aim to get different types of exercise,⁴³ such as:
 - continuous and interval aerobic exercises (e.g. walking on a treadmill or outdoors, Nordic walking, cycling on a bicycle or static exercise bike)
 - respiratory/breathing exercises
 - resistance/strength exercises (e.g. lifting small weights)
 - relaxation exercises (e.g. stretching).
- ▶ Exercise sessions should always include a warm-up session with stretches, a main exercise activity with adequate rest periods, and a warm-down session with stretches.

■ How much exercise does my patient need?⁴³

- ▶ You can assess your patient's exercise tolerance before starting an exercise regime using 6-minute walk tests.
- ▶ The Borg scale can be used to assess a patient's perceived exertion – a subjective measure of how hard they feel their body is working during exercise. This is measured on a scale of 6–20 points. It is recommended that exercise for patients with HF does not exceed a score of 13–14 points on the Borg scale (moderate-intensity exercise).
- ▶ The duration and frequency of exercise should be adjusted according to the patient's capacity.
- ▶ Patients with lower capacity should exercise more frequently for shorter durations.
- ▶ An exercise session for a patient with HF could last between 5–10 minutes and 30–60 minutes, three to five times per week.

■ When should my patient NOT exercise?⁴³

- ▶ Patients should not begin exercise if they experience:
 - resting heart rate > 100 bpm
 - shortness of breath at rest or after activity
 - chest pain
 - rapid weight gain (2 kg in 2–3 days)
 - cardiac arrhythmia
 - dizziness.

- ▶ Patients should also not exercise if:

- they have decompensated HF
- they have had a recent myocardial infarction or thrombophlebitis
- they have an acute non-cardiac condition or a fever
- they have active pericardial or cardiac inflammation or other heart defects.

■ Additional considerations for patients with implantable devices are as follows

- ▶ Patients with ICDs or CRT pacing devices should aim for a heart rate during exercise of 20 bpm lower than the designated defibrillator intervention threshold.
- ▶ After implantation of a device, patients should not perform intensive movements in the shoulder joint on the implanted side owing to a risk of electrode dislocation.

4.3.3. Sexual activity

- It is common for patients with HF to experience sexual problems. It is important to reassure your patients that this is completely normal.

- HF can cause reduced exercise tolerance, and this may affect a patient's ability to have sex.
- Some drugs used to treat HF can cause erectile dysfunction.

- You should advise your patients that sex is not recommended immediately after a heavy meal or drinking alcohol.
- If your patient experiences HF symptoms (shortness of breath, excessive fatigue) during sex, they must stop having sex and rest.
- If your patient is experiencing sexual dysfunction and this is distressing to them, you should discuss pharmacological treatment and specialist consultation options with them.
- Consider including your patient's partner in discussions about sex or sexual problems.

4.3.4. Medications and compliance

- You should discuss whether your patient is taking their medication correctly, and whether there are any obstacles preventing them from taking their medication at all routine appointments.
- It is important that patients (and their families and caregivers) understand and are actively involved in decisions about their medications.

Shared decision-making can lead to fewer side effects, or better management of side effects and better compliance.

- You should provide your patients with written and verbal information about their medications, including:
 - what each medication is for
 - dosage
 - how and when to take each medication
 - what to monitor when taking particular drugs
 - any potential side effects or adverse reactions.

- You should also discuss factors that may prevent a patient taking their medication as prescribed, such as not understanding what their medication is for, polypharmacy, age, frailty, cognitive problems, forgetfulness, depression, side effects, addiction, poor social support.
- Inform your patient how to recognize and when to respond to side effects of their medications.
 - Side effects of medications often lead to non-adherence to treatment.
 - It is important to differentiate between the symptoms of the disease and drug-related side effects.
 - You should educate your patient about common side effects of their medications and when they should inform a healthcare professional about drug-related symptoms.
 - You should consult your patient's doctor if your patient experiences an adverse reaction to their medication, or would benefit from a different dose regimen or a different medication.

- Improving compliance with medications.
 - Ensure your patient understands the importance and benefits of the medication they are taking.
 - If your patient regularly forgets to take their medication, suggest: taking medication at a fixed time every day; using pill containers; keeping a diary; using a tick chart; or putting reminders in an obvious place (e.g. on the bathroom mirror or on the fridge).
 - Support from family members and caregivers can improve compliance with medications in patients with HF.

- Be aware that polypharmacy is associated with worse outcomes and can affect quality of life, and should be avoided as much as possible.

4.3.5. Psychological and emotional well-being

- You should discuss with your patient their mood and how they are feeling.
- Patients with HF (especially NYHA class II–IV) often experience anxiety and depression.
 - Hospitalization can exacerbate depression.

→ Remember that there are many other things that can contribute to stress, anxiety and feelings of depression, such as money, relationship and family problems.

- Low mood and poor mental health in patients with HF can have a negative impact on their social functioning, their ability to carry out effective self-care, and their ability to make decisions about their treatment.

→ Depression is a risk factor for rehospitalization in patients with HF.
→ It is associated with higher mortality and increased healthcare utilization.

- Consider using questionnaires to assess your patient's mental health and to identify possible problems in this area.
- If your patient is displaying symptoms of depression and you feel there is a need, help them to access specialist treatment (e.g. medication, talking therapies, cognitive behavioural therapy).

→ If your patient agrees, involve family members and caregivers.

4.3.6. Sleep

- You should discuss sleep quality with your patient regularly. Ask them whether they feel rested after sleep and whether they experience any sleep disturbances.
- Poor sleep can affect your patient's mood and well-being, and may negatively impact their ability to carry out effective self-care.
- Sleep disturbances and poor sleep quality affect almost 75% of patients with HF. More than 50% of patients with HF have sleep-disordered breathing.
- In patients with HF, sleep may be disturbed by orthopnoea, paroxysmal nocturnal dyspnoea, nocturia, heart conduction disorders or arrhythmias, obstructive sleep apnoea, or psychological problems like anxiety or depression.
- If your patient has a sleep disorder, check if they have euvolaemia (the presence of the proper amount of blood in the body).
- If you suspect your patient has obstructive sleep apnoea, recommend that they reduce or strictly control their body weight (if necessary) or that they use a continuous positive airway pressure (CPAP) machine at night.
- If your patient is using or wants to use sleep medication, you should carefully and clearly outline the benefits and harms of these drugs.

→ Note that benzodiazepines are not recommended for patients with HF owing to potential issues with tolerance and dependence. In elderly patients, they may also impair cognitive function, mobility and driving.

- It can be helpful to talk with your patient's partner about sleep problems. They may have noticed whether the patient snores at night, has sleep apnoea, or exhibits daytime sleepiness.

4.3.7. Travel and leisure activities

- When relevant, you should discuss the medical and practical issues associated with travel with your patient, allowing adequate time for planning before they travel.
- Your patient may need to plan their travel and vacations more carefully than they did in the past, and there are many things they need to consider before taking a trip, including the following.

- **Dehydration:** if your patient is likely to become dehydrated (e.g. owing to gastrointestinal problems or a hot climate), they can temporarily reduce or discontinue their diuretics or consume an additional 0.5–1.0 L of non-alcoholic beverages, preferably water.
- **Air travel:** patients with stable HF tolerate air travel well, but patients with severe decompensated HF should avoid air travel. Patients with HF are at increased risk of deep vein thrombosis and pulmonary embolism on long flights.
- **Cold climates:** cold climates can increase peripheral vascular resistance, and this can cause increased myocardial oxygen demand.
- **Sun exposure:** be aware that some HF medications can cause adverse reactions to sun exposure.
- **High altitude:** patients with HF can safely travel to places at different altitudes above sea level depending on NYHA class.

- Class I–II: up to 3500 m above sea level.
- Class III: 3000 m above sea level.
- While at high altitude, physical activity of more than moderate intensity is not recommended for patients with HF.

- **Diet:** be aware that travel abroad may be associated with changes in food and alcohol consumption habits.

4.3.8. Driving

- Occasionally consult a clinician to assess your patient's ability to drive safely.
- If your patient has NYHA class I, II or III HF and is not experiencing complications, such as syncope, cardiac arrhythmias or other symptoms related to comorbidities or treatment, there are no restrictions regarding private driving of cars, motorcycles and other small vehicles.

- There are some restrictions on private driving of heavy vehicles (vehicles over 3.5 t or vehicles designed for the carriage of more than nine passengers).

- If your patient drives as part of their job, you should inform them that additional rules apply.

- For occupational driving, patients must be NYHA class I or II and have an LVEF \geq 35%.

4.3.9. Immunization and preventing infections

- You should discuss the importance of immunization and vaccination with your patient and their family and caregivers.
- You should clearly explain the benefits of vaccination for patients with HF.
 - Patients with HF are at risk of bacterial and viral infections (including COVID-19).
 - Infections can exacerbate HF symptoms.
- It is also important to listen to and discuss any concerns they may have.
- Patients with HF are recommended to have an annual influenza vaccination and a single pneumococcal vaccination.

4.3.10. COVID-19

- On 11 March 2020, the World Health Organization (WHO) announced that COVID-19 had become a pandemic.⁴⁴ COVID-19 is a highly contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that has spread rapidly worldwide. The COVID-19 pandemic currently poses a huge challenge and crisis for patients, clinicians and health systems around the world.
- The epidemiological situation is unpredictable and this pandemic may be long-lasting.
- This situation is particularly relevant in the case of cardiovascular comorbidities, which have been reported to be risk factors for severe COVID-19 requiring hospitalization (including the need for mechanical ventilation) and death from COVID-19.⁴⁵
- As the COVID-19 pandemic continues to evolve, all decisions and actions should always be based on current reports and recommendations from the Centers for Disease Control and Prevention (CDC) and the WHO.
- The CDC has compiled a list of the most commonly reported symptoms experienced by patients with COVID-19 on their website (<https://www.cdc.gov/coronavirus/2019nCoV/index.html>). Symptoms may appear from 2–14 days after exposure to the virus. They include:

- fever or chills
- coughing
- shortness of breath or difficulty breathing
- fatigue
- muscle or body aches
- headache
- new loss of taste or smell
- sore throat
- congestion or runny nose
- nausea or vomiting
- diarrhoea.

- Everyone, including patients with HF, should seek medical advice from their doctor or nurse immediately if they observe symptoms, according to the advice from their country's government.
- While COVID-19 shares many symptoms with influenza, a person with COVID-19 may be contagious for a longer period of time than with influenza, and COVID-19 is more contagious than influenza in certain populations and age groups.
- It is important to note that certain individuals have a higher risk of illness and complications when infected with COVID-19.
- The risk of COVID-19 infection may be greater in patients with chronic HF, due to advanced age and the presence of multiple comorbidities (chronic kidney disease, obesity, COPD or diabetes mellitus), and in tobacco smokers.⁴⁶

- Therefore, patients with HF should take special precautions and follow outbreak prevention guidelines.
- Patients with HF should always be protected from exposure to COVID-19, because they have a higher risk of poor inpatient outcomes.⁴⁷
- All stable outpatients with HF (no sudden cardiac events, no clinical worsening and no symptoms) should refrain from visiting the hospital to minimize the risk of infection.
- A particularly important solution is the use of telemedicine (if possible) to provide medical advice and follow-up of stable patients with HF.

- ESC guidelines emphasize that patients with HF may develop acute HF as a serious complication over the clinical course of COVID-19.

- The mechanisms underlying acute HF in COVID-19 include acute myocardial ischaemia, myocardial infarction or myocarditis, acute respiratory distress syndrome, acute kidney injury and hypervolemia, stress-induced cardiomyopathy, myocarditis and tachyarrhythmias.
- COVID-19 pneumonia poses a high risk of haemodynamic deterioration as a result of dehydration, hypoperfusion and hypoxaemia.
- If COVID-19 is suspected in a patient with HF, this can be diagnosed using routine clinical evaluation, temperature measurement with non-contact devices, ECG (to detect arrhythmias, myocardial ischaemia, myocarditis), chest X-ray (to detect cardiomegaly, COVID-19 pneumonia), blood tests (to detect significantly elevated BNP/NT-proBNP levels, fibrinogen or CRP, and lymphocytopenia) and tests for COVID-19 infection.
- The co-occurrence of COVID-19 infection and acute HF in a patient with HF presents a high risk of serious complications, including higher mortality.⁴⁸ In patients with chronic HF, regardless of COVID-19, treatment should be continued according to guidelines (including the use of beta-blockers, ACE inhibitors, ARBs, or sacubitril/valsartan and MRAs).

- Available data indicate that significant reductions in rates of urgent hospital admissions for HF have been observed during the COVID-19 pandemic, with increased case severity and associated in-hospital mortality.

- This may be due to patients' concerns about exposure to infection.⁴⁹
- Therefore, it seems reasonable to reorganize and optimize the care of patients with HF, especially those in high-risk groups, so that care can be provided on a continuous basis.
- Owing to the limitations of inpatient care, telemedicine and self-care are important in patients with HF.
- All interventions for patients with HF during a pandemic should be based on the maintenance of current pharmacotherapy according to current ESC guidelines.⁵⁰

4.3.11. Smoking and recreational drug use

- You should discuss smoking, e-cigarette use and the use of other psychoactive substances with your patients at all routine appointments.
- You should inform your patients regularly that quitting smoking is one of the best things they can do to improve their health.

- The combined use of e-cigarettes and tobacco is associated with a higher risk of cardiovascular disease than use of tobacco alone.
- Patients will not be eligible for heart transplants if they smoke or use e-cigarettes.

- You should also provide information on the harmful effects of other psychoactive substances and advise your patients to stop using them.

- Psychoactive substances can cause serious acute changes in cardiovascular function and cause irreversible heart damage.
- Patients will also not be eligible for heart transplants if they use recreational drugs.

- You should have frank, honest and proactive discussions with your patients to help motivate them to take action against their smoking or drug habit.

- Familiarize your patient with the methods, support and services that are available to them (e.g. nicotine replacement therapy for patients trying to stop smoking, support groups).
- It is important to recognize that some psychosocial issues may be associated with the use of stimulants and psychoactive substances (e.g. some people use cigarettes or drugs to cope with stress and anxiety). This can make quitting especially difficult.
- Remember to keep your advice concise, unambiguous and non-judgmental.
- Be supportive and offer concrete solutions to patients trying to deal with a smoking or drug addiction.

4.4. Self-care monitoring

- It is important that your patient is prepared to carry out effective self-monitoring and can read, record and interpret the results of their daily measurements (e.g. heart rate, BP, body mass, appetite, mood, dehydration).
 - Monitoring for changes in signs and symptoms is a vital component of self-care for patients with HF.
 - Any exacerbation or emergence of new symptoms can adversely affect treatment outcomes and can significantly reduce the quality of life of patients with HF.
 - Early identification of worsening HF symptoms can also reduce the risk of rehospitalization and mortality.
 - Patients should also monitor any changes in their comorbidities, any side effects caused by their HF medication, and effects of their self-care activities.
- It may be necessary to involve your patient's family or caregivers in these discussions if they will be helping with or carrying out daily measurements.
- Your patient (and their family/caregivers) should also be able to recognize concerning signs and symptoms, and should know when to contact you or their primary care physician and when to call an ambulance.
 - An ambulance should be called if their condition suddenly deteriorates and is accompanied by diarrhoea and/or vomiting lasting more than 1 day.
- It may be helpful for patients to use 'zones' to assess the severity of their symptoms and respond appropriately.

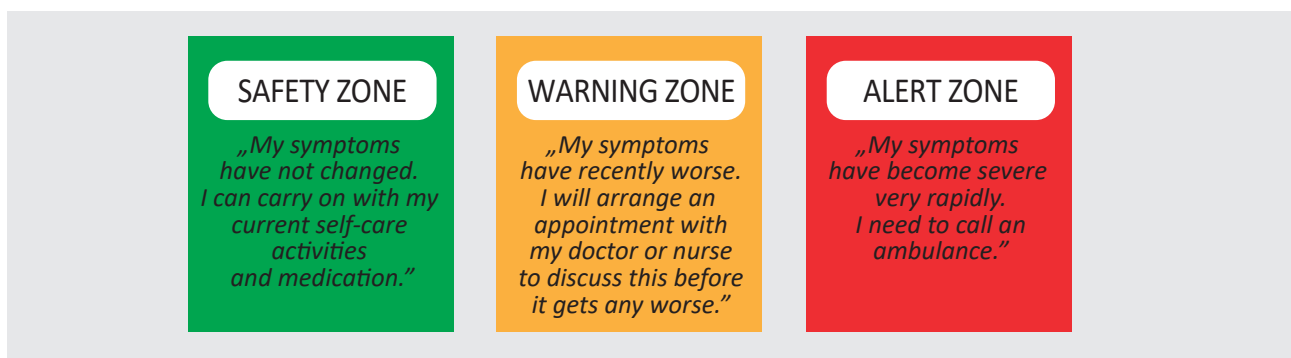


Figure 9. Safety, warning, alert zone.

4.4.1. Remote monitoring and telemedicine

- Consider remote monitoring via telephone (telemonitoring) or the use of eHealth tools and digital health applications if appropriate (these technologies will not be suitable for all patients).
- Telemonitoring of your patient is an important component of care that enables automated remote monitoring of any implantable device, such as cardioverter-defibrillators, resynchronization pacing systems or pacemakers.
- The use of telemonitoring supports effective surveillance and safety of your patient by providing immediate information about clinical status, device parameters, or factors predisposing to haemodynamic deterioration in HF (e.g. arrhythmias that your patient has never experienced before).
- Additionally, telemonitoring will allow your patient with HF to stay in touch with their monitoring centre via phone and/or email and reduce the number of scheduled or unscheduled inpatient specialty visits, which translates into real savings for the healthcare system.
- Some implantable devices may also perform monitoring activities.

4.4.2. Key considerations after device implantation

- Patients should always carry their device identification card (Patient Passport) after device implantation.
- Return to normal activity should be gradual. During the first few days after the procedure, pay special attention to the area around the wound.
- After discharge from the clinic, the patient should change the dry dressing at the incision site once daily; the sutures will be removed at the next follow-up visit.
- Within a few days after the procedure, the patient can return to normal activities, but patients should avoid extreme hand movements (above the shoulder) for 4–6 weeks after device implantation (this includes activities such as swimming and playing golf), because this may cause the electrode to move.
- Your patients should attend a wound and device check appointment 1 week after implantation.
- The device should be checked and the wound inspected in the clinic approximately 6 weeks after implantation.
- Your patients should then attend routine follow-up appointments at the device clinic with a physician every 4–6 months for a pacemaker and every 3–4 months for an ICD (visits can also be scheduled on an individual basis).

→ During the appointment, device performance, battery life and a retrospective evaluation of possible cardiac events are assessed; the collected data should be printed out or described in the online documentation.

- Each implanted device has a specific lifespan (e.g. 5–8 years for a pacemaker and 3–6 years for a defibrillator; this may be shorter or longer in some cases). After this period, the patient will be referred to the hospital for replacement of the pacemaker or ICD generator.

- Remember to inform your patient of the following.

- The device has built-in functions that protect it from electrical interference produced by most household electrical appliances (microwave ovens, computers, VCRs and garage door openers are safe to use).
- Metal detectors at airports are safe, but implanted devices may cause the alarm to sound. Patients should consider taking the device's identification card to show at the airport if necessary.
- Patients should avoid playing contact sports.
- Patients should avoid placing their mobile phone directly above the generator of the device; it is better to keep mobile phones on the other side or to avoid carrying their mobile phone in a shirt pocket.
- Patients should always inform a medical professional about the device before magnetic resonance imaging (MRI), unless otherwise instructed by their doctor.
- Patients should avoid prolonged exposure to electronic security systems (anti-theft devices), including metal detectors and department store entrances.
- Patients should avoid working near heavy or high voltage machinery, contact with arc welding equipment, CB radio antennas and MRI scanners.

Warning!

If your patient experiences any of the following symptoms after device implantation, they may have an infection and should contact their doctor immediately:

| | | | | | |
|----------------------|----------------------------|----------------------------|--|-------------------------|--|
| Blood-soaked bandage | Pus from the incision site | Increased swelling or pain | Red or hot area around the incision site | A temperature > 38.0 °C | Chest pain, shortness of breath, or significant change in vision |
|----------------------|----------------------------|----------------------------|--|-------------------------|--|

Figure 10. Symptoms after device implantation.

4.5. Self-care management

- You should prepare your patients to respond appropriately to changes in their signs and symptoms (e.g. by altering their medication regimen, contacting their doctor or nurse, reducing their physical activity levels, or reducing their fluid and salt intake).
- Remember that patients and their caregivers may need additional support in making decisions about medication dosage changes. If in doubt about what to do, patients should always contact their doctor or nurse.
- A flexible and individualized dosing regimen of diuretics is recommended.

- Diuretics in HF are used to achieve and maintain euvolaemia and improve symptoms. They may improve exercise capacity and reduce the risk of hospitalization in patients with signs and/or symptoms of congestion (a buildup of extracellular fluid).
- If your patient experiences an exacerbation in symptoms (e.g. dyspnoea, oedema, hypotension) or sudden and unexpected weight gain (> 2 kg in 3 days) they can adjust their diuretic dose or contact their doctor or nurse for advice.
- If your patient experiences hypovolaemia (abnormally low amount of blood in the body) they can temporarily stop taking their diuretic.
- If your patient has fluid retention (especially intestinal oedema) the effect of oral furosemide may be reduced owing to inadequate absorption in the gastrointestinal tract. In this case, they may need temporary intravenous furosemide therapy.
- ACE inhibitors, ARBs and diuretics can increase the risk of acute kidney injury and/or hyperkalaemia. In these cases, it may be necessary to temporarily discontinue one or more of these drugs or reduce their dose.



5. The role of family and caregivers in heart failure management

- Family members and informal caregivers are key partners in the HF care team.
- Support for patients from family and caregivers contributes to:
 - ◆ more effective patient self-care behaviours
 - ◆ improved patient well-being and mental health
 - ◆ better prognosis.
- Family members and caregivers provide emotional and practical support to their loved ones with HF.
 - ◆ They may help patients to cope with loss of independence, social isolation and troubling symptoms.
 - ◆ They may also help patients to deal with the fear and anxiety associated with diagnosis, disease progression and the prospect of death.
 - ◆ They may provide help and support when a patient is discharged from hospital, which is a particularly difficult time.
- Family involvement in the care of patients with HF may change as the disease progresses.
 - ◆ It may increase during clinical crises or when treatment is intensified, and it is likely to increase substantially in end-stage HF.
 - ◆ In the advanced stages of HF, family members and caregivers often have to navigate the healthcare system and make difficult decisions on behalf of their loved one.
 - ◆ They may also have to take responsibility for medication and device regimens when their loved one is no longer able to do this themselves.
- Caring for a loved one with HF can place a substantial emotional and physical burden on family members and informal caregivers.
 - ◆ You can assess caregiver burden using tools like the HF Caregiver Questionnaire.⁵¹



6. Communication in heart failure nursing

- The prognosis of a patient is based on two main factors.
 - ◆ The patient's individual psychosocial resources (e.g. their ability to deal with stress, social support, personality traits [optimist versus pessimist]).
 - ◆ The patient's relationship with their doctor and the rest of their multidisciplinary care team, and the ability of these individuals to work together towards the common goal of restoring or maintaining the patient's health.
- This section will discuss these relationships between patients and the members of their multidisciplinary care teams – including you, the HF nurse – and how these relationships can be managed and improved through empathy and effective communication.

6.1. Different types of patient–healthcare professional relationships

■ 'Mutual participation' versus 'guidance-cooperation'.

- 💬 The relationship between patients with chronic diseases and their doctors is usually one of 'mutual participation'. This type of relationship is a partnership in which the doctor helps the patient to help themselves.⁵²
- 💬 Some patients may also benefit from a 'guidance-cooperation' relationship, in which the doctor tells the patient what they must do. This relies on the patient carrying out the doctor's instructions correctly and completely.⁵²

■ Disease-centric versus patient-centric.

- 💬 A disease-centric approach focuses mainly on the biological aspects of the cause of the disease and the options for treatment.
- 💬 A patient-centric approach still takes into account the biological aspects of the disease, but places a greater focus on the underlying psychosocial factors that may influence disease progression and the effectiveness of treatments. This approach requires a good relationship with the patient, because information about a patient's psychosocial background must be learned in order to assess the individual needs of the patient.

■ Conflict versus negotiation.

- 💬 Patients and healthcare professionals can come into conflict when their interests are not aligned. This can be exacerbated by the power imbalance between patients and healthcare professionals, and the dependency of patients on healthcare professionals for information and access to treatment.
- 💬 Additionally, some patients will have their own views about their problems and how to solve them, and these may not be in line with the diagnosis and assessment of the healthcare professional.
- 💬 In these situations, negotiation may be required for the patient and healthcare professional to reach a common definition of the problem and the optimal solution.
- 💬 This requires effective two-way communication between the patient and healthcare professional to ensure that the patient's concerns are heard, and that accurate information is conveyed by the healthcare professional to the patient.

■ Patient versus consumer.

- 💬 Sometimes, the patient may act as a consumer. These patients are likely to be informed about their disease and will actively seek out treatments and healthcare services that are aligned with their currently held views.
- 💬 In this case, healthcare professionals may act as advisers or consultants, rather than collaborators.

6.2. Empathy in patient–healthcare professional relationships

- Empathy is vital for establishing good relationships with your patients. It will allow you to understand and meet your patient's medical and psychosocial needs better and communicate more effectively with them.
- Empathy is a skill that can be strengthened. Try to:

- ✓ put yourself in the shoes of your patient
- ✓ spend time with your patient
- ✓ ask yourself the questions your patient asks you
- ✓ imagine how your patient is feeling
- ✓ tell your patient what you would want to hear in the same situation
- ✓ act towards your patient as you would expect them to act towards you.

6.3. Communication in patient–healthcare professional relationships

- Doctors and nurses are often a patient's primary source of information about their diagnosis, prognosis and treatment options.

- Patients need accurate information about their condition, even if this information is unpleasant or distressing.
- If accurate information is not provided to patients, they may seek it from other, less reliable sources, which could lead to, for example, reduced adherence to medications.
- Feeling uncertain about their condition can also cause patients to worry about their health, often unnecessarily.

6.4. Communication errors between patients and healthcare professionals

- **Iatrogenic errors** (errors committed by healthcare professionals that result in harm to the patient) can occur as a result of poor communication between different healthcare professionals and between healthcare professionals and patients.

- ☛ *For example, a healthcare professional does not clearly explain to their patient how to take their medication, or explains it in complicated technical language that the patient does not understand. As a result, the patient does not take their medication correctly, resulting in harm to the patient.*
- ☛ *For example, a healthcare professional does not communicate distressing information in a sensitive way. As a result, the patient becomes scared to attend further appointments, resulting in harm to the patient.*

- **Indirect communication and non-verbal communication are very important.** The way you say things and your body language can convey meaning to your patients, even when you do not mean to.

- ☛ *For example, rushing through an appointment, trying to do too many things at once or being unprepared for an appointment may reduce your patient's confidence in the information you are giving them.*
- ☛ *For example, taking telephone calls during a patient's appointment may make them feel overlooked.*

- It is also important to remember that, while some patients will be comfortable having conversations about their condition in front of medical or nursing students, others will prefer to have these conversations in private.

6.5. Communicating distressing information

- It is important that unpleasant or distressing information is communicated with empathy and sensitivity.
- It can be helpful to share distressing information gradually, instead of all at once, because this gives the patient more time to adjust to the potentially stressful situation.

- It may also be helpful to draw attention to the positive aspects of the patient's situation, rather than focusing only on the negative aspects.
- It is very important to pay attention to your patient's responses and body language when you are sharing distressing information.

- ✓ **Some patients may need more time to understand the information you are sharing, so you may need to take more time to explain things to these patients.**
- ✓ **If a patient asks for more details, you should provide them.**
- ✓ **If a patient looks upset or shocked, or becomes very quiet, you may need to stop and take time to reassure them before going on.**
- ✓ **In some cases, the patient may become severely stressed or panicked and may require additional assistance.**

- It is also important to inform family and caregivers about the patient's condition so that they can better support the patient.

6.6. Communicating changes in treatment and care to patients

- Changes in disease trajectory may require changes in treatment, care and patient goals.
- As an HF nurse, you will be aware of the history of your patient's disease and will be able to guide them as their disease and their treatment changes.
- When a patient's treatment changes, this must be communicated to them and their family clearly and accurately. If a patient does not understand, for example, how to take their new medication or how to carry out self-care activities, this will undermine their care plan and negatively impact their outcomes.
- These conversations involve private and sensitive aspects of the patient's illness, and they can be distressing for the patient. They should take place in a private place. Ensure that you allow enough time for these conversations and do not rush them.
- Any changes in treatment and care plans must also be carefully documented, regularly reviewed and shared with all of those involved in the patient's care, including family members, informal caregivers and members of the multidisciplinary care team. This is to ensure continuity of care and prevent misunderstandings.
- Changes in treatment may accompany a change in prognosis. This must also be communicated to the patient in an honest and caring way, using language that the patient can understand.

6.7. Communicating with patients with terminal heart failure

■ Starting the conversation.

- ▶ When a patient progresses to the terminal stage of HF, it is important to begin having conversations to prepare them for the possibility of palliative care and death.
- ▶ The patient's family and caregivers should be involved in these conversations.

- ▶ It is vital to reassure terminally ill patients that they are not alone and that there are still many steps that can be taken to ease their suffering.

☛ *For example, "I cannot cure your heart failure, but there are still many things I can do to help you. Whatever happens, I will be there for you."*

■ Discussing their prognosis.

- ▶ When discussing a terminally ill patient's prognosis, remember to be direct but caring, be truthful, be reassuring and use simple, everyday language.

☛ *For example, "Many people with your stage of heart failure do survive, but many others die. We can hope that you get better, but we should also prepare for the worst."*

■ Discussing goals.

- ▶ Even in the last months of their life, your patients may have treatment and care goals that they want to achieve.

☛ *For example, "Please tell me what is most important to you in terms of your care and your illness. Is there anything else you would like to achieve?"*

■ Discussing treatment preferences.

- ▶ You should discuss with your patients their wishes and preferences for care before their condition declines too far.
- ▶ You should clearly explain their options and the recommended treatments.
- ▶ You should clarify their wishes regarding resuscitation and the deactivation of devices, and how to respond in the event of medical emergencies.

☛ *For example, "We talked about the poor prognosis of your illness. You told me about how you want to spend the last months of your life. I would also like to know what you think about the use of cardiopulmonary resuscitation."*



7. Patient education in heart failure nursing

- It is important that patients are aware and informed about their condition.
- This is especially true in HF in which patients have an important role to play in managing their disease through self-care.
- Effective patient education can help to prepare patients for this role. You can use the HF handbook for patients with HF, which is compatible with this nurse handbook.
- If you need support in patient education, additional information is available on the ESC website (https://www.heartfailurematters.org/en_GB/).

7.1. Patient readiness

- It is important to remember that, for self-care and self-monitoring activities to be effective, patients must be ready and willing to make the necessary lifestyle changes.
- Some patients with HF will need to make a number of lifestyle changes, and this may be overwhelming for the patient.
- Some patients may also need time to come to terms with life with a chronic condition before they are ready to make the necessary lifestyle changes.
- Determining patient readiness gives us insight into which areas the patient is ready to work on now, which ones they may be ready to work on in the future, and, most importantly, which ones they may never be ready to work on. You can determine whether your patient is ready for a particular change using a readiness scale, for example:

On a scale of 0 to 3, how ready are you to weigh yourself every morning after emptying your bladder and record your weight in a self-monitoring diary?

0 – not ready

1 – low readiness

2 – medium/partial readiness

3 – total readiness

7.2. The SMART method

- The SMART method is an easy and effective method that is commonly used to help patients to set goals for making lifestyle changes.
- The method involves working with your patient to create clearly defined, meaningful and measurable goals, and developing a timeframe in which to achieve these goals.

- As an HF nurse you will guide this process to set appropriate goals and ensure that your patient stays on track to achieve those goals. This requires you to form a good therapeutic relationship with your patient so that you can adapt the goals to their individual circumstances. You will also encourage and motivate your patient to achieve their goals.
- Before using the SMART method, you should familiarize your patient with all applicable HF recommendations so that together you can select the most appropriate goals for them.
- You must also determine their willingness to actively participate in the management of their disease.
- Finally, think about the types of patients you will frequently meet. How will you talk to these patients? What kinds of lifestyle changes will they need to make? How can you guide and encourage them to make these lifestyle changes? What questions can you ask to guide your conversations with them?
- The following table provides an outline of the SMART method, along with examples of questions you can ask your patient to help them to think about their goals (Figure 11).

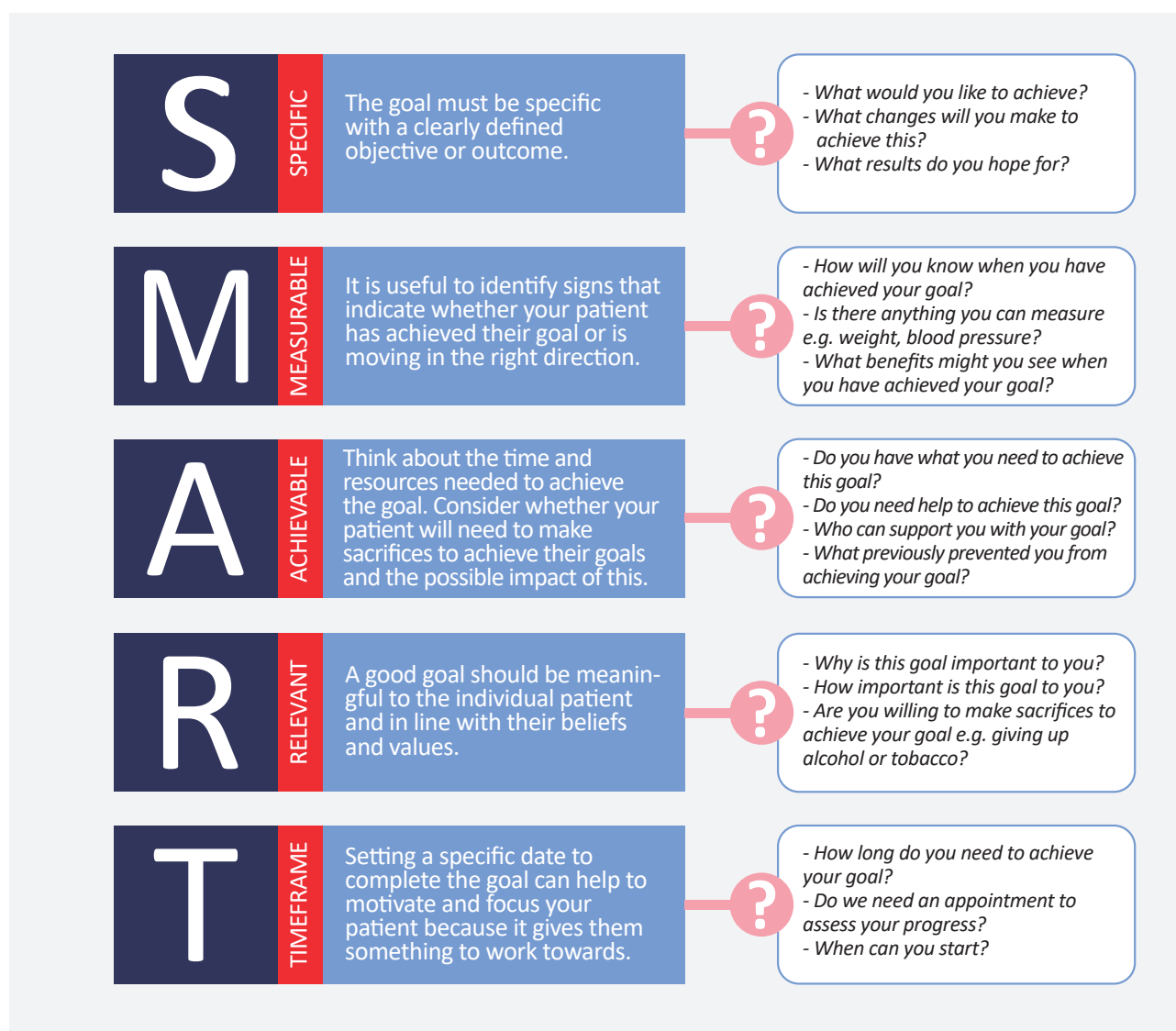


Figure 11. Outline of the SMART method with examples of questions for patients with HF.



8. Palliative care

- Palliative care, as defined by WHO, is a form of care that aims to improve the quality of life of terminally ill patients and their families by preventing or reducing suffering.
- In this stage of disease management, medical treatment is mostly focused on alleviating symptoms.
- This is especially important in advanced, terminal stage HF, in which worsening symptoms can lead to a significant deterioration in quality of life.
- Many patients, when faced with their own death, will also need psychosocial and emotional support.
- Palliative care often involves the whole multidisciplinary care team – doctors, nurses, physiotherapists, psychologists and social workers – as well as spiritual and religious leaders and the patient’s family and caregivers.
- It is important to remember that the patient’s family and caregivers may also need help and emotional support in this situation.
- Palliative care has been identified by the ESC as a key issue. However, this type of support is not widely available to patients; according to the European Association of Palliative Care, only eight European countries provide comprehensive palliative care for patients with advanced HF.⁵³

Potential issues in palliative care

- Uncertainty about the disease trajectory of HF.
- Lack of organizational resources in terms of staff training and time available.
- Low priority given to palliative care by healthcare professionals.
- Psychosocial issues around dying, death and mourning.
- Legal issues, including those about advanced life support and resuscitation wishes.

Figure 12. Potential issues in palliative care.

8.1. Talking about death and palliative care with patients and their families

- In many cultures, death is an extremely sad event, which can be very difficult to deal with.
- When faced with terminally ill patients who are afraid to die, it is normal to want to protect them and their families from the unpleasant truth, and to downplay their condition.
- Patients themselves may also want to protect their family members from the reality of their condition and vice versa.
- However, it is vitally important that patients are fully informed about their condition, including about whether they might die.
 - ◆ **This gives patients time to complete practical tasks such as writing a will and making sure that their funeral wishes are known.**
 - ◆ **There may also be personal tasks that a patient wants to complete before they die.**
 - ◆ **If a patient finds out too late that their illness is terminal, they may feel angry that they were not given more warning, which can make a difficult situation even harder to cope with.**
- It is also important that patients talk honestly with their family about death. This is important for both the patients and their relatives, because it allows the patients to express their final wishes while also giving their relatives time to prepare themselves for life after losing their loved one.
- As an HF nurse, developing sincere relationships and open communication with your patients and their families can make it easier to start these difficult conversations about death and dying.

8.2. Clinical guidelines for palliative care of patients with heart failure

- Palliative care should be based on the needs of the individual patient, taking into account the patient's wishes, religious beliefs, worldview and culture. There are many aspects of palliative care, including:
 - ◆ **psychological support for patients and their families**
 - ◆ **medical treatments**
 - ◆ **type of care and location of care (e.g. at home, in a hospice)**
 - ◆ **social support**
 - ◆ **spiritual or religious support**
 - ◆ **grief and bereavement counselling.**

8.2.1. Initiating palliative care in patients with heart failure

- Patients benefit most when the need for a palliative approach is recognized early. This requires a palliative care specialist to carry out an assessment based on the ESC guidelines for initiating palliative care. Key criteria include persistent and severe deterioration in quality of life, escalation of symptoms and mood disturbances.

- Prognostic indicators for initiating palliative care include: systolic and diastolic right ventricular dysfunction; persistent elevation of natriuretic peptides and cardiac troponins; elevated pulmonary capillary and right atrial wedge pressures; markedly reduced EF; older age; deterioration of kidney function; intolerance of disease-modifying drugs; and the presence of COPD, diabetes, hypotension, anaemia or cachexia.

8.3. Additional considerations for palliative care in patients with heart failure

- Palliative care of patients with HF is complemented by additional supportive interventions and therapies.

- **Advance care planning.**

- ◆ Almost half of patients with HF experience cognitive impairment.
- ◆ Therefore, there is a need for advance or anticipatory care planning.
- ◆ Advance care plans allow a patient to make their wishes regarding their treatment at end of life known to their healthcare providers while they are still cognitively healthy.
- ◆ This can include preferences about resuscitation, life support (e.g. mechanical ventilation, artificial hydration/nutrition) and when to deactivate medical devices.
- ◆ The patient's condition, psychological state, overall quality of life, cultural and spiritual beliefs, and their current or previously stated treatment preferences should all be taken into account when deciding whether to withdraw treatment.
- ◆ All care decisions must be made according to local laws.

- **Managing depression.**

- ◆ Living with chronic conditions like HF can put a significant strain on the mental health and well-being of patients due to the effect their disease has on their physical and social functioning.
- ◆ This may be exacerbated in the final months of life when a patient may be especially weak, may have treatment-resistant symptoms or may be hospitalized.
- ◆ Depression has been reported in 40–70% of hospitalized patients with NYHA class III–IV symptoms.⁵⁴
- ◆ Exercise (appropriate for the patient's physical capacity), cognitive behavioural therapy and medications, like selective serotonin reuptake inhibitors (SSRIs), may all help to improve the symptoms of depression.

- **Managing frailty.**

- ◆ Frailty, cachexia and muscle wasting are associated with advanced stage HF.
- ◆ If identified early, these conditions may be avoided through exercise and dietary interventions.



9. Useful resources

9.1. Frequently asked questions from patients

If your patients do not have any questions during their appointment, tell them to write down any questions or concerns they think of and to bring them to their next appointment. Think about how you might respond to the following questions from your patients.

? What might have caused my heart failure and is there an underlying condition that can be treated?

There are many medical conditions that can damage the heart and contribute to the development of HF. Patients with HF often have comorbidities, and many of these can cause or contribute to HF. These include: hypertension; cardiomyopathy; myocardial infarction; CAD; congenital heart defects; valvular heart disease; angina; anaemia; heart arrhythmias (e.g. atrial fibrillation); infection with certain viruses (e.g. hepatitis B and C, rubella, HIV); and other chronic diseases such as diabetes and hypo- or hyperthyroidism. In chronic HF, several different cardiovascular and non-cardiovascular aetiologies may contribute to the development and progression of HF over a long period of time.

? Does heart failure mean that my heart no longer works?

HF is a progressive condition in which a person's heart cannot pump blood around the body properly, usually due to changes or damage to the heart's structure. It does not mean that the heart has stopped working, only that it does not work as well as it should. This can result in fluid collecting in the lower limbs, causing peripheral oedema, and in the lungs, causing shortness of breath, coughing and wheezing. HF can also result in poor oxygenation in peripheral tissues, causing fatigue.

? What is the most important thing I should do after being diagnosed with heart failure?

HF can affect many aspects of your life, including your ability to work and socialize as you usually would. One of the most important things you can do is to participate in self-care. Self-care is a number of steps you can take at home to improve your health and manage your symptoms. Self-care will improve your quality of life and help to prevent hospitalization. There are three aspects of self-care for HF: maintenance, monitoring and management. Maintenance includes things you can do to maintain your physical and emotional health. Monitoring involves watching for changes in your symptoms. Management is the steps you take in response to any new symptoms that you have, such as increasing your medications.

? What are the treatment options for heart failure?

Treatment of HF should always be individualized for each patient. There are three important components to HF treatment: (1) lifestyle changes including diet, physical activity and patient participation in self-care and self-monitoring (non-pharmacological); (2) causal treatment (surgical and/or pharmacological) and (3) symptomatic treatment (pharmacological).

? How often should I see my doctor?

At discharge from the hospital, a follow-up plan should be established including: the pattern of further drug dose escalation and pharmacotherapy monitoring; the need for and appropriate timing of reconsideration of indications for implantable devices; the person taking over the patient's care; and the timing of the next visit. A follow-up visit with the primary care physician should occur within the first week after discharge. If possible, a consultation with the hospital cardiology team should be arranged within 2 weeks of discharge. Every patient with chronic HF should undergo a distant evaluation by a multispecialty HF management team. Care both before hospital discharge and after hospitalization should incorporate the standards proposed by the HFA.

? What are the benefits of physical activity?

Exercise has many benefits for patients with HF, including: improvement of physical activity and respiratory function; improved adaptation of the heart muscle to exercise; better control of body weight, blood glucose levels and lipid profile; reduction of insulin resistance; reduction of thromboembolism risk; improvement of quality of life; and reduction of symptoms of anxiety and depression.

? What should I do if my symptoms suddenly get worse?

It is recommended that patient monitor their symptoms closely. They should watch out for signs of worsening HF. Ask your patient to see their doctor if they notice that: they feel more tired than usual; their heart beats fast or irregularly; they cannot catch their breath; they cough or wheeze frequently; they suddenly gain weight or their legs and feet become swollen; they feel dizzy or develop photophobia; they have more difficulty exercising than usual; or they have no appetite or feel confused.

? What lifestyle changes can I make that will improve my symptoms?

Lifestyle changes can play a significant role in treating HF. It should be emphasized that making changes can slow the progression of the disease and help the patient to feel better. The patient can also reduce the impact of the disease on their daily life. Patients with HF should follow recommendations on diet; sexual activity; staying physically active; maintaining or losing weight; quitting smoking; controlling daily fluid intake; avoiding or limiting alcohol; avoiding or limiting caffeine; managing stress; self-care and self-monitoring symptoms; getting adequate rest; seeking support; and avoiding influenza and pneumonia with vaccinations.

? How will I know if my diuretic treatment is effective?

If the patient does not observe weight gain, increasing oedema, or dyspnoea, it means that diuretic treatment is effective. Inform your patient that the effectiveness of treatment can be determined by fluid balance. In addition, daily weight measurements and controlling fluid intake will be helpful to assess the effectiveness of the medications. If your patient observes an increase in body mass, the appearance of oedema, or an increase in abdominal circumference, this will indicate fluid retention, and diuretic treatment should be modified. In such a situation, the patient should ask their doctor or nurse how he or she can modify their medication doses to control their body mass.

? How will my heart failure affect everyday activities such as having sex, exercising, housework or looking after my grandchildren?

If a patient with HF adheres to all treatment recommendations and conducts systematic self-monitoring and self-care, they will probably be able to carry out everyday life activities.

? Are there any activities that I should avoid?

Physical activity in stable chronic HF is not contraindicated (unless otherwise instructed by the treating physician) and patients with HF feel better when they stay active. If the patient has severe HF, extreme exertion is not recommended. Patients with HF should avoid significant exertion that requires heavy lifting, such as moving heavy furniture, pushing a car and carrying a heavy suitcase. Additionally, it is important to remember that any activity in which breathing is held can be dangerous (e.g. sneezing or pushing while passing stool). If a patient feels unwell or has present symptoms (e.g. palpitations, chest pain or dizziness), they should never undertake physical activity.

? What can I do to reduce my stress and anxiety?

The patient should try to schedule 15–20 minutes each day so that they can sit quietly, breathe deeply and think of a peaceful scene. If possible, they should try participating in a yoga or meditation class (always consult a doctor before taking a strenuous yoga class). To reduce stress, the patient could, for example, count to 10 before reacting to a stressful situation. It is important that the patient stays active every day as this can also help reduce stress and anxiety.

? How serious and severe is my heart failure?

Patients should be aware that HF is a chronic disease that needs lifelong management and that tends to get gradually worse over time. HF often develops after other conditions have damaged or weakened the patient's heart. EF is an important measure of the efficiency of the heart pumping blood, and is used to classify HF and as a guide for treatment. Good management (treatment) can allow the control of symptoms for many years, which helps to slow down the progression of the condition.

? Will I continue to feel breathless after I leave hospital?

After the patient is discharged from the hospital, HF symptoms should resolve or be minimized to the point of facilitating daily functioning. The patient should be given a management plan (guide) to help them to maintain self-care at home. This plan should include clear instructions for the patient and caregivers on how to proceed when new signs or symptoms appear. Monitoring symptoms at home can be based on three zones (green, yellow, red) that indicate when and how to recognize the worsening of symptoms.

? How might my illness affect my family and my relationships?

Patients with HF must not only cope with the physical limitations associated with HF, but also with emotional problems that can affect their lives and those closest to them. The presence of a chronic illness may initially trigger feelings of anxiety, anger or depression. These feelings may be shared to a greater or lesser extent by family members and friends. The first step to dealing with these feelings will be for the patient to begin accepting their illness, taking care of their health and making lifestyle changes. Remember that the family can play a key role in supporting the patient to live as active a life as possible with HF. The family should actively participate in the treatment process (e.g. help with self-management and treatment regimen) so as to provide emotional support to the patient. The patient and family can do many activities together, such as active family outings or preparing meals together. The patient should show the family that he or she accepts their help, but may want to maintain as much independence as possible. If the patient and family require, help them to contact a mental health specialist such as a psychologist.

9.2. Hospital discharge checklist

Hospital discharge checklists are recommended for all patients hospitalized for HF. The following list is intended to support the education of patients about managing their HF. This checklist is not a substitute for individual clinical assessment. Please complete all fields.

Hospital discharge checklist for patients with HF

Patient's name

Cause of heart failure

Hospital/department

Date of admission

Date of discharge

Primary care physician

Heart failure nurse

Follow-up visits(s) (date/location)

I confirm that the following issues were presented to my patient:

| | YES | NO | If NO, give reason |
|---|-----|----|-----------------------|
| Epidemiology, definition and causes of HF | | | |
| Symptoms of HF | | | |
| Factors that exacerbate symptoms of decompensated HF | | | |
| How HF is diagnosed | | | |
| Medications for treating HF | | | |
| Recommendations, uses, dosage and side effects of medications for treating HF | | | |
| Non-pharmacological methods for treating HF | | | |
| Invasive surgical procedures for treating HF (circulatory support pumps, heart transplantation) | | | |
| Implantable devices | | | |
| Food and drink and weight | | | |
| Exercise | | | |
| Sexual activity | | | |
| Travel and leisure activities | | | |
| Sleep optimization | | | |
| Mental state (psychological problems, special situations) | | | |
| Vaccination and preventing infections | | | |
| Smoking and stimulants | | | |
| The importance of self-monitoring symptoms (measuring and recording heart rate, blood pressure, weight, appetite, mood) | | | |
| The use of zones (red, yellow, green) to help respond appropriately to worrying HF symptoms | | | |

Suggested topics to discuss with your patients before they leave hospital

- How to do a daily health assessment using three zones (red, yellow or green).
- How to monitor body weight, blood pressure and heart rate daily (instructions for keeping an observation sheet for patients with HF).
- The importance of regular exercise.
- Whether they need to restrict their fluid intake.
- The importance of following a sodium-restricted diet (individualized sodium restriction/day).
- How to take their medications and possible side effects to look for.
- Whether they need support stopping smoking.
- Whether they are at risk of sudden cardiac death and need a pacemaker.
- Whether they need a consultation with a dietitian or counselling for weight loss.
- The importance of attending follow-up appointments.
- Whether they have previously undergone or had a referral for cardiac rehabilitation.
- How family members can actively participate in their treatment process.

9.3. Patient education checklist

Patient education checklist

Patient's name

Meeting number

Date

My patient...

YES

NO

1. Heart failure background information

1.1. Knows and understands what HF is
(understands how a healthy heart works and how the heart of a patient with HF works)

1.2. Knows and understands what cardiovascular decompensation is

1.3. Knows and understands the causes of HF

1.4. Knows and understands the symptoms of HF

1.5. Knows and understands the things that can make symptoms worse

1.6. Understands how HF progresses

1.7. Knows what diagnostic tests are used to diagnose HF
(knows the importance of each diagnostic test and how to prepare for them)

1.8. Knows about pharmacological treatments for HF
(knows what drugs he/she is taking, why he/she is taking them, the dosage schedule of the drugs, understands the importance of taking the drugs as prescribed and can recognize any adverse effects associated with the drugs)

1.9. Knows about non-pharmacological treatments for HF

1.10. Knows about implantable devices used in the treatment of HF

| My patient... | | YES | NO |
|---|--|-----|----|
| 2. Self-care and self-management in HF | | | |
| 2.1. | Has signified his/her readiness to undertake particular lifestyle, self-care and self-management activities | | |
| 2.2. | Understands and can act on issues relating to maintaining a healthy diet <i>(maintaining a healthy body weight, monitoring body weight and appetite, preventing malnutrition, avoiding excessive salt intake, avoiding excessive fluid intake and adjusting fluid intake based on severity of symptoms or temperature and humidity, reducing or avoiding alcohol)</i> | | |
| 2.3. | Understands and can act on issues relating to exercise <i>(types of exercise recommended, how to prepare for exercise, whether it is safe to engage in physical activity, possible harms of exercise, when to stop physical activity)</i> | | |
| 2.4. | Understands and can act on issues relating to sexual activity <i>(recognizing how HF and some HF medications can affect sexual activity)</i> | | |
| 2.5. | Understands and can act on issues relating to medication(s) <i>(indications, dosage, benefits, recognizing and managing adverse reactions to medications, drug interactions, medications that should not be taken by patients with HF)</i> | | |
| 2.6. | Understands and can act on issues relating to well-being and mental health <i>(psychologists or psychiatrist)</i> | | |
| 2.7. | Understands and can act on sleep problems <i>(recognition of sleep problems, their relationship to HF, principles of sleep optimization)</i> | | |
| 2.8. | Understands and can act on issues relating to travel and leisure <i>(planning travel and leisure activities based on physical fitness, monitoring and adjusting fluid intake according to humidity, awareness of adverse reactions to sunlight when taking certain medications, effects of high altitudes on blood oxygenation, need to pack medications in carry-on luggage, having a medication and dosage list with generic names)</i> | | |
| 2.9. | Understands and can act on issues relating to vaccinations <i>(influenza, pneumococcal, COVID-19 vaccination)</i> | | |
| 2.10. | Understands and can act on issues relating to smoking, drugs and alcohol <i>(stopping smoking, stopping use of stimulants and psychoactive drugs)</i> | | |

| My patient... | | YES | NO |
|---|--|-----|----|
| 2.11. | Understands and can act on issues relating to self-care monitoring (<i>read, record and interpret results of daily measurements of heart rate, blood pressure, weight, appetite and mood, guidance for keeping a self-monitoring diary, when to consult a doctor or nurse</i>) | | |
| 2.12. | Understands and can act on issues relating to self-care management (<i>respond appropriately when symptoms of HF appear or worsen, when to consult a doctor or nurse</i>) | | |
| 3. Social support | | | |
| 3.1. | Can count on support with their condition from their family, partner or caregiver | | |
| 4. Communication with the multidisciplinary team | | | |
| 4.1. | Knows the members of his/her therapeutic/support team | | |
| 4.2. | Knows when and how to contact their doctor or nurse | | |
| 5. Difficult situations | | | |
| 5.1. | Can recognize a lowering of mood or depression | | |
| 5.2. | Can recognize feelings of anxiety | | |
| 5.3. | Can recognize cognitive disorders | | |
| 5.4. | Can recognize an exacerbation of their disease or symptoms | | |
| 5.5. | Can recognize advanced HF | | |

9.4. Heart failure nurse training checklist

Heart failure nurse training checklist

Name of trainer

Training venue

Date

The training included...

YES

NO

1. HF and HF nursing

1.1. Epidemiology of HF

1.2. Rehospitalizations in HF (causes, consequences)

1.3. Impact of HF on patients' quality of life

1.4. Challenges in the care of patients with HF

1.5. The role of multidisciplinary care in HF

2. HF clinical background

2.1. Definition of HF

2.2. Causes of HF

2.3. Grading of HF

2.4. Symptoms of HF

2.5. Diagnosis of HF

2.6. Triggers of symptoms and signs

2.7. Diagnostic algorithm for HF

2.8. Pharmacological treatment of HF

2.9. Non-pharmacological treatment of HF

2.10. Comorbidities

2.11. Implantable devices

2.12. Surgical and invasive procedures

2.13. Management of acute HF

| The training included... | | YES | NO |
|--|---|-----|----|
| 3. Leadership in HF nursing | | | |
| 3.1. | The importance of care provided by specialist nurses to patients with HF | | |
| 3.2. | The role of the HF nurse in the multidisciplinary team | | |
| 4. Patient self-care in HF management | | | |
| 4.1. | Diet, nutrition and weight | | |
| 4.2. | Exercise and physical activity | | |
| 4.3. | Sexual activity | | |
| 4.4. | Issues related to pharmacological compliance | | |
| 4.5. | Issues related to the monitoring of adverse drug reactions | | |
| 4.6. | Mental health | | |
| 4.7. | Sleep optimization | | |
| 4.8. | Travel and leisure | | |
| 4.9. | Vaccination and preventing infections | | |
| 4.10. | Tobacco and stimulant cessation | | |
| 4.11. | Self-care monitoring (monitoring symptoms, measuring and recording heart rate, blood pressure, weight, appetite, mood), the three zones (red, yellow and green) | | |
| 4.12. | Self-care maintenance (when and how to react when symptoms worsen) | | |
| 5. Role of family and caregivers in HF management | | | |
| 5.1. | The role of family/caregivers in the care of patients with HF | | |
| 5.2. | The pros and cons of involving family/caregivers in the care of patients with HF | | |

| The training included... | | YES | NO |
|--|---|-----|----|
| 6. Communication in HF nursing | | | |
| 6.1. | Relationship between patient and health professionals | | |
| 6.2. | Empathy as an essential element of good communication | | |
| 6.3. | Communication as part of good patient–nurse relationships | | |
| 6.4. | Communication and the emergence of errors in patient care | | |
| 6.5. | Communicating distressing information to the patient | | |
| 6.6. | Communicating changes in treatment and disease trajectory | | |
| 6.7. | Communicating with patients with terminal HF | | |
| 7. Patient education in HF nursing | | | |
| 7.1. | Determining a patient's readiness to make lifestyle changes and to undertake self-management and self-care activities | | |
| 7.2. | SMART strategy | | |
| 8. Palliative care | | | |
| 8.1. | Palliative care in HF | | |
| 8.2. | Palliative care and the trajectory of illness | | |
| 8.3. | Palliative care and coping strategies in the nurse/doctor/family/caregivers | | |
| 8.4. | Clinical recommendations for palliative care in HF | | |
| 9. Frequently asked questions from patients | | | |
| 9.1. | Examples of questions asked by patients to the HF nurse | | |



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STEP-ONE in HF



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