

Table 1. Definition and Classification of Heart Failure**ACCF/AHA 2022 GL on HF. Classification of HF by LVEF**

Type of HF According to LVEF	Criteria
HFrEF (HF with reduced EF)	LVEF $\leq$ 40%
HFimpEF (HF with improved EF)	Previous LVEF $\leq$ 40% and a follow-up measurement of LVEF $>$ 40%
HFmrEF (HF with mildly reduced EF)	LVEF 41%–49% Evidence of spontaneous or provokable increased LV filling pressures (eg, elevated natriuretic peptide, noninvasive and invasive hemodynamic measurement)
HFpEF (HF with preserved EF)	LVEF $\geq$ 50% Evidence of spontaneous or provokable increased LV filling pressures (eg, elevated natriuretic peptide, noninvasive and invasive hemodynamic measurement)

Proposed Universal Classification of HF by Cause

Pathogenic Group	Specific Examples
Ischemic cardiomyopathy	Ischemic heart disease, myocardial infarction, coronary artery disease
Hypertensive cardiomyopathy	Hypertensive heart disease
Valvular cardiomyopathy	Structural valve disease: calcific aortic valve disease, degenerative mitral valve disease, other nonrheumatic and congenital valvular diseases, rheumatic heart disease
Arrhythmia-related cardiomyopathy	Atrial fibrillation (uncontrolled), tachycardia, dyssynchrony, or premature ventricular contraction-induced cardiomyopathy, right ventricular pacing-induced cardiomyopathy, desmoplakin
Infiltrative cardiomyopathy	Cardiac amyloidosis, hemochromatosis, Fabry disease, glycogen storage disease, neoplastic/cancer-related infiltration
Infective cardiomyopathy	Viral myocarditis, Chagas disease, HIV, Lyme disease
Inflammatory cardiomyopathy	Autoimmune disease, sarcoidosis, hypersensitivity, desmoplakin
Toxic cardiomyopathy	Medication-induced cardiotoxicity, substance use disorders, for example, alcohol, cocaine, amphetamine
Heritable cardiomyopathy	Hypertrophic cardiomyopathy, dilated cardiomyopathy, restrictive cardiomyopathy, arrhythmogenic cardiomyopathy, nondilated left ventricular cardiomyopathy
Pericardial disease	Constrictive and restrictive pericarditis
Metabolic disease and nutritional deficiency-associated cardiomyopathy	Obesity; diabetes; endocrine disorders, for example, thyroid disease; nutritional disease, for example, thiamine, vitamin B ₁₂ , and selenium deficiencies; inborn errors of metabolism
Pregnancy-related cardiomyopathy	Peripartum cardiomyopathy
Stress-induced cardiomyopathy	Takotsubo cardiomyopathy
Pulmonary/right-sided heart disease	Chronic obstructive pulmonary disease, interstitial lung disease, coal workers' pneumoconiosis, silicosis, asbestosis, other pneumoconiosis, pulmonary arterial hypertension
Congenital cardiomyopathy	Systemic right ventricular failure, Fontan circulation, repaired tetralogy of Fallot
High-output mediated cardiomyopathy	Hemoglobinopathies, hemolytic anemias, atrioventricular malformations, endocrine causes (eg, pheochromocytoma)
Other causes	Other cardiovascular and systemic disorders, for example, neuromuscular disease, endomyocardial fibrosis, Loeffler endocarditis
Idiopathic	Idiopathic cardiomyopathy

HF indicates heart failure.

AHA/ACC/ESC/WHF Expert Consensus Document: Second Universal Definition of Heart Failure (2026). *J Am Coll Cardiol*. 2026.

Table 2. New York Heart Association functional classification based on severity of symptoms and physical activity

Class I No limitation of physical activity. Ordinary physical activity does not cause undue breathlessness, fatigue, or palpitations.

Class II Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in undue breathlessness, fatigue, or palpitations.

Class III Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity results undue breathlessness, fatigue, or palpitations.

Class IV Unable to carry on any physical activity without discomfort. Symptoms at rest can be present. If any physical activity is undertaken, discomfort is increased.

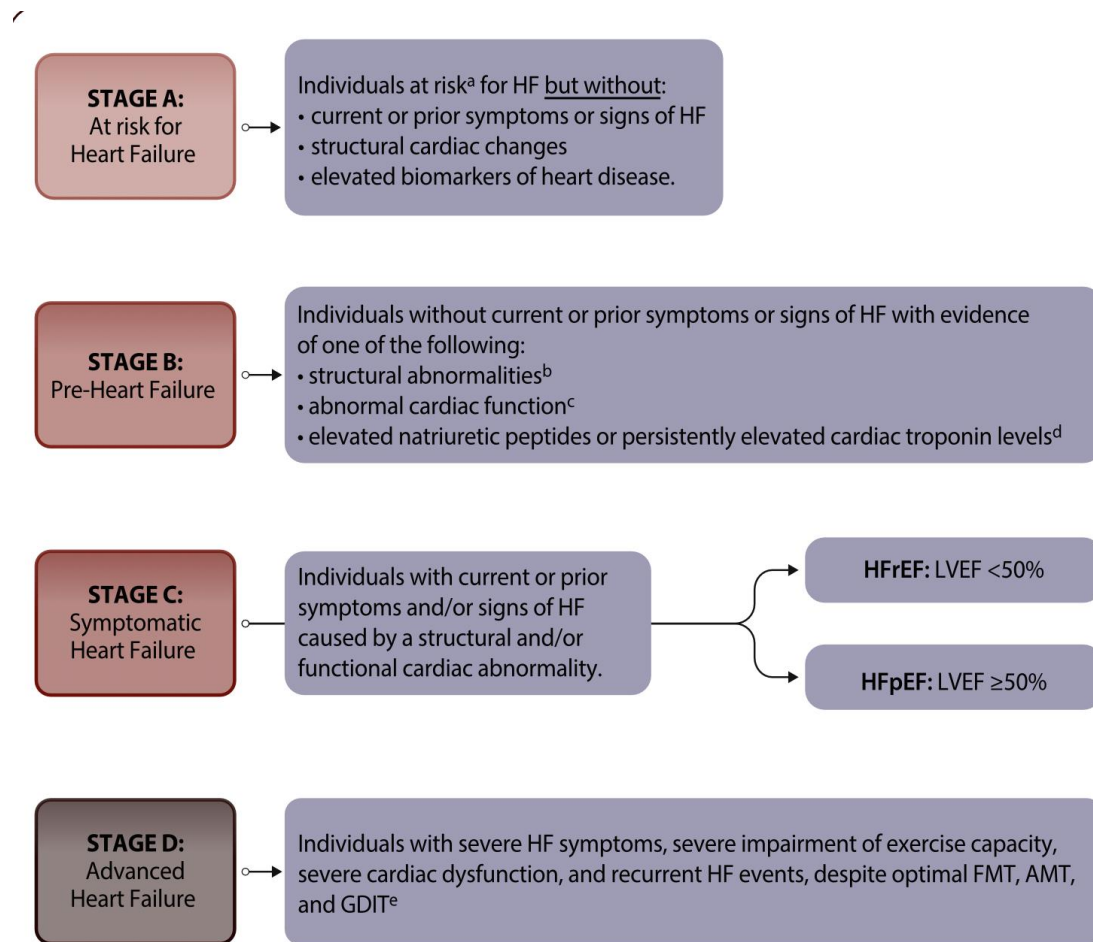


Figure 1. ESC 2026 GL on HF. Heart failure stages and classifications.

MT, additional medical therapy; FMT, foundational medical therapy; GDIT, guideline-directed interventional therapy; HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; LVEF, left ventricular ejection fraction. aSee section 4.1. Not all will develop HF, but risk factor intervention may be warranted. bFor example, left ventricular hypertrophy, cardiac chamber enlargement, ventricular wall motion abnormality, myocardial tissue abnormality (e.g. evidence of myocardial oedema, scar/fibrosis abnormality by T2-weighted cardiac magnetic resonance imaging or late gadolinium enhancement imaging), valvular heart disease. cFor example, reduced left or right ventricular systolic function, evidence of increased filling pressures (by invasive or non-invasive measures), abnormal diastolic function. dEspecially in the setting of exposure to cardiotoxins.

Table 3. ACCF/AHA 2022 GL on HF. Stages of HF.

Stages	Definition and Criteria
Stage A: At Risk for HF	At risk for HF but without symptoms, structural heart disease, or cardiac biomarkers of stretch or injury (eg, patients with hypertension, atherosclerotic CVD, diabetes, metabolic syndrome and obesity, exposure to cardiotoxic agents, genetic variant for cardiomyopathy, or positive family history of cardiomyopathy).
Stage B: Pre-HF	No symptoms or signs of HF and evidence of 1 of the following: <i>Structural heart disease*</i> - Reduced left or right ventricular systolic function - Reduced ejection fraction, reduced strain - Ventricular hypertrophy - Chamber enlargement - Wall motion abnormalities - Valvular heart disease <i>Evidence for increased filling pressures*</i> - By invasive hemodynamic measurements - By noninvasive imaging suggesting elevated filling pressures (eg, Doppler echocardiography) <i>Patients with risk factors and</i> <i>Increased levels of BNP*s* or</i> <i>Persistently elevated cardiac troponin</i> in the absence of competing diagnoses resulting in such biomarker elevations such as acute coronary syndrome, CKD, pulmonary embolus, or myopericarditis
Stage C: Symptomatic HF	Structural heart disease with current or previous symptoms of HF.
Stage D: Advanced HF	Marked HF symptoms that interfere with daily life and with recurrent hospitalizations despite attempts to optimize GDMT.

BNP indicates B-type natriuretic peptide; CKD, chronic kidney disease; CVD, cardiovascular disease; GDMT, guideline-directed medical therapy; and HF, heart failure.

New Onset/De Novo HF:	Resolution of Symptoms:	Persistent HF:	Worsening HF:		
- Newly diagnosed HF - No previous history of HF	Resolution of symptoms/ signs of HF <table><tr><td>Stage C with previous symptoms of HF with persistent LV dysfunction</td><td>HF in remission with resolution of previous structural and/or functional heart disease*</td></tr></table>	Stage C with previous symptoms of HF with persistent LV dysfunction	HF in remission with resolution of previous structural and/or functional heart disease*	Persistent HF with ongoing symptoms/signs and/or limited functional capacity	Worsening symptoms/ signs/functional capacity
Stage C with previous symptoms of HF with persistent LV dysfunction	HF in remission with resolution of previous structural and/or functional heart disease*				

Figure 2. ACCF/AHA 2022 GL on HF. Trajectory of Stage C HF.

The trajectory of stage C HF is displayed. Patients whose symptoms and signs of HF are resolved are still stage C and should be treated accordingly. If all HF symptoms, signs, and structural abnormalities resolve, the patient is considered to have HF in remission.

HF indicates heart failure; and LV, left ventricular.

*Full resolution of structural and functional cardiac abnormalities is uncommon.

Table 4. Aetiology of Heart Failure.

Figure 1. ESC 2026 GL on HF. Major contributing causes of heart failure with reduced ejection fraction. HFrEF, heart failure with reduced ejection fraction.

aToxic may include both drug-related and chemotherapy-related causes.

ACCF/AHA 2022 GL on HF. Other Potential Nonischemic Causes of HF

Chemotherapy and other cardiotoxic medications
Rheumatologic or autoimmune
Endocrine or metabolic (thyroid, acromegaly, pheochromocytoma, diabetes, obesity)
Familial cardiomyopathy or inherited and genetic heart disease
Heart rhythm-related (eg, tachycardia-mediated, PVCs, RV pacing)
Hypertension
Infiltrative cardiac disease (eg, amyloid, sarcoid, hemochromatosis)
Myocarditis (infectious, toxin or medication, immunological, hypersensitivity)
Peripartum cardiomyopathy
Stress cardiomyopathy (Takotsubo)
Substance abuse (eg, alcohol, cocaine, methamphetamine)

HF indicates heart failure; PVC, premature ventricular contraction; and RV, right ventricular.

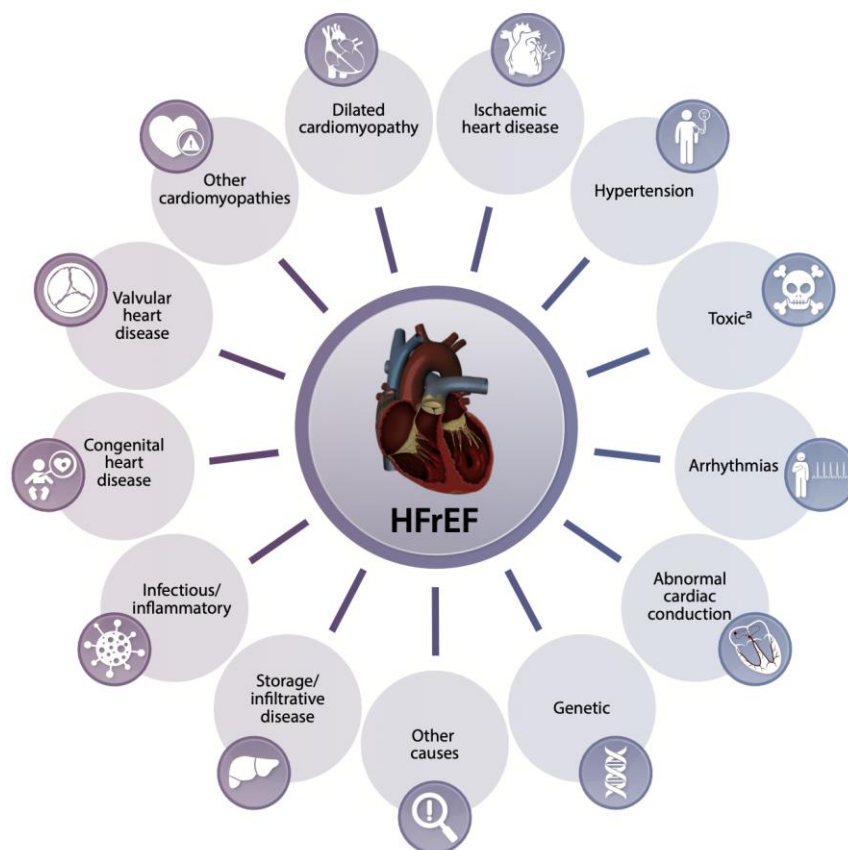


Figure 3. ESC 2026 GL on HF. Major contributing causes of heart failure with reduced ejection fraction. HFrEF, heart failure with reduced ejection fraction.

^a Toxic may include both drug-related and chemotherapy-related causes.

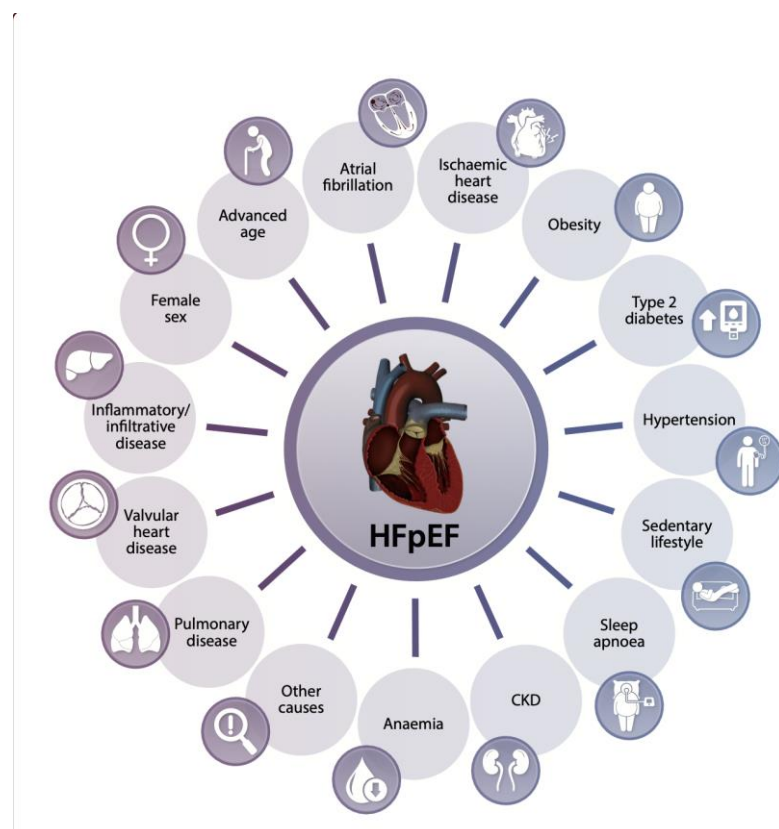


Figure 4. ESC 2026 GL on HF. Major risk factors of heart failure with preserved ejection fraction.

CKD, chronic kidney disease; HFpEF, heart failure with preserved ejection fraction.

Table 5. Classification of Cardiorenal Syndrome (CRS) Based on the Consensus Conference of the Acute Dialysis Quality Initiative

Phenotype	Nomenclature	Description	Clinical Examples
Type 1 CRS	Acute CRS	HF resulting in AKI	ACS resulting in cardiogenic shock and AKI, AHF resulting in AKI
Type 2 CRS	Chronic CRS	Chronic HF resulting in CKD	Chronic HF
Type 3 CRS	Acute renocardiac syndrome	AKI resulting in AHF	HF in the setting of AKI from volume overload, inflammatory surge, and metabolic disturbances in uremia
Type 4 CRS	Chronic renocardiac syndrome	CKD resulting in chronic HF	LVH and HF from CKD-associated cardiomyopathy
Type 5 CRS	Secondary CRS	Systemic process resulting in HF and kidney failure	Amyloidosis, sepsis, cirrhosis

ACS indicates acute coronary syndrome; AHF, acute heart failure; AKI, acute kidney injury; CKD, chronic kidney disease; CRS, cardiorenal syndrome; HF, heart failure; and LVH, left ventricular hypertrophy.

Rangaswami J, et al. Cardiorenal Syndrome: Classification, Pathophysiology, Diagnosis, and Treatment Strategies: A Scientific Statement From the American Heart Association. *Circulation*. 2019:CIR0000000000000664.

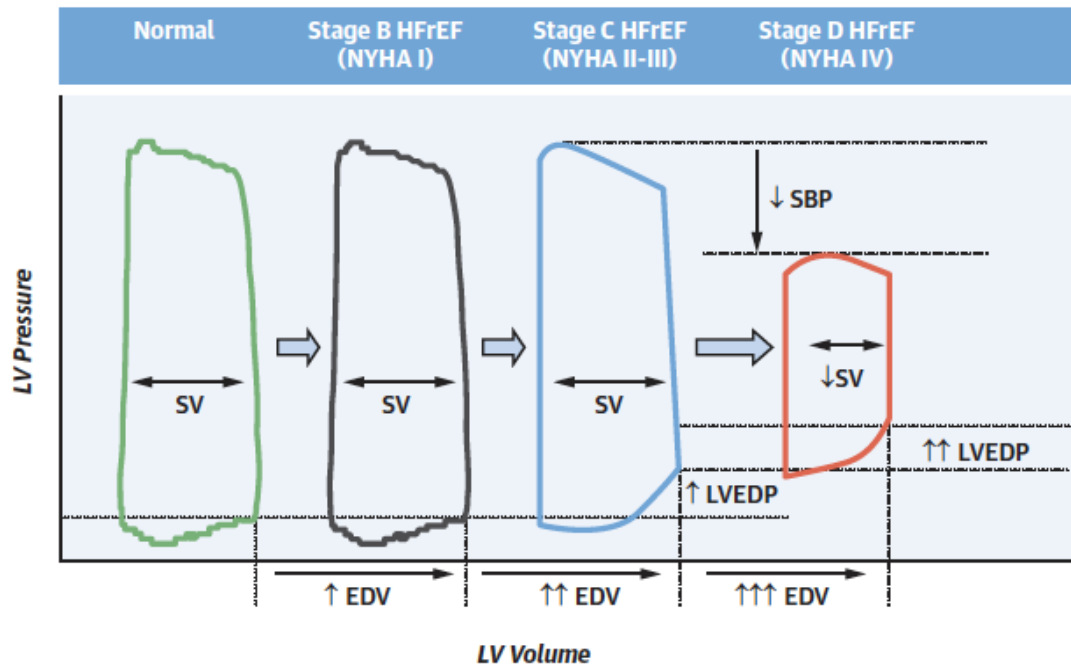


Figure 5. Typical course of heart failure (HF), evolving from normal status to asymptomatic left ventricular (LV) dysfunction with elevated LV end-diastolic volume (EDV) and normal filling pressures, to symptomatic stage with elevated LV end-diastolic pressure (LVEDP) but still normal systemic blood pressure and stroke volume (SV), and finally to advanced disease with severely enlarged left ventricle, severely elevated filling pressures, and decreased systemic pressure and SV (low cardiac output).

HFrEF . heart failure with reduced ejection fraction; NYHA . New York Heart Association.

Guglin M and al. e. Evaluation for Heart Transplantation and LVAD Implantation. *JACC*. 2020.