



The heart, diagnosis, symptoms and considerations  
**Coronary Heart Disease/Heart Failure**  
 Sarah Hubball RN, BSc (Hons), PgCert NMP, MSc (Hons), ACP  
 Cardiac Lead Nurse/Heart Failure Nurse  
 Specialist  
 Professional Nurse Advocate  
 RCN Steward/Rep

Oxleas NHS  
 Improving lives

oxleas.nhs.uk

1

---

---

---


---

---

---

---

---



**Learning outcomes**

- Anatomy and Physiology
- Coronary artery disease
- Medication for Coronary Artery Disease
- Heart Failure
- Diagnosis
- Medications
- Palliative/end of life considerations
- Other considerations

27 May, 2025

we're kind we're fair we listen we care

2

2

---

---

---


---

---

---

---

---



**The Heart**

**Gross Anatomy of the Heart**

**Anterior view**

Brachiocephalic trunk  
 Superior vena cava  
 Right pulmonary artery  
 Ascending aorta  
 Pulmonary trunk  
 Right pulmonary veins  
 Right atrium  
 Right coronary artery (in coronary sulcus)  
 Right ventricle  
 Inferior vena cava  
 Left common carotid artery  
 Left subclavian artery  
 Aortic arch  
 Ligamentum arteriosum  
 Left pulmonary artery  
 Left pulmonary veins  
 Atrium of left atrium  
 Circumflex artery  
 Left coronary artery (in coronary sulcus)  
 Left ventricle  
 Anterior interventricular artery (in anterior interventricular sulcus)  
 Apex

Brachiocephalic trunk  
 Superior vena cava  
 Right pulmonary artery  
 Pulmonary valve  
 Interventricular septum  
 Pulmonary veins  
 Right atrium  
 Tricuspid valve  
 Right ventricle  
 Inferior vena cava  
 Papillary muscles  
 Left common carotid artery  
 Left subclavian artery  
 Aortic arch  
 Left pulmonary artery  
 Pulmonary valve  
 Left atrium  
 Aortic valve  
 Mitral valve  
 Interventricular septum  
 Papillary muscles  
 Left ventricle  
 Interventricular septum  
 Endocardium  
 Pericardial space  
 Pericardium  
 Descending aorta  
 Esophagus  
 Pancreas  
 Duodenum

Figure 3.7 Atria and ventricles.

27 May, 2025

we're kind we're fair we listen we care

3

3

---

---

---

---

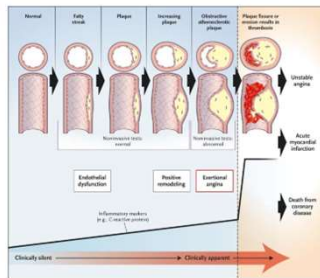
---

---

---

---

### Coronary arteries



27 May, 2025

4

4

### Angina Vs. Myocardial Infarction



- No heart muscle damage-No troponin rise
- Heart muscle damage-Troponin release

27 May, 2025

5

5

### Terminology

- Acute Coronary Syndrome
- NSTEMI
- STEMI
- **Cardiac Arrest**
- Stable Angina
- Unstable Angina
- Ischaemic Heart Disease
- Atherosclerosis
- Coronary Artery Disease

27 May, 2025

6

6

### Cardiac Risk Factors

- Modifiable:
  - Obesity
  - Hypercholesterolaemia
  - Lack of cardiovascular exercise
  - Hypertension
  - Diabetes
  - Smoking
- Stress/Alcohol

- Non-Modifiable:
  - Increasing age
  - Gender
  - Ethnicity
  - Premature IHD
  - Type 1 Diabetes

27 May, 2025

7

7

---

---

---

---

---

---

---

### Symptoms

- Heavy
- Aching
- Tight
- Sharp
- Stabbing
- Like a band
- **Bra too tight**
- Short of breath
- **Toothache**
- **Jaw ache**
- Neck ache
- Shoulder pain

Stomach ache

Nausea

Vomiting

Diarrhoea

Dizzy/Light headed

Loss of consciousness

**Indigestion/Heart Burn**

Pulled a muscle

Epigastric pain

Short of breath

Productive cough

Swollen legs

Tiredness

Hypertension

Palpitations

Back ache

**Impending doom**

Sweating

Pallor/grey

**Erectile Dysfunction**

**No symptoms!**

27 May, 2025

8

8

---

---

---

---

---

---

---

### Management/Treatment

- Early recognition/identification
- MONA (Monitor, Oxygen, Nitrates, Analgesia)
- GTN Spray/Aspirin
- Keep calm
- GP, 999, 111
- Cardiac Investigation/Treatment
- Medication
- Secondary Prevention/Cardiac Rehabilitation

27 May, 2025

9

9

---

---

---

---

---

---

---

### Cardiac Investigation

- Comprehensive history
- ECG/BP/HR
- Troponin/bloods
- CT Coronary Angiogram
- Coronary Angiogram
- Stress perfusion scan
- Cardiac MRI
- Cardiac Stress MRI

### Cardiac Treatment

- Pain relief
- Primary Coronary Angioplasty/Coronary Angioplasty/Staged procedure
- Shockwave/rotablation/thrombectomy/Drug Eluting Stents
- CABG (Open heart/on pump/off pump/minimal invasive)
- Medical management
- Cardiac Rehabilitation

27 May, 2025

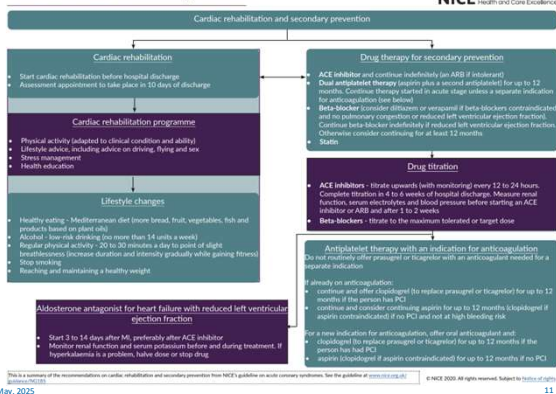
10

10

## Cardiac Rehabilitation

Cardiac rehabilitation and secondary prevention

NICE National Institute for Health and Care Excellence



11

### Secondary prevention of coronary artery disease:

#### Prevention of further cardiac events in patients with clinically proven cardiovascular disease

##### Stable angina

- Aspirin 75mg once daily (or alternative)
- ACE Inhibitors (ARB) for patients with diabetes
- Statin therapy
- Hypertension therapy

##### Acute Coronary Syndromes

- Dual anti-platelet therapy (PCI or medical management)
- ACE Inhibitors
- Beta-blocker
- Statin therapy

12

12

### Symptom control

- Up-titrate medication
- Stable angina offer a beta-blocker or calcium channel blocker in the first instance
- Other anti-anginal treatments
  - GTN Spray/tablets
  - Long acting nitrates
  - Ivabradine
  - Nicorandil
  - Ranolazine

27 May, 2025

13

13

---

---

---

---

---

---

---

---

### Complications

- Sudden Cardiac Death (Cardiogenic shock, cardiac arrest)
- Co-morbidities
- Fear/anxiety
- On-going symptoms
- Valve disease
- Heart Failure

27 May, 2025

14

14

---

---

---

---

---

---

---

---

### Heart Failure

- "Heart failure is not a single pathological diagnosis, but a clinical syndrome consisting of cardinal symptoms (e.g. breathlessness, ankle swelling, and fatigue) that may be accompanied by signs (e.g. elevated jugular venous pressure, pulmonary crackles, and peripheral oedema). It is due to a structural and/or functional abnormality of the heart that results in elevated intracardiac pressures and/or inadequate cardiac output at rest and/or during exercise". (ESC 2021)
- Heart failure is the final common pathway for almost every cardiovascular disease, irrespective of age. It affects 1% to 2% of the UK population, with prevalence increasing to around 20% in those over 80 years of age (NHS England 2023)

27 May, 2025

15

15

---

---

---

---

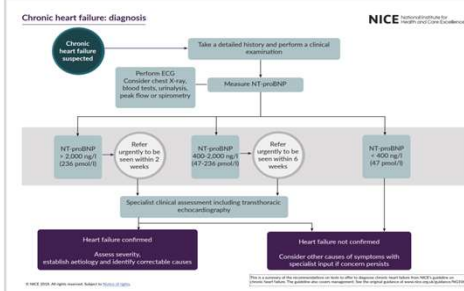
---

---

---

---

## Diagnosis



27 May, 2025

16

16

## Identify the cause

- Myocardial Infarction
- Hypertension
- Infection/inflammation/sepsis
- Valvular disease
- Ethnicity
- Diabetes
- Renal disease
- Arrhythmias
- Alcohol/drug abuse
- Pregnancy
- Anaemia
- Thyrotoxicosis
- Liver Failure
- Thiamine Deficiency
- Pericarditis
- Infiltrative (for example sarcoidosis, amyloidosis, haemochromatosis, connective tissue disease)
- Immune-mediated (for example autoimmune)
- Familial
- Congenital
- Chemotherapy/radiotherapy

27 May, 2025

17

17

## Right Vs. Left Sided Heart Failure

<https://youtu.be/CYr4n5KJ-yw>

### RIGHT SIDED FAILURE

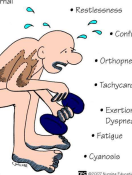
(Cor Pulmonale)

- Fatigue
- ↑ Peripheral Venous Pressure
- Ascites
- Enlarged Liver & Spleen
- May be secondary to chronic pulmonary problems
- Distended Jugular Veins
- Anorexia & Complaints of GI Distress
- Weight Gain
- Dependent Edema



### LEFT SIDED FAILURE

- Paroxysmal Nocturnal Dyspnoea
- Elevated Pulmonary Capillary Wedge Pressure
- Pulmonary Congestion
  - Cough
  - Crackles
  - Wheezes
  - Blood-Tinged Sputum
  - Tachypnoea
- Restlessness
- Confusion
- Orthopnoea
- Tachycardia
- Exertional Dyspnoea
- Fatigue
- Cyanosis



27 May, 2025

18

18

## Symptoms

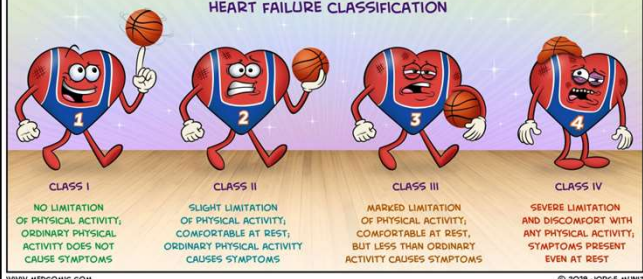
- Shortness of breath/dyspnoea
- Increased work of breathing
- PND
- Pulmonary oedema/persistent cough
- Peripheral oedema (Legs, hands, abdominal, sacral, genital)
- Chest pain/discomfort (if known ischaemic history)
- Dizziness
- Palpitations
- Loss of appetite/nausea
- Fatigue
- Pallor
- Sweating/clammy
- Fear/depression/anxiety
- Cognitive impairment
- Insomnia

27 May, 2025

19

19

## NEW YORK HEART ASSOCIATION (NYHA) HEART FAILURE CLASSIFICATION



## NYHA Classification

27 May 2025

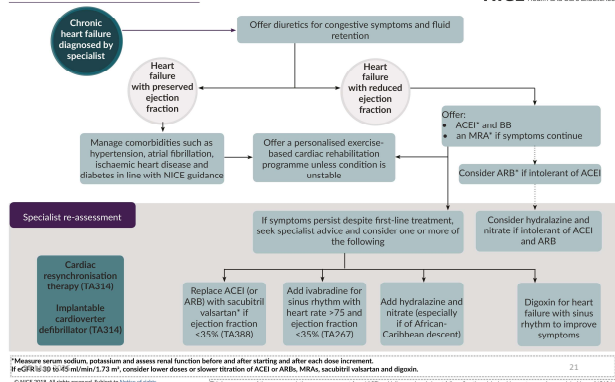
20

20

## Heart Failure Management

### Chronic heart failure: management

NICE National Institute for Health and Care Excellence



21

21

## Medications

- Determine cause of heart failure to aid with medical management of the condition.
- Offer to all patients:
  - ACE Inhibitor/Sacubitril with Valsartan
  - Beta-blocker
  - Mineralcorticoid receptor antagonists
  - SGLT-2 Inhibitors (Dapagliflozin)
- Consider management and treatment of:
  - Fluid retention (Diuretics)
  - Atrial Fibrillation (Anticoagulation, rate control)
  - Ventricular arrhythmias (Antiarrhythmics, rate control, cardiac devices)

27 May, 2025 22

22

## Interventional Cardiology

- Coronary Angiogram/angioplasty
- Cardiac MRI
- Echocardiogram
- Cardiac Stress MRI
- Stress Echocardiogram
- Contrast Echocardiogram (to check for blood clots)
- Heart Transplantation
- Cardiac Devices
- Pacemakers
- ICDs (Internal Cardio Defibrillators)
- CRT-P (Cardiac Resynchronization-Pacemaker)
- CRT-D (Cardiac Resynchronization-Defibrillator)

27 May, 2025

23

23

## Care of the heart failure patient

- Patient education/self-management
- Symptom management
- Medication Optimisation
- Medication compliance
- Renal function (Potassium levels)
- Blood pressure/Heart Rate
- Do not stop prognostic medications without discussion with HF Nurse/Specialist Consultant
- Be aware of what type of device an individual has: Remote monitoring/taking an ECG/Cardiac Arrest Situations/Mobile Phones
- Be realistic: Heart Failure as a Long Term Condition, progressive illness

27 May, 2025

24

24



### Heart Failure Prognosis

- Survival for people with end-stage heart failure is poor. Despite optimal medical management (including cardiac re-synchronization therapy), **only 65% of patients in New York Heart Association (NYHA) class IV are alive at an average follow up of 17 months** [BMJ Best Practice, 2021].
- About 50% of people with heart failure die within 5 years of diagnosis** [Yancy, 2017].
- A UK population-based cohort in this study — 1, 5, and 10 year survival rates were 80.8%, 48.2%, and 26.2%. Taylor, 2019].
- Prognosis can be difficult to estimate for a person because heart failure often has an unpredictable trajectory**, with stable periods interrupted by episodic acute destabilization. Poor prognostic indicators include: [BMJ Best Practice, 2021; ESC, 2021]:
  - Reduced ejection fraction (the lower the ejection fraction, the poorer the prognosis) and transitioning from mildly reduced to reduced ejection. Although in practice the difference in survival is very small.
- The presence of comorbidities** (such as atrial fibrillation, chronic kidney disease, chronic obstructive pulmonary disease, depression, and diabetes mellitus).
- Worsening severity of symptoms (based on the NYHA classification).
- Obesity or cachexia.
- Smoking.
- Heart failure caused by ischaemic heart disease, and specifically a history of myocardial infarction.
- The presence of complex ventricular arrhythmias (frequent premature ventricular complexes and non-sustained ventricular tachycardia). (NICE, 2024)

27 May, 2025

25

---

---

---

---

---

---

---

---

25

27 May, 2025

### Palliative/end of life care (Ambitions Framework, 2021-2026)

- "the unpredictable trajectory of heart failure making prognostication difficult with no clear markers for people entering the last year of life" NHS England, 2023
- Individualised care (Personalised Advanced Care Planning)
  - Fair access to care
  - Maximise comfort and wellbeing
  - Co-ordinated care
  - All staff prepared to care
  - Community involvement (Carers support)
- DNAR
- Device deactivation
- Management of symptoms (Consider s/c Furosemide, Oromorph, Lorazepam)
- "people with advanced heart failure who receive palliative care have better outcomes including better symptom control, improved quality of life and fewer hospital admissions" NHS England, 2023

27 May, 2025

26

---

---

---

---

---

---

---

---

26

### Other cardiac conditions

- Valvular heart disease
- Microvascular angina
- Coronary Artery Spasm
- Coronary Artery Bridging
- Spontaneous Coronary Artery Dissection
- Arrhythmias
- Sudden arrhythmic (cardiac) death
- Congenital/Structural heart defects
- Inherited heart defects
- Pericarditis
- Myocarditis
- Endocarditis
- Myxoma
- Aortic defects
- Blunt Force Trauma
- Traumatic chest injuries
- Acute Thoracic Ascending/Descending Aortic Dissection
- Pre-post heart transplantation
- Left Ventricular Assisted Devices

27 May, 2025

27

---

---

---

---

---

---

---

---

27

## References

- Slide 11: NICE Guideline NG185 (2020) 'Acute Coronary Syndromes.' Available at: <https://www.nice.org.uk/guidance/ng185?UID=81909860120236519033>
- Slide 15&25: McDonagh et al. (2021) '2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure.' *European Heart Journal*, 42, 36. Available at: <https://academic.oup.com/eurheartj/article/42/36/3599/6358045?login=false#305162845>
- Slide 15: NHS England (2023) 'Addressing palliative and end of life care needs for people living with heart failure: a revised framework for integrated care systems.' Available at: <https://www.england.nhs.uk/long-read/addressing-palliative-and-end-of-life-care-needs-for-people-living-with-heart-failure/>
- Slide 16&21: NICE Guideline (NG106) (2018) 'Chronic heart failure in adults: diagnosis and management.' Available at: <https://www.nice.org.uk/guidance/ng106>
- Slide 25: BMJ Best Practice (2024) 'Heart Failure with reduced ejection fraction.' Available at: <https://bestpractice.bmj.com/topics/en-gb/61>
- Slide 25: NICE (2024) 'Heart Failure-Chronic.' Available at: <https://cks.nice.org.uk/topics/heart-failure-chronic/>
- Slide 25: Taylor, C.J., Ordóñez-Mena, J.M., Roalhe, A.K., et al. (2019) 'Trends in survival after a diagnosis of heart failure in the United Kingdom 2000-2017: population based cohort study.' *BMJ (Clinical Research Edition)* 364, 223.
- Slide 25: Yancy, C., Jessup, M. and Bozkurt, B. (2013) '2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines.' *Circulation* 128(16), 240-327.
- Slide 26: NHS England (2022) 'Ambitions for Palliative and End of Life Care: A national framework for local action 2021-2026.' Available at: <https://www.england.nhs.uk/publication/ambitions-for-palliative-and-end-of-life-care-a-national-framework-for-local-action-2021-2026/>

27 May, 2025

28

28



29