



The Leeds integrated heart failure pathways

Leeds Heart Failure Service

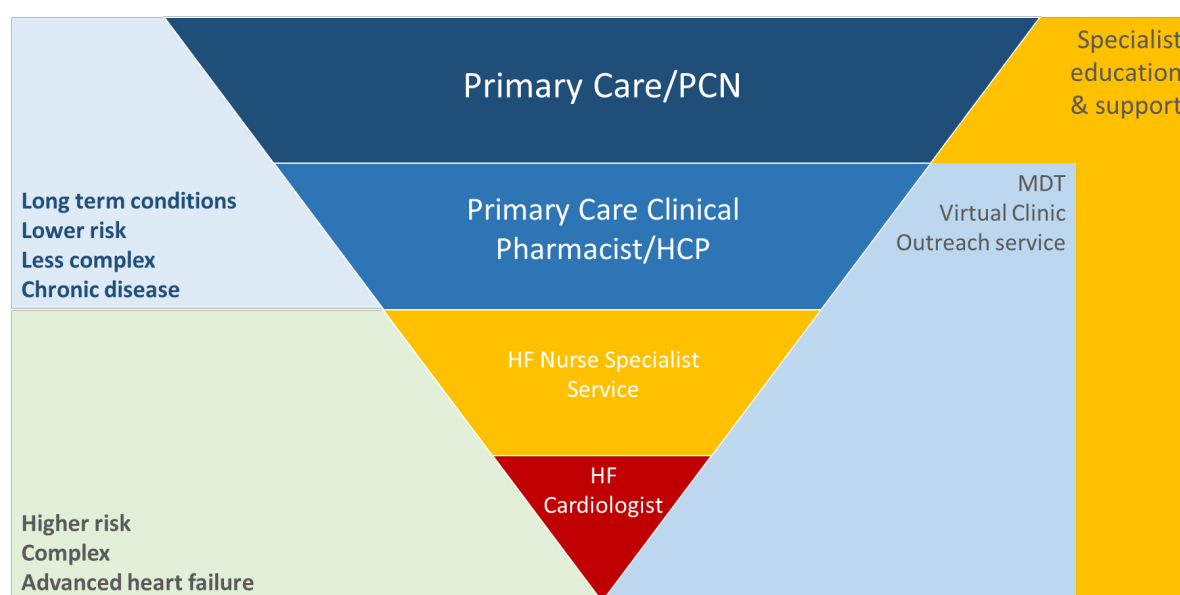
Contents

| | |
|--|----|
| Introduction | 3 |
| The Case for Change | 4 |
| Definitions | 5 |
| Heart Failure Service Referral and Contact Information | 6 |
| Suspecting Heart Failure Syndrome..... | 7 |
| Diagnosing Heart Failure Syndrome | 8 |
| A New Diagnosis of Heart Failure Syndrome..... | 9 |
| Long Term Heart Failure Primary Care Review..... | 10 |
| Drug Therapy for Heart Failure Syndrome | 12 |
| Diuretic Use in Heart Failure Syndrome | 15 |
| Heart Failure Specialist Service Offer | 17 |

Introduction

- Heart failure syndrome is a prevalent condition. Nearly 1 million people in the UK are living with heart failure and this is rising. Patients are older and have increasing levels of co-morbidity making the condition more complex to manage.
- Patients living with heart failure syndrome place a large burden on the NHS in part due to decompensations and hospitalisations. This in turn has a large impact on patient's quality of life which is often poorer than many other chronic diseases.
- There are often significant delays in patients reaching a diagnosis of heart failure syndrome and subsequent delay in starting disease modifying treatment.
- Patients with heart failure are very often on suboptimal evidence-based treatment that can ease symptoms, improve quality of life, and prolong survival.
- This document outlines an integrated heart failure service model for the delivery of care to patients in Leeds. This model acknowledges that the care of heart failure patients is not the domain of one service and that care needs to be better integrated to improve outcomes for heart failure patients in Leeds.
- The following schematic outlines the model structure.

Figure 1: The Leeds integrated heart failure care model



PCN: Primary Care Networks; HCP: healthcare professional; MDT: multidisciplinary team; HF: heart failure.

Patients living with heart failure will very often be cared for by multiple services. Supporting the development of expertise in Primary Care to provide high-quality long-term conditions review will enhance the care of patients living with heart failure improving prognosis and quality of life. Championing PCN healthcare practitioners and pharmacists with bespoke specialist support through regular MDTs and virtual clinics, as well as frequent educational events, will help foster a high-quality service. The heart failure specialist service, as well as supporting Primary Care, will be able to focus care on those at higher risk.

The Case for Change

The Problem

- Heart Failure outcomes remain poor (worse than most cancers)
- One-year mortality following hospitalisation for heart failure is around 25%
- Following a diagnosis of heart failure, the 5-year mortality rate is near 50%
- Many patients live with restricted lifestyles and symptoms
- Disease modifying medications improve morbidity and mortality (strong evidence base)
- Recent data suggests that >40% of heart failure patients are under treated in Leeds
- Heart failure patients seem to have suffered significantly in the COVID 19 Pandemic

Ambition

- Reduce overall mortality from heart failure in the year following a diagnosis
- To raise the standards and quality of care provided to heart failure patients

How

- Drive education and development of heart failure expertise in primary care
- Expand and develop the integrated heart failure care service
- Improve the rate and optimisation of disease modifying treatments for heart failure

Definitions

Heart Failure syndrome

A syndrome 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) 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. Identification of the aetiology of the underlying cardiac dysfunction is mandatory (but not always possible) in the diagnosis of heart failure syndrome as the specific pathology can determine subsequent treatment. Most commonly, heart failure syndrome is due to myocardial dysfunction: either systolic, diastolic, or both. However, pathology of the valves, pericardium and/or abnormalities of heart rhythm and conduction can also cause or contribute to heart failure syndrome.

Heart failure from reduced ejection fraction (HFrEF)

Heart failure syndrome with reduced ejection fraction defined by a left ventricular ejection fraction <40%.

Heart failure from non-reduced ejection fraction

Heart failure syndrome where the left ventricular ejection fraction is $\geq 40\%$. In fact, this is often divided into those with heart failure with mildly reduced (HFmrEF) or preserved ejection fraction (HFpEF).

Heart Failure Specialist Service

An integrated service between the Consultant Cardiologists with a specialist interest in heart failure and heart failure clinical nurse specialists. There are 2 separate nurse services, one for the Leeds Teaching Hospitals NHS Trust and another for the Leeds Community Healthcare Trust. The heart failure service is further supported by administration teams and cardiac physiologists, who perform tests such as echocardiography and specific management of cardiac pacing devices.

Heart Failure Service Referral and Contact Information

- To refer a patient to the heart failure service in Leeds please follow Figure 2 and use a DART form.
- Please provide detailed information about the patient's symptoms and signs as this will help provide the most appropriate on-going care.

Contact details

- **For Consultants** (Dr Alex Simms, Dr Kate Gatenby, Dr Anshu Sengupta, Dr James O'Neill, Dr Richard Cubbon, Professor Gale & Professor Mark Kearney)

Referral via DART form
Telephone: 0113 3928106

- **LTHT Heart Failure Clinical Nurse Specialists:**

Telephone: 0113 3926420 or
email: leedsth-tr.heartfailureltht@nhs.net

- **LCH Heart Failure Clinical Nurse Specialists:**

Telephone: 0113 8434200 or
email: lchcardiac.service@nhs.net

Suspecting Heart Failure Syndrome

- Heart failure syndrome can be a difficult to diagnosis or recognise, as patients often present with non-specific symptoms and/or signs with significant co-morbidity.
- A heart failure syndrome diagnosis is often delayed, meaning delays to life changing therapies.
- Have a high index of clinical suspicion.
- Other diseases can mimic heart failure syndrome including anaemia, pulmonary, thyroid, liver and renal disease. Although many of these conditions co-exist.

Figure 2: Typical and not so typical clinical presentations of heart failure syndrome

Heart Failure (syndrome): have a high index of clinical suspicion

Typical Symptoms

- Breathlessness
- Orthopnoea
- Paroxysmal nocturnal dyspnoea
- Reduced exercise tolerance
- Increased recovery time post exercise
- Fatigue, tiredness
- Ankle swelling

Typical Signs

- Elevated JVP
- Hepatojugular reflux
- 3rd heart sound (gallop rhythm)
- Displaced apical impulse

Less Typical Symptoms

- Nocturnal cough
- Wheezing
- Bloating feeling
- Loss of appetite
- Confusion (esp elderly)
- Depression
- Palpitations
- Dizziness and/or syncope
- Bendopnoea

Less Typical Signs

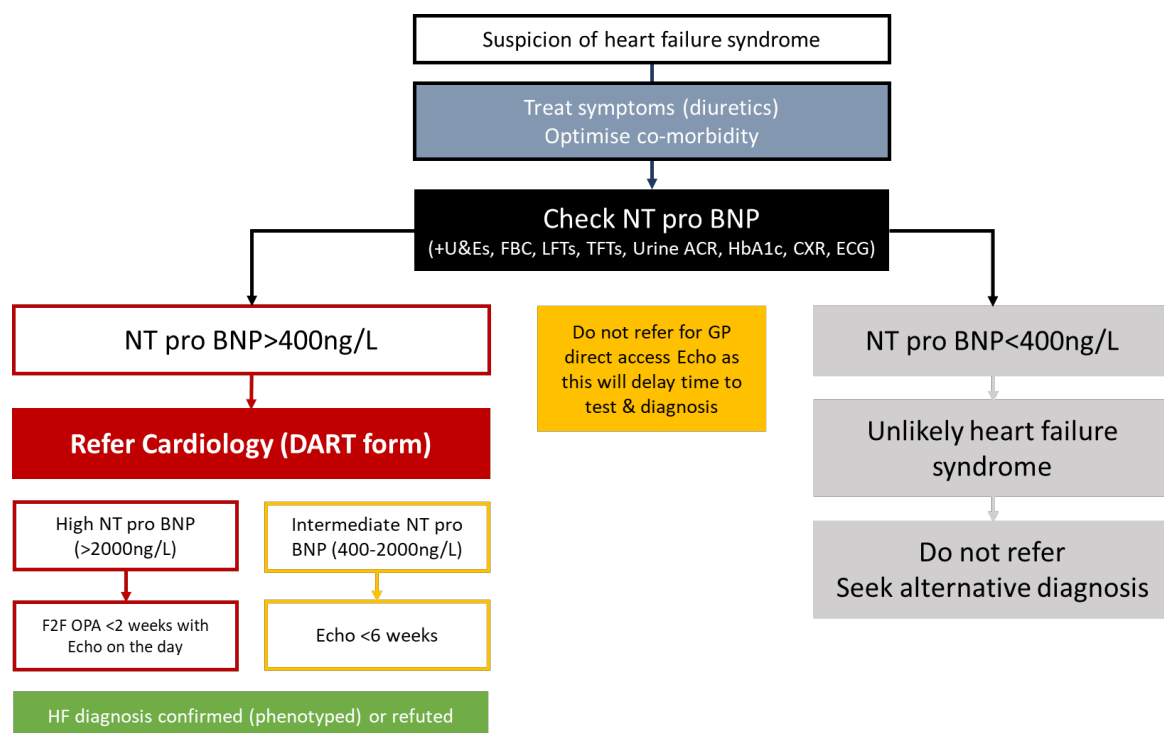
- Weight gain (>2kg/week)
- Weight loss and/or Cachexia
- Murmur
- Peripheral oedema
- Pulmonary crackles
- Pleural effusions
- Tachycardia and/or Irregular pulse
- Tachypnoea
- Hepatomegaly
- Ascites
- Cold extremities
- Oliguria
- Narrow pulse pressure

JVP: jugular venous pressure

Diagnosing Heart Failure Syndrome

- Have a high index of clinical suspicion.
- Use NT pro BNP as a screening test (high sensitivity but poor specificity) if patients have suggestive symptoms/signs of heart failure syndrome.
- If the NT pro BNP is elevated, make a referral via a DART form to the heart failure service.
- Avoid requesting direct access echo as this will slow the patient's assessment and potentially duplicates work.
- Consider use of diuretic therapy if evidence of fluid overload and optimise co-morbidity (e.g. hypertension, atrial fibrillation, diabetes mellitus, etc...).

Figure 3: Heart Failure Diagnostic Pathway for Primary Care

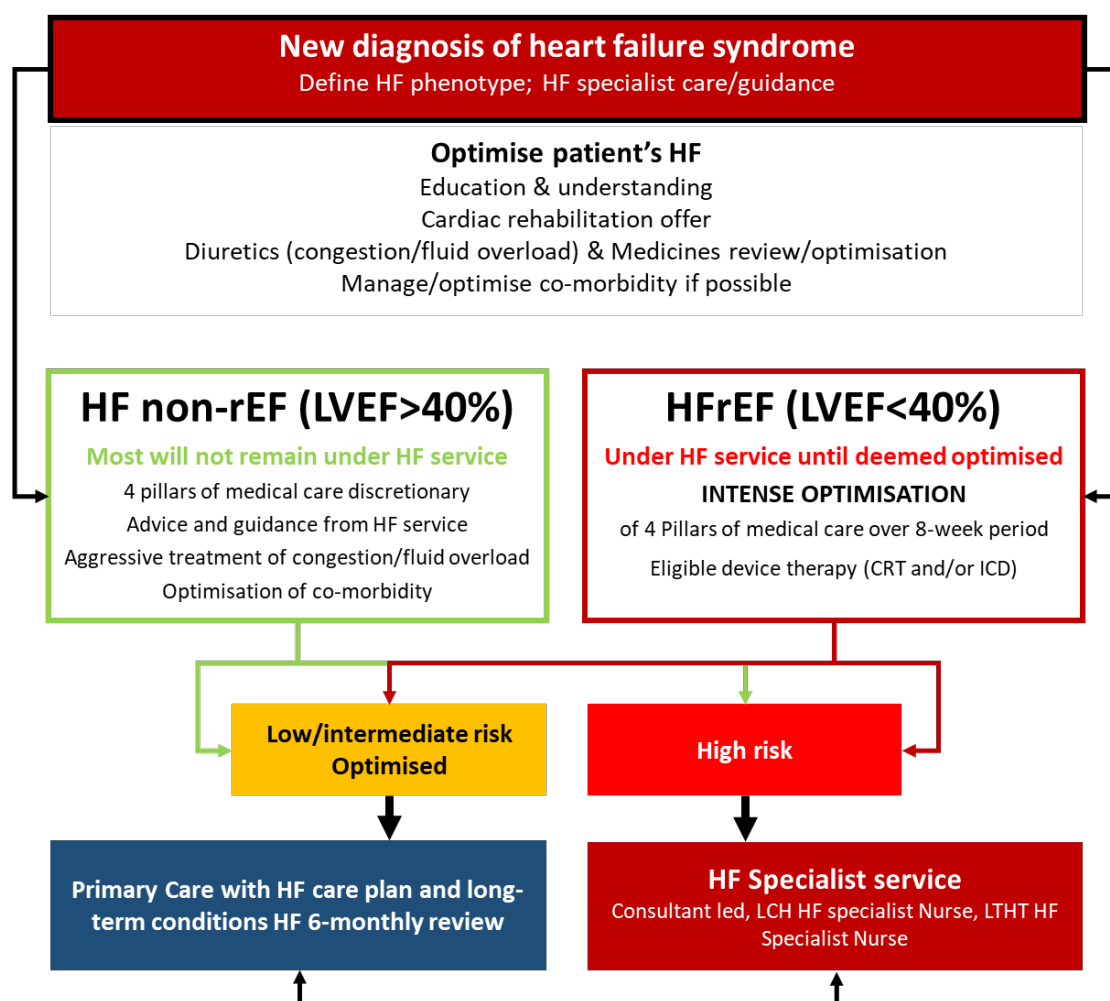


U&Es; urea & electrolytes; FBC: full blood count; LFTs; Live function tests; ACR: albumin creatine ratio; CXR: chest X-ray; ECG: electrocardiogram; F2F OPA: face to face outpatient appointment; HF: heart failure.

A New Diagnosis of Heart Failure Syndrome

- A new diagnosis of heart failure syndrome is important.
- Patients with heart failure syndrome should have personalised, specific education and tailored cardiac rehabilitation (more evidence based for those with HFrEF and only available at present for patients with HFrEF). This will be facilitated by the heart failure specialist nurse services.
- Patients with HFrEF require an intense period of medical optimisation over an 8-week period (see figure 6) and will be co-ordinated by the heart failure specialist service.
- Patients with HF non-rEF may benefit from medical therapy (limited evidence of benefit), but this will often be discretionary and guided by the heart failure specialist service.
- A heart failure care plan will define treatment goals and objectives.
- Intermediate/low risk patients once deemed optimised will be discharged to Primary Care (see Figure 5).
- High risk patients will remain under the heart failure specialist service.

Figure 4: New heart failure syndrome pathway

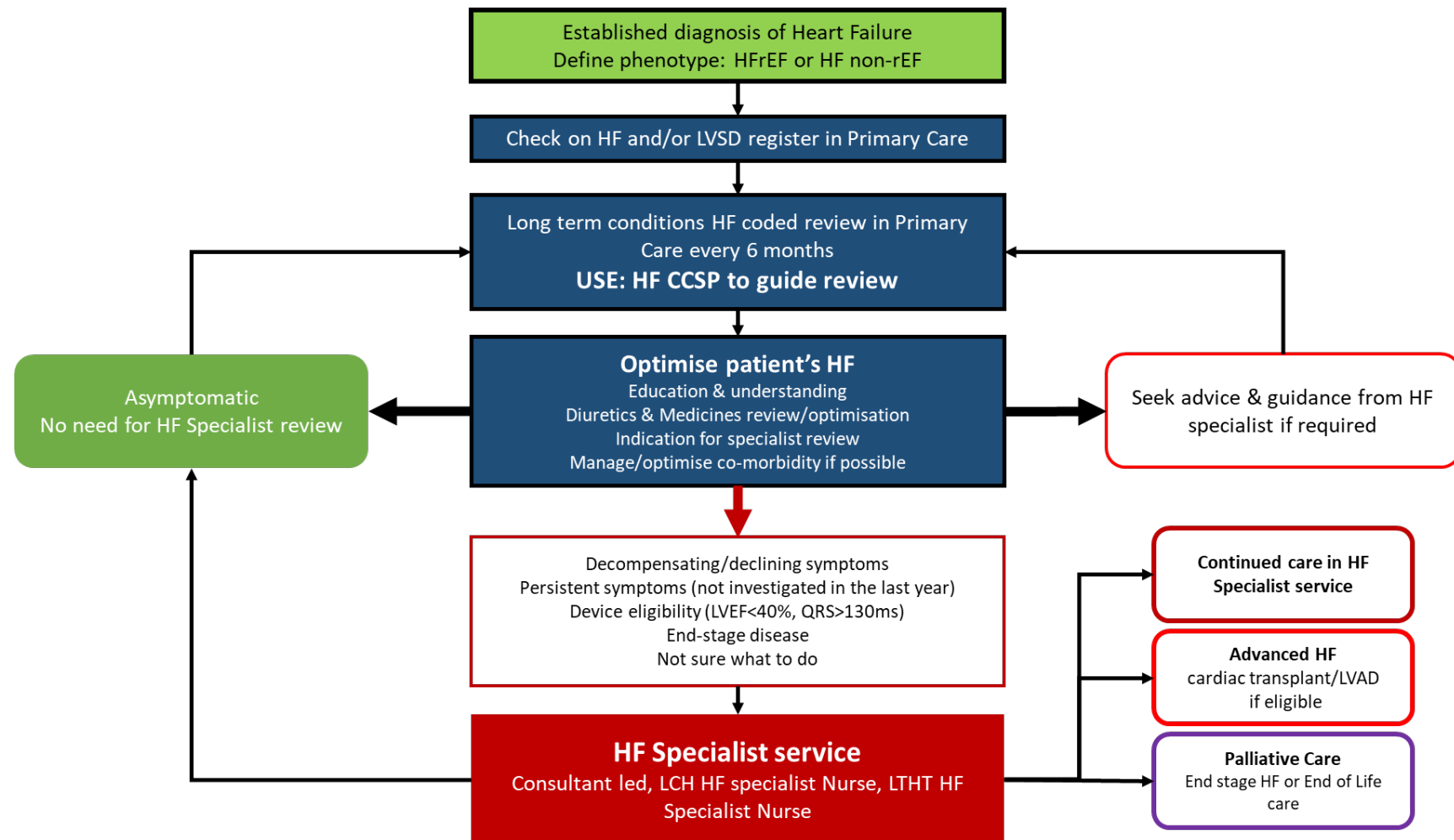


HF: heart failure; rEF: reduced ejection fraction; LVEF: left ventricular ejection fraction; CRT: cardiac resynchronisation therapy; ICD: implantable cardioverter defibrillator; LCH: Leeds Community Healthcare Trust; LTHT: Leeds Teaching Hospitals NHS Trust. High risk includes those with end stage disease and end of life care.

Long Term Heart Failure Primary Care Review

- Heart failure syndrome is a chronic condition
- There needs to be a multi-disciplinary and multi-focused approach to heart failure syndrome care in Leeds.
- Not all patients require on going specialist care, but they do require regular surveillance (NICE recommend 6-monthly chronic disease review) to optimise care and recognise and prevent decompensations.
- Patients deemed at high risk may require on going specialist heart failure care, whilst other patients may periodically need specialist input.
- The integrated model of care (shown in Figure 1) will help drive high-quality long-term condition review in Primary Care.
- A heart failure specific CCSP has been created to assist heart failure chronic disease review in Primary Care.
- Patients with a diagnosis of heart failure syndrome need to be listed on Primary care heart failure registries.

Figure 5: Chronic disease management for heart failure syndrome

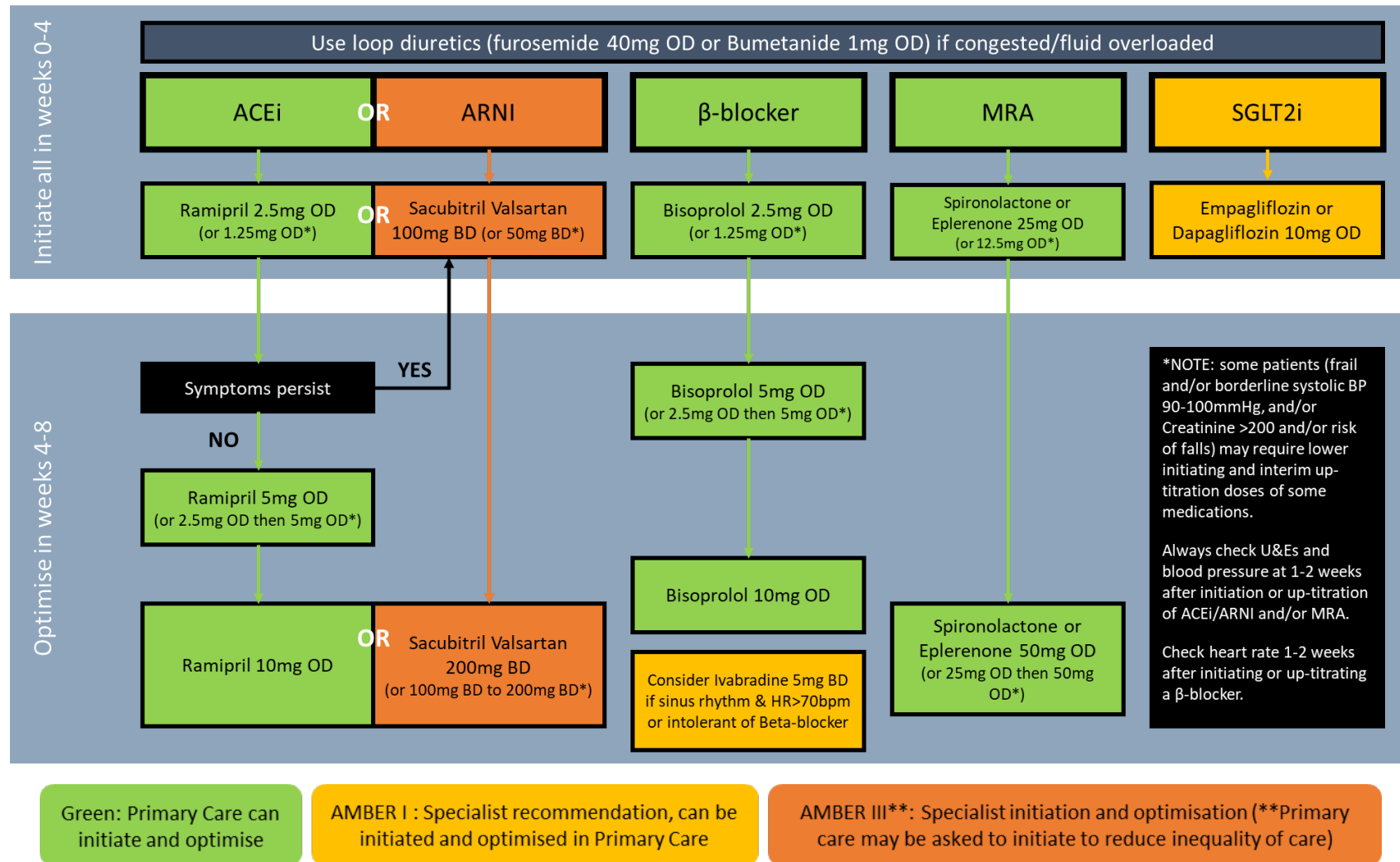


HFrEF: heart failure with reduced ejection fraction; HF non-rEF: heart failure with non-reduced ejection fraction; HF: heart failure; LVSD: left ventricular systolic dysfunction; CCSP: collaborative care and support planning; LVEF: left ventricular ejection fraction; LCH: Leeds Community Healthcare Trust; LTHT: Leeds Teaching Hospitals NHS Trust; LVAD: left ventricular assist device.

Drug Therapy for Heart Failure Syndrome

- There is a strong evidence base, derived from randomised controlled trials, for the use of specific drug therapies in heart failure syndrome from reduced left ventricular ejection fraction (the 4 pillars of heart failure care).
- The 4 pillars of care (Inhibition of Renin-angiotension-aldosterone and neprilysin system; beta-blockade; mineralocorticoid receptor antagonism and SGLT2 inhibition) are proven to reduce cardiovascular and all-cause mortality, as well as reducing heart failure hospitalisations and decompensations. More so, patients often see an improvement in their symptoms and quality of life.
- There is strong evidence based national and international guidelines for the treatment/management of heart failure syndrome (NICE and European Society of Cardiology 2021).
- There is less evidence base for the treatment/management of patients suffering HFmrEF, HFpEF and right ventricular failure, although treatment may be discretionary and initiated/recommended by heart failure specialists.
- A more aggressive and targeted approach to optimisation of HFrEF care has been adopted with early initiation of the 4 pillars of heart failure care with rapid optimisation of therapy within 8 weeks.
- At 8-weeks patients should be at target or highest tolerated dose of the 4 pillars of medical therapy.
- For prescribing SGLT2i in heart failure please see link to further guidance (?hyperlink).

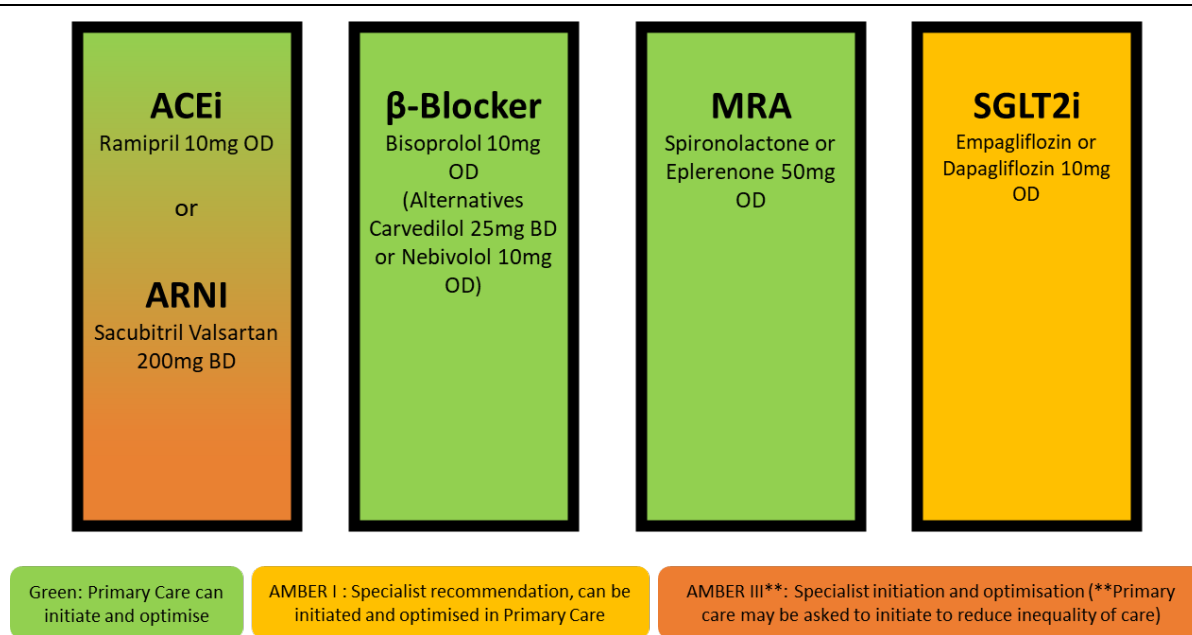
Figure 6: Modern drug therapy for patients with heart failure syndrome from reduced ejection fraction (LVEF<40%). Treatment of HFmrEF and HFpEF more discretionary and specialist recommended.



ACEi: Angiotensin Converting Enzyme Inhibitor; ARNI: Angiotension receptor neprilysin inhibitor; MRA: mineralocorticoid receptor antagonist; SGLT2i: SGLT2 inhibitor.

Figure 7: The 4 pillars of medical therapy for patients with HFrEF.

Aim for target or highest tolerated dose of each medication by the end of 8 weeks from initiation.

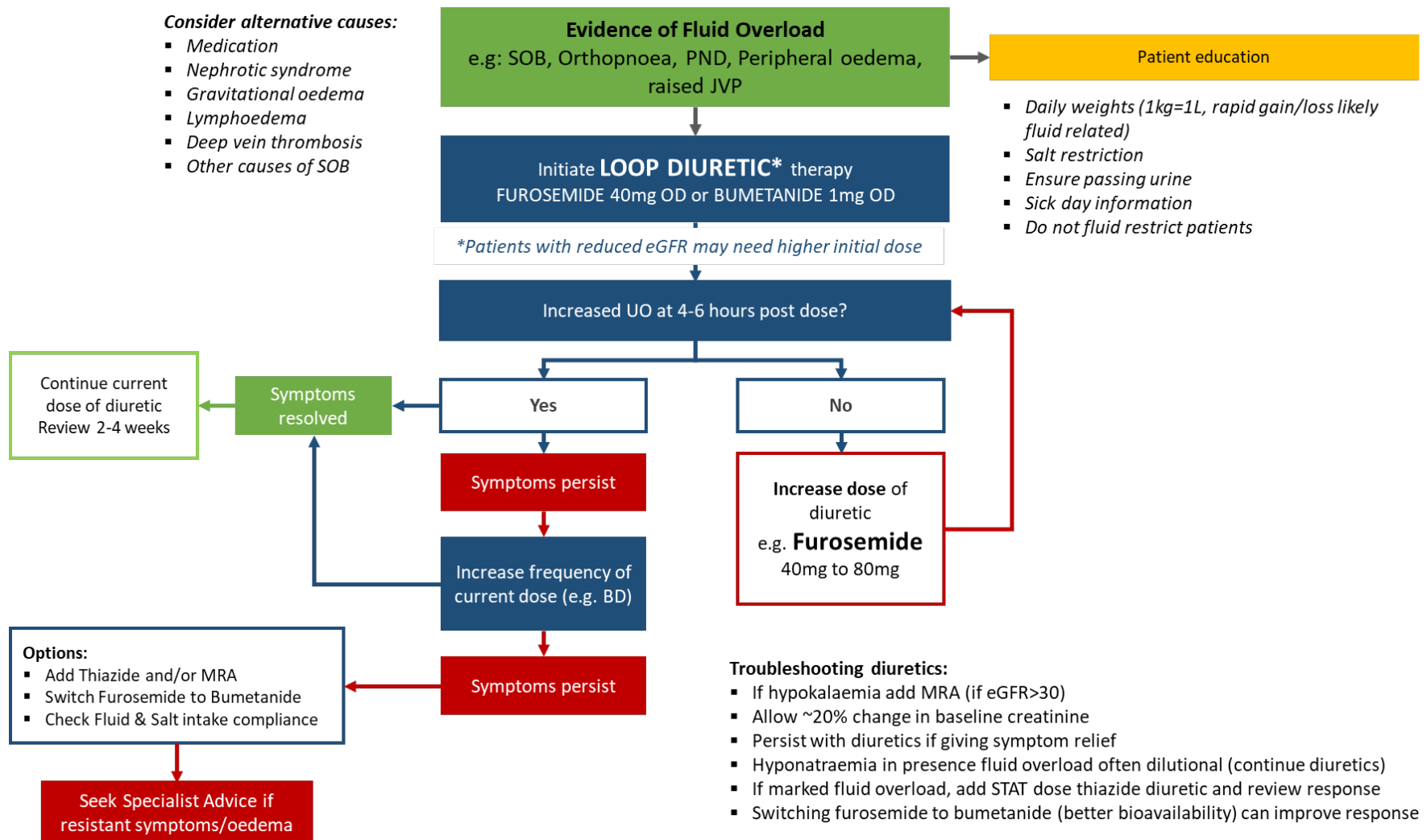


ACEi: Angiotensin Converting Enzyme Inhibitor; ARNI: Angiotensin receptor neprilysin inhibitor; MRA: mineralocorticoid receptor antagonist; SGLT2i: SGLT2 inhibitor.

Diuretic Use in Heart Failure Syndrome

- Diuretic therapy is an effective treatment for fluid overload which may manifest as shortness of breath, pitting oedema, distended abdomen and/or a raised JVP.
- Diuretic therapy is the first line treatment for all patients with heart failure syndrome irrespective of the underlying left ventricular ejection fraction.
- Traditionally diuretic therapy has been cautiously used but remains the most effective treatment for symptom relief for patients with heart failure syndrome.
- Poor renal function is not an absolute contra-indication to diuretic use. Indeed, the worse the eGFR the higher the dose of diuretic needed to reach the renal threshold to be effective. Post venous renal congestion often improves with diuretic therapy with a subsequent improvement in eGFR and renal function.
- Hyponatraemia especially in the presence of fluid overload, is often dilutional and will improve with diuretic therapy.
- Diuretic therapy should be manipulated depending on patient response/improvement.

Figure 8: Heart failure syndrome guidance on diuretic use in Primary Care

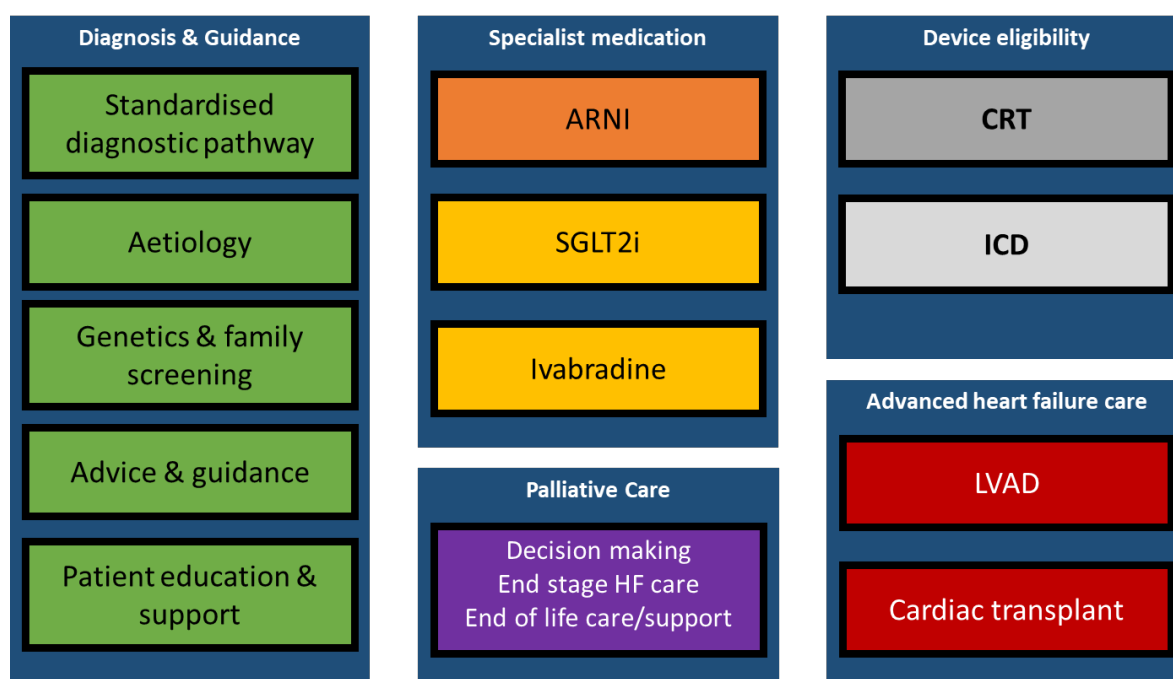


SOB: shortness of breath; PND: paroxysmal nocturnal dyspnoea; JVP: jugular venous pressure; UO: urine output; OD: once daily

Heart Failure Specialist Service Offer

- Not all patients will require on going specialist care and may only need to periodically be reviewed in the specialist service. Many patients will be well treated and managed in Primary care.
- However, some patients will gain from specialist heart failure input as outlined in Figure 9.
- All patients with heart failure syndrome should have the aetiology of their condition investigated and defined if possible.
- All patients with heart failure syndrome should be provided with education and those with HFrEF should be offered cardiac rehabilitation. In time it is hoped this can be extended to patients with HF non-rEF.
- All patients with HFrEF should have device eligibility confirmed or refuted.
- High risk patients may remain under specialist care for monitoring for advanced heart failure care or palliative decision making.
- The specialist heart failure service aims to support the care of the patients living with heart failure syndrome in the right place, at the right time and by the right person.

Figure 9: Specialist Heart Failure Service Offer



ARNI: Angiotensin receptor neprilysin inhibitor; SGLT2i: SGLT2 inhibitor; HF: heart failure; CRT: cardiac resynchronisation therapy; ICD; implantable cardioverter defibrillator; LVAD: left ventricular assist device.