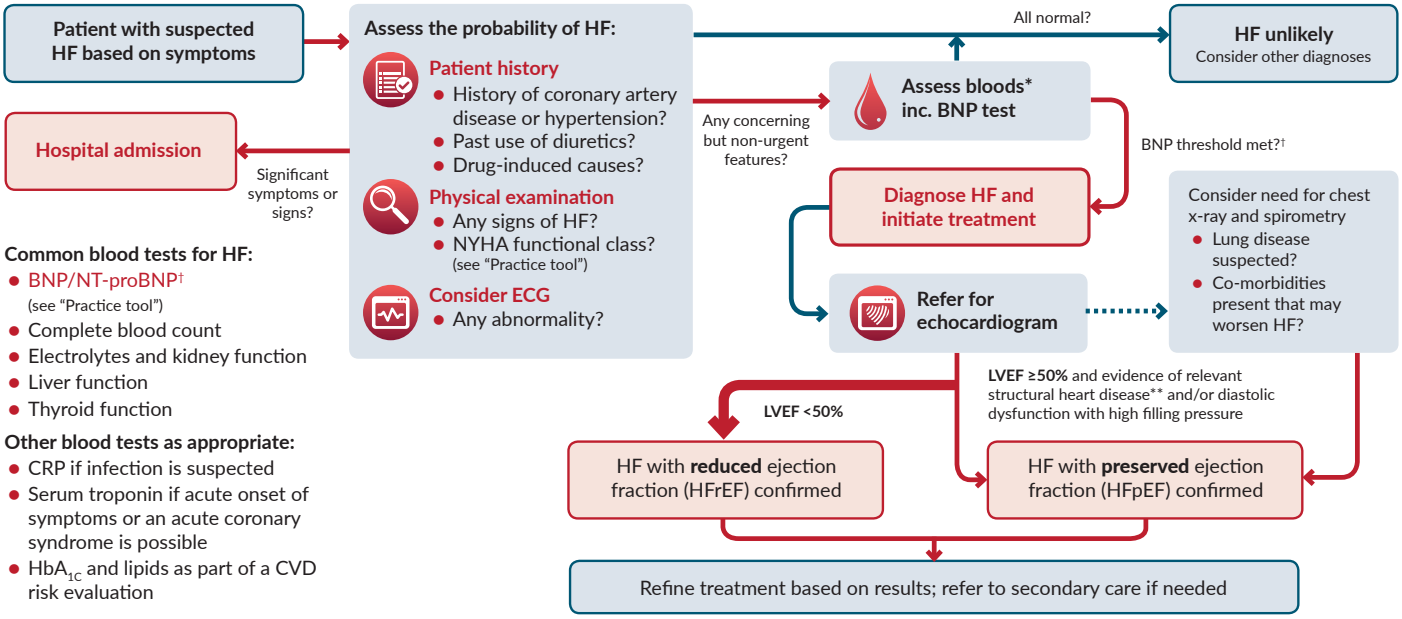
SUMMARY

Managing heart failure in primary care

Diagnosing heart failure (HF) in primary care

Clinical suspicion of HF should be prompted by the patient's symptoms/signs in the context of their medical history; an ECG and BNP testing is recommended to support a diagnosis.

An echo is not required for a working diagnosis, but it is essential to guide long-term management



* See side panel for common blood tests; † Detection of elevated BNP level is sufficient to diagnose heart failure, however, an echocardiogram is still important for confirmation and for guiding long-term management (see the "practice tool" for more information); ** Such as left ventricular hypertrophy or left atrial enlargement.

Common symptoms:

- Shortness of breath (dyspnoea)
- Swelling in the lower legs
- Fatigue, weakness, reduced exercise tolerance
- Orthopnoea
- Paroxysmal nocturnal dyspnoea
- Persistent cough/wheezing

Common signs:

- Elevated jugular venous pressure
- Hepatojugular reflux
- Laterally displaced apical impulse
- Rapid or irregular heartbeat
- Pitting oedema
- Bibasilar crackles

Clinical symptoms/signs are often non-specific, vary between patients, and may be mild or progress slowly

Treating HF in primary care

Manage contributing factors where possible

- Co-morbidities
- Medicine use, e.g. NSAIDs

Proceed with the assumption you are treating HFrEF until proven otherwise, i.e. with echo results. Discuss with or refer to a cardiologist if HFpEF is confirmed to refine management

Cardiologist input will likely be required if symptoms cannot be controlled early

SUMMARY

Establish pharmacological treatment immediately

Start with a diuretic (loop) to reduce fluid overload/retention if needed, e.g. furosemide

- Weigh the patient first; treat assertively in the short-term*
- Do not continue diuretic long-term unless the patient remains symptomatic; taper use over time

Add an ACE inhibitor (or ARB)

- Up-titrate to maximum tolerated dose*

Add a beta-blocker once fluid overload has been managed

- Start low, go slow; up-titrate to maximum tolerated dose*

Start both as soon as practically possible

Add spironolactone if the patient is still symptomatic

- Consider ACE inhibitor, beta-blocker and spironolactone concomitantly straight away in patients with severe symptoms
- Trial **eplerenone**† if the patient is intolerant or has a clinically significant adverse effect with spironolactone

Consider sacubitril+valsartan† (Entresto) if the patient remains symptomatic

- **Stop the ACE inhibitor/ARB**: initiate at least 36 hours after the final ACE inhibitor or when the next ARB dose is due; monitor blood pressure, renal function and serum potassium**

Discuss lifestyle changes

- Regular exercise; cardiac rehab
- Reduce sodium intake (<3 g/day)
- Limit fluid intake (1.5–2 L/day)
- Weight loss
- Reduce alcohol intake
- Smoking cessation
- Pneumococcal + annual influenza vaccine

Schedule regular follow-ups

- At least weekly **initially (more often if clinically indicated)**; dial back over time as suitable
- Two weeks after **initiating/ changing doses;** 3–6 monthly if patient is stable (in most cases)
- Discuss a heart failure action plan and daily self-monitoring

Options in secondary care

- **Devices:** ICD, CRT, CRT-D
- **Surgery:** correct underlying causes, transplantation

* Within recommended dose range
† Special Authority approval required
** When initiating and within two weeks of up-titration

ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blocker; BNP, brain natriuretic peptide; CRP, C-reactive protein; CRT, cardiac resynchronisation therapy; CRT-D, CRT-Defibrillator; ECG, electrocardiogram; HbA_{1c}, glycated haemoglobin; HF, heart failure; HFpEF, HF with preserved ejection fraction; HFrEF, HF with reduced ejection fraction; ICD, implantable cardioverter defibrillator; LVEF, left ventricular ejection fraction; NSAIDs, non-steroidal anti-inflammatory drugs; NYHA, New York Heart Association.

bpacnz PRIMARY CARE UPDATE SERIES

SUMMARY

The main pharmacological treatment options for patients with HF

Class	Medicine	Usual dose range for HF	Notes
Loop Diuretic	**Furosemide**	Initially 20–40 mg daily; for resistant oedema, up-titrate in 20–40 mg increments to the min dose that improves symptoms and achieves a weight loss of approximately 1 kg/day with a return to dry body weight; the frequency of up-titration will depend on patient response and the severity of congestion (weekly is common); usual dose range in primary care is 40–240 mg daily	Monitor serum potassium and renal function according to the patients clinical status; usually weekly during titration, then every three months Use alongside fluid restriction (1.5–2L/day)
ACE inhibitors*	**Cilazapril**	Initially 0.5 mg daily; double dose at intervals of at least 2 weeks if tolerated to 5 mg daily (otherwise use highest tolerated dose)	Generally discontinue potassium-supplements and -sparing diuretics before introducing an ACE inhibitor; however, low dose MRAs may be used for HF if serum potassium is closely monitored Monitor patient response to first dose closely (particularly if taking ≥80 mg furosemide); monitor blood pressure, renal function and serum potassium with every dose increase
	Enalapril	Initially 2.5 mg BD; double dose at intervals of at least 2 weeks to 10 mg BD (or 20 mg once daily) if tolerated (otherwise use highest tolerated dose); higher doses indicated in some patients, e.g. 40 mg daily, for those with co-existing hypertension	
	Quinapril	Initially 2.5 mg BD; double dose at intervals of at least 2 weeks to 10 mg BD (or 20 mg once daily) if tolerated (otherwise use highest tolerated dose); higher doses indicated for some patients, e.g. 40 mg daily, such as for those with co-existing hypertension	
Beta-blocker	**Carvedilol**	Initially 3.125 mg BD; double dose at intervals of at least 2 weeks if tolerated to 25 mg BD in patients with severe heart failure or body-weight less than 85 kg and 50 mg BD in patients over 85 kg (otherwise use highest tolerated dose)	Use alongside an ACE inhibitor (or ARB) If the patient has an acute fluid overload, initiate use only once the fluid has reduced If a beta-blocker is initiated before an ACE inhibitor, e.g. for arrhythmias or angina without acute fluid overload, the dose should be increased to mid-range and before an ACE inhibitor started Some patients may require slower titration
	Bisoprolol	Initially 1.25 mg daily; double dose at intervals of at least 2 weeks if tolerated to 10 mg daily (otherwise use highest tolerated dose)	
	Metoprolol succinate (MR)	Initially 23.75 mg daily double dose at intervals of at least 2 weeks if tolerated to 190 mg daily (otherwise use highest tolerated dose)	

* The beneficial effect of ACE inhibitor treatment in patients with heart failure is likely a class effect, so other options not listed here can be considered as appropriate, e.g. lisinopril, perindopril.

ACE, angiotensin converting enzyme; AF, atrial fibrillation; BD, twice daily; BP, blood pressure; HF, heart failure; MRA, mineralocorticoid receptor antagonist; MR, modified release;

SUMMARY

Additional pharmacological treatment options for patients with HF (to be considered as appropriate)

Class	Medicine	Usual dose range for HF	Notes
ARB*	**Losartan**	Initially 12.5 mg daily; double dose at intervals of 2 weeks if tolerated to 150 mg daily (otherwise use highest tolerated dose)	To be used if an ACE inhibitor is not tolerated (same monitoring applies)
MRA	**Spironolactone**	Initially 25 mg daily; increased after 4–8 weeks to 50 mg daily if tolerated	Use if patients remain symptomatic despite max tolerated doses of ACE inhibitor/ARB and beta-blocker; consider immediate use in patients with severe symptoms Contraindicated if eGFR <30 mL/min/1.73m^2 Monitor renal function and serum potassium 1–2 weeks after initiating or up-titrating Trial spironolactone before eplerenone†
	Eplerenone†	Initially 25 mg daily, increased within 4 weeks to 50 mg daily if tolerated	
ARNI	**Sacubitril + valsartan (Entresto)** Do not use concurrently with an ACE inhibitor or ARB	**If patient is currently taking an ACE inhibitor/ARB:** • Initially 49 mg/51 mg BD for 2–4 weeks; increase if tolerated to 97 mg/103 mg BD; consider starting dose of 24 mg/26 mg if SBP <110 mmHg or patient aged ≥75 years **If patient is not taking an ACE inhibitor/ARB, or stabilised on low doses of either:** • Initially 24 mg/26 mg BD for 2–4 weeks; increase if tolerated to 49 mg/51 mg BD for 2–4 weewks, then increased if tolerated to 97 mg/103 mg BD	Special Authority approval required (valid 12 months); For patients with symptomatic HFrEF <35% that are receiving concomitant optimal standard treatment (maximum tolerated dose of an ACE inhibitor/ARB and beta-blocker with/without an MRA) Initiate ≥36 hours after last dose of ACE inhibitor; or for an ARB when next dose is due
Other options	**Digoxin**	If the patient has AF: 0.75–1.5 mg over 24 hours in divided doses (loading dose); usual maintenance dose 62.5–250 micrograms daily (e.g. according to renal function, clinical response, drug concentration monitoring)	Consider for patients with HF and AF if max tolerated dose of ACE inhibitor/ARB and beta-blocker does not control symptoms
	Anticoagulants, e.g. dabigatran, rivaroxaban, warfarin		Assess need for patients with HF and AF based on CHA_2DS_2-VASc score; see AF update or NZF

* Candesartan is an alternative and equal choice of ARB for managing heart failure (see NZF for more details);

† Special Authority approval is required. Patients must have a LVEF <40% and be intolerant to optimal dosing of spironolactone or have experienced a clinically significant adverse effect while on an optimal dose of spironolactone.

ACE, angiotensin converting enzyme; AF, atrial fibrillation; ARB, angiotensin II receptor blocker; ARNI, angiotensin receptor II blocker with a neprilysin inhibitor; BD, twice daily; BP, blood pressure; eGFR, estimate glomerular filtration rate; HF, heart failure; HFrEF, HF with reduced ejection fraction; LVEF, left ventricular ejection fraction; MRA, mineralocorticoid receptor antagonist; MR, modified release; SBP, systolic blood pressure.

References:

1. Ponikowski P, Voors AA, Anker SD, et al. Eur J Heart Fail. 2016;18:891–975;
2. NHFA CSANZ Heart Failure Guidelines Working Group. Heart Lung Circ. 2018;27:1123–208;
3. Management of chronic heart failure NZ guideline. Heart foundation. Available **www.heartfoundation.org.nz/resources/management-of-chronic-heart-failure-nz-guideline** (Accessed Sep, 2019); 4 NZ Formulary. NZF v87. 2019. Available at: **www.nzf.org.nz** (Accessed Sep, 2019).