Guide for initiation and up-titration of ACE inhibitors in patients with heart failure

If initiating ACE inhibitor…

- Start with a low dose (see table over)
- Start only if:
  - Blood pressure at least 100 mmHg systolic
  - Potassium no higher than 5.5 mmol/L
  - Creatinine less than 250 micromol/L or eGFR at least 50 (or seek specialist advice)

- Arrange for the patient to have potassium and creatinine checked **one week** after first dose
- Get the patient to make another GP appointment at least two weeks after first dose
- Provide the patient with a Heart Failure Action Plan

When up-titrating dose…

- Double dose at not less then two weekly intervals
- Aim for target dose or highest tolerated dose
- Make sure the patient has a biochemistry form to check electrolytes before next dose titration

Ask about:

- Cough – if troubling consider angiotensin receptor blocker (ARB)
- Hypotensive symptoms – consider reducing other blood pressure lowering medicines (e.g. diuretics), or dosing at night
- Angioedema – **STOP** the ACE inhibitor (consider ARB)
- Symptoms that may be exacerbated by a drug interaction e.g. NSAID

Up-titrate ONLY if:

Blood pressure at least 95 mmHg

Potassium is no higher than 5.5 mmol/L

- If potassium is between 5 – 5.9 mmol/L – consider adjustments of potassium sparing medications or high potassium food and repeat electrolytes
- If potassium is above 5.9 mmol/L – **STOP** ACE inhibitor and seek specialist advice

Important: *This is a general guide provided to assist clinicians with the management of heart failure. Users of this guide must always consider current best practice and use their clinical judgement with each patient. This guide is not a substitute for individual clinical decision making.*

Creatinine is no more than 25% above baseline (or seek specialist opinion)

Note - during **initiation** of treatment an increase in creatinine up to 30% above baseline is acceptable (provided creatinine is no greater than 250micromol/L) and should stabilise within the first two months. Consider other medications that may affect renal function.

Increase dose:

	Cilazapril	Lisinopril	Enalapril	Captopril	Quinapril
Start dose	**0.5mg daily**	**5mg daily**	**2.5mg BD**	**6.25mg TDS**	**2.5mg BD**
1st titration	1mg	10mg	5mg BD	12.5mg TDS	5mg BD
2nd titration	2.5mg	20mg	10mg BD	25mg TDS	7.5mg BD
3rd titration	5mg			50mg TDS	10mg BD

Higher doses may be indicated for some patients (e.g. those with coexisting hypertension)

Explain:

- The benefits of ACE inhibitors to the patient – improving symptoms and mortality related to heart failure

Arrange:

- Potassium and creatinine to be checked **one week** after changed dose
- Another GP appointment at least two weeks after each dose increase

After reaching target dose or maximum tolerated dose…

- If patient remains stable and has no medications changed – check biochemistry at each three monthly visit. Electrolytes should be repeated earlier:
  - In the presence of any illness that may alter biochemistry **OR**
  - If medications that increase the risk of adverse effects are added or increased e.g. NSAIDs, lithium, spironolactone

- If the patient is not adequately controlled on an ACE inhibitor at the maximum tolerated dose, consider adding an ARB
  - Take extreme caution if using spironolactone in combination with an ACE inhibitor **and** an ARB due to the risk of hyperkalaemia

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