Queensland Government

[Insert facility name]

Heart Failure Medication Titration Plan

(Affix identification label here)

URN:

Family name:

Given name(s):

Address:

Date of birth: Sex: ☒ M ☐ F ☐ I

- **Titration to maximum tolerated doses of ACE inhibitor, beta-blocker and mineralocorticoid receptor antagonist (MRA) reduce morbidity and mortality in left ventricular systolic heart failure.**
- Check BP and pulse each visit and clinically review the patient prior to each dose adjustment.
- Patients over 75 years old with co-morbidities are more likely to experience adverse effects.

1. Heart Failure Medications to be Titrated by (nominate person responsible): .....

2. Titrate First: (tick one only)

☐ ACE inhibitor or Angiotensin II receptor antagonist (ARB) ☐ MRA (Spironolactone/Eplerenone) ☐ Beta-blocker

3. Observations

Echo date:	EF: %	Current BP:	Heart rate:	Current weight: kg	Stable/target weight: kg

4. ACE Inhibitor or ARB

(check electrolyte, creatinine and urea 1 week after commencing or titrating)	
	Medication:
	Current dose:
	Target dose:
	Increase dose by: every week(s)

5. Beta Blocker

Medication:
Current dose:
Target dose:
Increase dose by: every week(s)

6. MRA (appropriate drug and dose)

a Start if patients remain symptomatic (NYHA II–IV) despite appropriate doses of ACE inhibitor and Beta-Blocker. Ensure that baseline serum potassium is less than 5mmol/L and eGFR is greater than 30mL/min

b Check electrolytes (especially serum potassium); creatinine and urea 1 week after commencing or titrating dose. Continue monitoring monthly for 6 months and then 6 monthly thereafter once stable dosing.

c

Medication	Starting dose	Target dose
☐ Spironolactone	☐ 12.5mg daily (eGFR 30–49mL/min) ☐ 25mg daily (eGFR greater than or equal to 50mL/min)	25–50mg daily
☐ Eplerenone	25mg daily	50mg daily

d Increase dose by: ..... every ..... week(s)

Caution: (i) eGFR may over estimate renal function in low body weight individuals.
(ii) eGFR does not reflect accurate renal function in individuals with fluctuating creatinine levels.

7. Variable Dose Diuretic Action Plan

An increased diuretic dose beyond 3 days requires medical review and blood chemistry.
A decreased diuretic dose requires assessment of fluid status and blood chemistry 3–7 days post reduction.

Current diuretic:	Current dose:
Fluid overload: If weight increases by more than 2kg above stable weight for 2 days:	Increase dose to:
Dehydration: If weight decreases by more than 2kg below stable weight for 2 days and there are signs of dehydration (dizziness, postural hypotension, dry mucosa):	Decrease dose to:

Doctor's name (please print):	Signature:	**[Insert Service Name]**
Consultant's name (please print):	Date:	Phone: Fax:

DO NOT WRITE IN THIS BINDING MARGIN

HEART FAILURE MEDICATION TITRATION PLAN

v3.03 - 03/2013
SW066

Heart failure medication titration problem solving guidelines

NSAIDs or COX-2 inhibitors are contraindicated in patients with heart failure.
Avoid negatively inotropic calcium-channel blockers (verapamil, diltiazem) in systolic heart failure.

Hypotension

- **Asymptomatic hypotension** does not usually require any change in therapy (systolic BP 90–100 mmHg).
- **Symptomatic hypotension** (dizziness, lightheadedness and/or confusion):

  i. Stop or reduce calcium-channel blockers and/or other vasodilators unless essential e.g. for angina.

  ii. Consider reducing diuretic dose if there are no signs or symptoms of congestion.

  iii. Temporarily reduce ACE inhibitor or beta-blocker dose if above measures do not work.
- **Severe symptomatic hypotension** or shock requires immediate referral to an emergency department. Review patient as clinically appropriate (daily to weekly review) and seek specialist advice if the above measures do not work.

ACE inhibitors in heart failure

- **Angioedema**, although rare, can occur at any time when using ACE inhibitors. Stop ACE inhibitor immediately and seek specialist advice. Trial of an Angiotensin II antagonist should only occur on specialist advice due to possible cross-sensitivity.
- **Cough** is common in patients with heart failure. Pulmonary oedema should be excluded as a cause if cough is new or worsening. If the patient develops a drug cough, that is likely to be caused by the ACE inhibitor, it is not always necessary to discontinue the drug. If the cough is troublesome and/or interferes with sleep, consider substituting ACE inhibitor with an angiotensin II receptor antagonist.

Worsening renal function

- ACE inhibitors are generally well tolerated even in patients with significant renal impairment (creatinine greater than 200 micromol/L or eGFR less than 30mL/ min). These patients are more vulnerable to acute renal failure following a destabilising event such as a dehydrating illness (sepsis, diarrhoea/vomiting), dehydration from over-diuresis or addition of nephrotoxic medications. NB. Advise patients experiencing such an event to seek urgent medical attention and to stop the ACE inhibitor until they are clinically reviewed and blood chemistry is checked.
- Some rise in urea, creatinine and potassium is expected after commencing an ACE inhibitor due to a decrease in eGFR. Blood chemistry must be checked several days after initiation of therapy and monitored closely thereafter to ensure kidney function is not worsening. No action is necessary if the change is small and patient is asymptomatic.
- An eGFR decrease of up to 30% is acceptable provided it stabilises within 2 weeks, however, repeat electrolytes, creatinine and urea within 48 hours if required.
- If the eGFR declines further than 30%, the patient should be reviewed urgently for clinical assessment of volume status and review of nephrotoxic medications. Seek specialist advice regarding the safety of continuing therapy.
- Careful potassium monitoring is required:
  i. If potassium rises greater than 5.0–5.5 mmol/L, review and reduce potassium supplements or potassium retaining agents (eg. amiloride, spironolactone, eplerenone).
  ii. If potassium rises greater than 5.6–5.9 mmol/L, cease all potassium supplements / retaining agents.
  iii. If potassium rises greater than 6 mmol/L, seek immediate specialist advice.

MRA in heart failure (Spironolactone/ Eplerenone)

- Stop the therapy if serum potassium is greater than 5.5 mmol/L or serum creatinine greater than 220 micromol/L.
- Urgently check electrolytes (especially potassium) creatinine and urea if patient is dehydrated or septic.

Beta-blockers in heart failure

Worsening symptoms / signs

- Worsening Congestion: increase the diuretic dose and if this does not work halve the dose of beta-blocker and liaise with the heart failure service.
- Marked fatigue and/or bradycardia (see below) halve dose of beta-blocker (rarely necessary).
- Bradycardia (less than 50 beats/min): review the need for other drugs that slow heart rate (e.g. digoxin, amiodarone) in consultation with specialist; and arrange ECG to exclude heart block.
- If symptoms are worsening, review the patient as clinically appropriate (daily to weekly review); seek specialist advice if symptoms do not improve; and, if there is severe deterioration, stop beta-blocker and refer patient to an emergency department immediately.

This form is not intended to replace clinical judgement.
Endorsed by Queensland Heart Failure Steering Committee.
Date 9/12/2011. Copies of form can be obtained from: http://www.health.qld.gov.au/heart_failure

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