



National Prescribing Service Limited

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Prescribing
Practice Review

No. 28
Improving
drug use in
heart failure

Dear Dr Sample,

Managing heart failure in primary care

Heart failure is a chronic condition with high morbidity and mortality: the prevalence is 10–13% in people over 65 years and is increasing. Through careful management by GPs, appropriate self-management, and by taking the right medicines, a patient's quality of life can be greatly improved.

National Prescribing Service Ltd, the National Heart Foundation of Australia and the National Institute of Clinical Studies have worked together to develop a joint heart failure program. This program provides a range of opportunities for GPs to ensure their patients with heart failure receive the best management. Over 40 divisions of general practice will offer local activities as part of this program including education about using echocardiograms for diagnosis.

This *Prescribing Practice Review (PPR)* outlines key principles around prescribing in patients with heart failure to improve quality of life and health outcomes.

Use ACE inhibitors in all grades of systolic heart failure

ACE inhibitors are under-used in managing heart failure. Yet the evidence is overwhelming that they reduce death and hospitalisations in patients with systolic heart failure.

Use beta-blockers in stabilised systolic heart failure

Beta-blockers are also under-used despite evidence that they improve survival. This may be a hangover from prescribing recommendations many years ago that beta-blockers were contra-indicated in heart failure. There is no doubt that they should be part of the prescribing regimen to manage stabilised patients with heart failure.

Titrate ACE inhibitors and beta-blockers carefully and slowly to the highest dose tolerated for proven survival benefits

Concerns relating to adverse effects associated with ACE inhibitors and beta-blockers may be in part responsible for their under-use in heart failure. Slow and careful titration of doses, together with monitoring of blood pressure, serum electrolytes and renal function, can assist in getting patients to the doses shown in clinical trials to improve survival.

Continued overleaf



Heart Foundation



NATIONAL INSTITUTE
OF CLINICAL STUDIES

An independent, Australian organisation for Quality Use of Medicines

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Look for, and avoid, drugs which may exacerbate heart failure

Some commonly prescribed drugs can exacerbate heart failure, either unmasking symptoms in previously asymptomatic individuals or making others' symptoms worse. This *PPR* provides some examples of drugs to avoid in these patients.

Ensure patient understanding of heart failure and treatment goals to maximise compliance and outcomes

Self-management is an important aspect of managing a chronic condition. The *PPR* directs you to some excellent resources for patient education.

Yours sincerely,



Dr Stephen Phillips
Chair, National Prescribing Service



Improving outcomes for heart failure patients

Key messages

- Use ACE inhibitors in all grades of systolic heart failure
- Use beta-blockers in stabilised systolic heart failure
 - bisoprolol, carvedilol and metoprolol (controlled-release) are approved for use in heart failure
- Titrate ACE inhibitors and beta-blockers carefully and slowly to the highest dose tolerated for proven survival benefits
- Look for, and avoid, drugs which may exacerbate heart failure
- Ensure patient understanding of heart failure and treatment goals to maximise compliance and outcomes

Establish a diagnosis of systolic heart failure

Establish the diagnosis as systolic heart failure and exclude other correctable causes

Diagnosing on clinical grounds alone is not recommended because the symptoms of heart failure (breathlessness, exercise intolerance, fatigue, and fluid retention) are often non-specific, while some people with left ventricular dysfunction may be asymptomatic.^{1,2}

Echocardiography should be considered in all patients with a diagnosis of suspected heart failure¹

Echocardiograms measure ventricular function and help make the distinction between abnormalities associated with ventricular contraction (**systolic heart failure**; left ventricular ejection fraction < 40%) and ventricular filling (**diastolic heart failure**).¹

Echocardiograms can also identify surgically correctable causes of symptoms like aortic stenosis.

Other possible causes of heart failure-like symptoms:

- pulmonary, renal or hepatic disease
- valvular heart disease
- atrial fibrillation
- hyperthyroidism
- obesity
- severe anaemia.

A full medical history and physical examination is important in determining causes of heart failure and assessing disease severity. These results also help inform interpretation of the echocardiogram.



Manage risk factors for heart failure

Manage co-existing conditions and avoid aggravating factors

Treat underlying conditions which contribute to heart failure, including coronary heart disease, hypertension, diabetes, obesity, obstructive sleep apnoea, smoking, and inactivity.

Review drug treatment and avoid drugs which may exacerbate heart failure

Drugs known to exacerbate heart failure include **nonsteroidal anti-inflammatory drugs** (including COX-2 selective NSAIDs), **calcium-channel blockers** (verapamil, diltiazem), **thiazolidinediones** (pioglitazone, rosiglitazone), **tricyclic antidepressants** and some **antipsychotics** (thioridazine).²⁻⁴

ACE inhibitors are essential therapy for heart failure

ACE inhibitors are under-used in the treatment of systolic heart failure

ACE inhibitors relieve symptoms, reduce hospitalisations and improve survival in patients with systolic heart failure and should be used regardless of the severity of heart failure.^{5,6}

A meta-analysis found that treating 100 patients with heart failure with an ACE inhibitor for two-and-a-half years prevents seven major events (defined as death, hospitalisation for heart failure or re-infarction).⁵

The benefits of treatment occur in all functional (New York Heart Association) classes of heart failure but are greatest in patients with more severe impairment.

Despite a wealth of evidence demonstrating benefits, ACE inhibitors continue to be under-prescribed in heart failure: ACE inhibitors were prescribed by GPs in 58% of patients over 60 years with heart failure in 1998⁷; more recent general practice data from 2002 revealed prescribing at 32%.⁸ Concerns about adverse effects, particularly hypotension and renal function, have been cited as barriers to prescribing ACE inhibitors.⁹

Initiate ACE inhibitors at low doses

Starting an ACE inhibitor at low doses reduces the risk of first-dose hypotension. If lower doses are well tolerated, increase the dose at not less than two-weekly intervals.²

Gradually increase the dose, if tolerated, to target doses used in randomised controlled trials

ACE inhibitors should not be adjusted according to symptoms. Ideally, every effort should be made to titrate doses to those shown to improve survival in clinical trials but, failing that, to the maximum tolerated dose.

See *NPS News 36* for a table of ACE inhibitor starting doses and target doses, as well as recommendations for managing hypotension, cough and deteriorating renal function associated with ACE inhibitors.

Reserve angiotensin II receptor antagonists for those unable to take ACE inhibitors

While studies with valsartan¹⁰ (Diovan), candesartan¹¹ (Atacand) or losartan¹² (Cozaar) have shown angiotensin II receptor antagonists[†] are effective in heart failure, they should only be used in patients who are unable to tolerate ACE inhibitors.^{1,2,13}

Angiotensin II receptor antagonists are contra-indicated in patients who have experienced angioedema with an ACE inhibitor.^{3,13}

[†] No angiotensin II receptor antagonists currently available in Australia are approved for use in heart failure at the time of writing.

Use diuretics to correct fluid status

Correct fluid overload with diuretics before starting an ACE inhibitor

Thiazide or loop diuretics should not be used alone to treat heart failure; they are useful to control the symptoms of fluid overload but do not reduce mortality. However, for ACE inhibitors to be effective, correct any fluid overload first with diuretics.¹⁴ Avoid dehydrating the patient.

Monitor renal function and electrolytes

Life-threatening hyperkalaemia can occur when ACE inhibitors are used with spironolactone, particularly in the elderly or patients with renal impairment.^{15,16} Careful monitoring of potassium is essential.

Beta-blockers are recommended: improve survival

Use beta-blockers in stabilised, symptomatic patients with heart failure

Contrary to practice some years ago, beta-blockers are now recommended for patients with heart failure as an adjunct to ACE inhibitor therapy at appropriate doses (with or without a diuretic, depending on the presence of fluid overload).¹

Beta-blockers improve survival in addition to the benefits gained through using ACE inhibitors

Beta-blockers improve survival and decrease hospitalisations.^{17–22} Overall, 22 patients need to be treated with a beta-blocker for one year to prevent one death.²³

Three beta-blockers are approved to treat heart failure: bisoprolol (Bicor), carvedilol (Dilatrend, Kredex) and metoprolol controlled-release (Toprol-XL).

Start with very low doses and increase gradually. Titrate to target doses or maximum tolerated dose

As with ACE inhibitor initiation and dose titration, ‘start low and go slow’ is recommended with beta-blockers. This reduces the risk of hypotension, bradycardia and initial worsening of heart failure symptoms. Increase doses at 2–4 week intervals if the patient has tolerated the lower dose.^{2,13} See *NPS News 36* for a table of starting doses and target doses for beta-blockers.

Help for GPs managing the patient with heart failure

Multidisciplinary, home-based services can reduce morbidity and mortality of heart failure

A systematic review of disease management programs observed that specialised follow-up and post-discharge support by a multidisciplinary team reduced hospitalisations by 23%.²⁴ The effect on mortality is less conclusive but an Australian study found a 20% reduction in mortality following multidisciplinary intervention.²⁵

Outreach heart failure nursing services are available through hospitals

Metropolitan and regional hospitals may have specialist heart failure clinics or services. These programs generally have structured educational and counselling components and may also include supervised exercise programs.^{1,13}

Patients with heart failure may be suitable candidates for Enhanced Primary Care (EPC) multidisciplinary care planning (items 720–730 of the Medicare Benefits Schedule) and home medicines review.

Ensure patient understanding: self-management is important

Regular medical review, coupled with an active role for patients and carers, is essential in promoting adherence to lifestyle measures

Informed, motivated patients who are supported in managing their condition themselves are critical to good care in chronic illnesses.²⁶ Patients can contribute to managing their heart failure in parallel with medical support—see recommendations below. High-quality information is available for patients (see enclosed insert).

National Heart Foundation summary recommendations for non-pharmacological management of chronic heart failure¹

- Regular physical activity. Consider referral to an exercise program specifically designed for patients with chronic heart failure.
- Patient follow-up and support by doctor, pre-discharge nurse review and/or home visit is critical to prevent deterioration.
- Sleep apnoea frequently co-exists with chronic heart failure. Patients with obstructive sleep apnoea may benefit from nasal continuous positive airway pressure.
- In acute exacerbations or when clinically unstable, patients should have a period of bed rest until their condition improves.
- Limit dietary sodium to below 2000 mg/day. Fluid intake should generally be limited to 1.5 litres/day in mild to moderate chronic heart failure and 1 litre/day in severe chronic heart failure, especially if there is co-existing hyponatraemia.
- Alcohol intake should generally be nil but should not exceed 10–20 grams/day.
- Smoking should be strongly discouraged.
- Advise heart failure patients to weigh themselves daily and to consult their doctor if their weight increases by more than 1.5 kg in a 24-hour period or if they experience dyspnoea, oedema or abdominal bloating.
- Vaccinate against influenza and pneumococcal disease.
- High-altitude destinations should be avoided. Travel to very humid or hot climates should be undertaken with caution and fluid status should be carefully monitored.

Reviewer:

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The information contained in this material is derived from a critical analysis of a wide range of authoritative evidence. Any treatment decisions based on this information should be made in the context of the individual clinical circumstances of each patient.



National Prescribing Service Limited

Our goal To improve health outcomes for Australians through prescribing that is: **safe** **effective** **cost-effective**
Our programs To enable prescribers to make the best prescribing decisions for their patients, the NPS provides **information** **education** **support** **resources**

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NICS Heart Failure Patient Resources Directory

About the directory:

- The National Institute of Clinical Studies (NICs) has identified the four highest quality heart failure patient publications in Australia and brought them together in an online directory, available on the NICs website (www.nicsl.com.au) under 'Quick links'. All of these are regularly reviewed and updated.
- The four publications are available as electronic versions and can be easily downloaded and printed for use with your patients and their families.
- The online directory was developed in response to the recommendations of health professionals and consumer groups who participated in a national study that mapped the availability and quality of resources for people with heart failure across Australia.

About the publications:

- **'Let's Talk About Heart Failure'**

This is an eight-page booklet produced by the National Heart Foundation of Australia. It includes information on heart failure symptoms, types of medications, cardiac rehabilitation and lifestyle, as well as frequently asked questions.

- **'Your Guide to Heart Failure'**

This is a 28-page booklet with pictures and diagrams, produced by the Bayside Health and Heart Failure Centre, Alfred Hospital (Vic). It includes information on causes, diagnostic procedures, medications and medical follow-up, as well as a diary and detachable heart failure action plan.

- **'Heart Failure Patient Information Book'**

This is a comprehensive, 41-page booklet produced by the Advanced Heart Failure Service of Royal Perth Hospital (WA). As well as including the more common information on diagnosis, medications and lifestyle issues, it also talks about the issue of emotional adjustment. The section on exercise includes detailed information on warming-up, stretching, aerobic conditioning and muscle conditioning.

- **'Living with Heart Failure: Information for you, your family and carers'**

This is a 43-page booklet that explains most medical terms, produced by the Brisbane Cardiac Consortium (QLD). There is an extensive section on medications, including tips on taking medications and specific information on each class of drugs, plus a section on when to call a doctor or ambulance.

Want to download a copy?

Visit: www.nicsl.com.au and follow the 'Quick links' to 'Heart Failure Directory'



Heart Foundation



National Prescribing Service Limited

The NICs online directory forms part of a joint program with the National Heart Foundation of Australia and the National Prescribing Service Ltd to improve the management of heart failure.