

# Multidisciplinary care for people with chronic heart failure

Principles and recommendations for best practice



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# Introduction

Best-practice management of chronic heart failure (CHF)\* involves multidisciplinary care.<sup>1</sup> There is convincing evidence that, among people who have been hospitalised with CHF, those who receive multidisciplinary care have better health outcomes than those who do not.<sup>1,2</sup>



The multidisciplinary care described in this document is designed primarily for patients with symptomatic CHF (NYHA class II–IV)<sup>†</sup> who have a history of hospitalisation for CHF and are at high risk for further exacerbations and adverse clinical outcomes.<sup>1</sup> Patients with NYHA class I (asymptomatic) CHF require comprehensive care, including pharmacological therapy, non-pharmacological management, education and support for self-care as appropriate, and management of other related conditions.<sup>1</sup>

This document was informed by models of multidisciplinary CHF care implemented in Australia and elsewhere.<sup>3–8</sup> While there is no definitive model of best-practice multidisciplinary care for people with CHF, current evidence strongly supports a set of broad principles that include coordination of care and patient involvement in self-care (see page 9). Further, a number of recommended components can be identified from the most successful structured CHF programs (see page 16). Preliminary evidence suggests that programs that apply a range of evidence-based interventions are associated with lower rates of adverse cardiovascular events than lower-intensity programs.<sup>9,10</sup>

**Note:** in this document, ‘structured CHF program’ refers to coordinated healthcare interventions that are prospectively designated for and targeted towards patients with a diagnosis of CHF, and which emphasise patient self-care.<sup>11</sup>

## Purpose

This document was developed to help health professionals and policy makers establish and maintain best-practice multidisciplinary CHF care that is linked with health services, delivered in acute and subacute healthcare settings, and uses both in-reach and out-reach approaches (see Table 1 on page 4). It sets out the principles of care delivery and key tasks to be carried out by health professionals (and other service providers, as appropriate) to achieve the best possible clinical outcomes for patients, including optimal quality of life and avoidance of hospital admissions. It also suggests considerations for health system organisation and performance indicators for assessing effects (see Figure 1 on page 4).

This document complements the current CHF management guidelines<sup>1</sup> and consumer guide.<sup>12</sup> It should be read in the context of these and other current national guidelines applicable to the prevention, detection and management of cardiovascular disease and related conditions (see Figure 2 on page 5).

\* CHF is a complex clinical syndrome that is frequently, but not exclusively, characterised by objective evidence of an underlying structural abnormality or cardiac dysfunction that impairs the ability of the left ventricle (LV) to fill with or eject blood, particularly during physical activity. Symptoms of CHF (e.g. dyspnoea and fatigue) can occur at rest or during physical activity.

Systolic heart failure (the most common form of CHF) is characterised by weakened ability of the heart to contract.

Heart failure with preserved systolic function (HFPSF), also known as diastolic heart failure, is characterised by impaired relaxation and/or abnormal stiffness of the LV in response to exercise or a volume load, despite normal ventricular contraction.

Systolic heart failure and HFPSF can occur together. The distinction between them is relevant to the therapeutic approach. Please refer to current national CHF management guidelines.

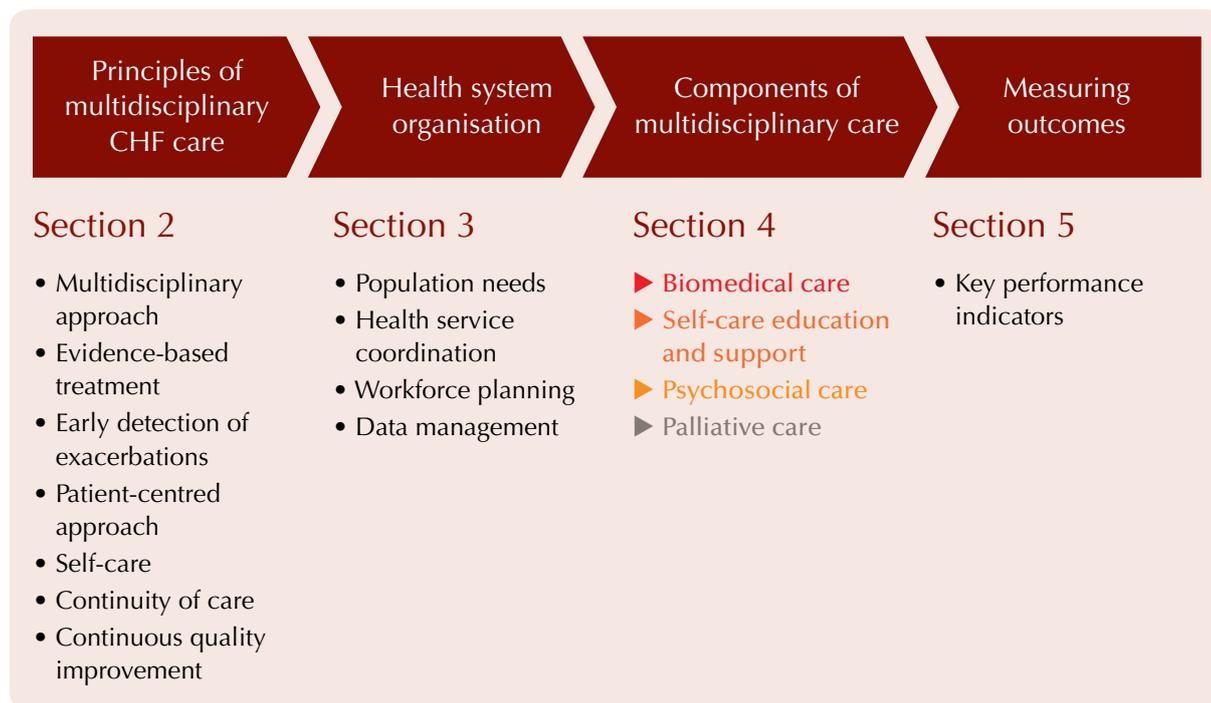
† Patients with any level of limitation of physical activity. The New York Heart Association (NYHA) functional classification is summarised in reference 1.



**Table 1. Uses of this document**

This document can be used by:	
<b>Health service planners</b>	<ul style="list-style-type: none"> <li>→ To identify resources and networks required to establish or maintain multidisciplinary CHF care to meet local needs</li> <li>→ To ensure that existing structured CHF programs are aligned with recommended best practice</li> </ul>
<b>Program directors and clinical staff</b>	<ul style="list-style-type: none"> <li>→ To compare existing structured CHF programs with recommended best practice</li> <li>→ To adapt multidisciplinary CHF care to local needs and priorities within recommended best-practice framework</li> <li>→ To evaluate program delivery using the key performance indicators</li> </ul>
<b>Policy makers</b>	<ul style="list-style-type: none"> <li>→ To draw on acknowledged requirements of multidisciplinary CHF care when developing policies to make health systems more efficient and improve patient outcomes</li> </ul>
<b>Consumer organisations and individuals</b>	<ul style="list-style-type: none"> <li>→ To access information on recommended best practice in multidisciplinary CHF care</li> </ul>

**Figure 1. Overview of document structure**



**Figure 2. Heart Foundation guidelines for Australian health professionals managing cardiovascular disease**

Australian population	Patients with cardiovascular disease	Patients with, or at risk of, CHF	Patients with moderate to severe CHF
<ul style="list-style-type: none"> <li>• <i>Guidelines for the assessment of Absolute cardiovascular disease risk</i></li> <li>• <i>Physical activity and energy balance: quick reference guide for health professionals</i></li> <li>• Heart Foundation position statements and guidelines on nutrition and cardiovascular health</li> <li>• <i>Guide to management of hypertension 2008</i></li> <li>• <i>Lipid management guidelines – 2001</i></li> <li>• <i>Position statement on lipid management – 2005</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Reducing risk in heart disease 2007 (Updated 2008)</i></li> <li>• <i>Guidelines for the management of acute coronary syndromes 2006</i></li> <li>• <i>Physical activity recommendations for people with cardiovascular disease</i></li> <li>• <i>Physical activity in patients with cardiovascular disease: management algorithm and information for general practice</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Guidelines for the prevention, detection and management of chronic heart failure in Australia, 2006</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Multidisciplinary care for people with chronic heart failure. Principles and recommendations for best practice</i></li> </ul>

**Table 2. Multidisciplinary CHF care in a chronic disease management context**

Domain*	Application to this document
Patient population	See <i>Population needs</i> on page 11
Intervention recipients	See <i>Introduction</i> on page 3
Intervention content	See <i>Components of multidisciplinary CHF care</i> on page 16
Intensity and complexity	See <i>Principles of multidisciplinary care for people with CHF</i> on page 9
Clinical outcome measures	See <i>Key performance indicators</i> on page 27
Delivery personnel	Outside the scope of this document <sup>†</sup>
Method of communication	Outside the scope of this document <sup>†</sup>
Environment	Outside the scope of this document <sup>†</sup>

\* Taxonomy proposed by the American Heart Association.<sup>19</sup>

† These are considerations for health service planners at state and local levels, taking into account available evidence, local resources, available health personnel, scope of practice, professional regulatory requirements and occupational health and safety issues.

## Context

The arrangement of health services varies across Australia. Recommendations for chronic disease management must be flexible to enable their implementation in a diverse range of delivery models according to local needs, resources and patient preferences. International experience shows that effective multidisciplinary CHF care can be implemented in a range of clinical settings and using a range of delivery models, including home-based, clinic-based and telephone-based approaches, or a hybrid of these approaches.<sup>9,13–17</sup> The elements of multidisciplinary CHF care described in this document can be delivered in a range of Australian settings, including general practice, hospital clinics, community and home-based structured programs and specialist private practice.

The principles of multidisciplinary care for people with CHF outlined here are aligned with the key areas of healthcare system reform identified by the Health and Hospitals Reform Commission.<sup>18</sup> These are:

- tackling major access and equity issues affecting health outcomes
- redesigning the health system so that it is better positioned to respond to emerging challenges
- creating an agile and self-improving health system for long-term sustainability.

Planning for multidisciplinary CHF care takes place within the broader context of chronic disease management. This document acknowledges recent efforts by the American Heart Association to standardise a framework to facilitate planning and research, based on domains common to chronic disease management programs. These domains are patient population, intervention recipients, intervention content, delivery personnel, method of communication, intensity and complexity, environment, and clinical outcome measures (see Table 2 on page 5).<sup>19</sup>

Multidisciplinary CHF care is distinguished from generic chronic disease management programs by the special needs of patients with CHF (e.g. ongoing medicines titration, symptom monitoring and management of devices), which necessitate specialised evidence-based treatment strategies associated with optimal outcomes. Accordingly, effective CHF care often requires access to specialised knowledge and expertise.

## CHF in Australia

CHF costs our community lives, health and money. Every year, an estimated 30,000 Australians receive a diagnosis of CHF.<sup>20</sup> The cost of CHF has been estimated at more than \$1 billion per year.<sup>21</sup>

More than 41,000 Australians were hospitalised due to CHF in 2005–2006.<sup>20</sup> Although admission rates for CHF appear to have stabilised, the contribution of CHF to total bed-days attributed to circulatory diseases appears to be increasing.<sup>22</sup> Seasonal variation in CHF-related morbidity and mortality has also been reported.<sup>23</sup>

CHF was the underlying cause of 2225 deaths in 2005, with 91% of these deaths occurring among people aged 75 years and older. CHF was also an associated cause of death in a further 14,466 cases for the same period.<sup>20</sup> However, the rate of Australian deaths due to CHF appears to be declining.<sup>24, 25</sup>

CHF is 1.7 times more common among Aboriginal and Torres Strait Islander people than other Australians,<sup>20</sup> and occurs at a

younger age.<sup>26</sup> Aboriginal and Torres Strait Islander people are also significantly more likely to die from CHF than other Australians (standardised mortality ratio\* 2.1 for men and 2.4 for women).<sup>20</sup>

A high proportion of Australians with cardiovascular disease have one or more comorbid chronic diseases, such as arthritis, diabetes, asthma or mental illness.<sup>27</sup> The use of multiple medicines in this population puts them at significant risk of treatment-related adverse effects.

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\* Standardised mortality ratios represent the ratio of the observed number of deaths to the number of expected deaths if Aboriginal and Torres Strait Islander people had experienced the same age- and sex-specific death rates as other Australians.

## Multidisciplinary CHF care in Australia

There has been a rapid expansion of structured multidisciplinary CHF management programs in Australia.<sup>28</sup> However, ensuring access for all patients who would benefit remains a challenge.<sup>29</sup>

As seen in other developed countries, the composition of multidisciplinary teams providing post-discharge structured CHF programs has not been consistent.<sup>28</sup> Disciplines involved include, but are not limited to, Aboriginal health workers, cardiologists, dietitians, exercise physiologists, general physicians, general practitioners (GP), nurses (including nurses with cardiology training, formally accredited heart failure nurse practitioners, community nurses, palliative care specialist nurses and practice nurses), occupational therapists, palliative care

physicians, pharmacists (including hospital pharmacists, community pharmacists and accredited pharmacists), physiotherapists, psychologists and social workers.

Surveys and audits of Australian CHF programs indicate that they vary with respect to the risk status and demographic characteristics of participants, the level of involvement of carers and other health professionals, methods of communication, and intensity.<sup>30</sup> These findings indicate the need for a systematic approach, including development of national benchmarks and quality improvement processes.<sup>30</sup>

# Principles of multidisciplinary care for people with CHF

There is high-quality evidence for the overall efficacy of multidisciplinary structured CHF management programs.<sup>1,9,13,16,31–33</sup> This approach is endorsed by Australian and international clinical practice guidelines and consensus statements,<sup>1,2,34</sup> and by health policy initiatives across Australia.<sup>35</sup>

Based on evidence from systematic reviews and meta-analyses,<sup>2,9,13,15,16,33,36</sup> it is possible to identify broad elements that are common to the most effective programs. These include:

- involvement of health professionals and other providers from a range of disciplines using a team approach across healthcare sectors
- implementation of evidence-based management guidelines, including systems for optimisation of pharmacological and non-pharmacological therapy
- monitoring of signs and symptoms to enable early identification of decompensation and/or deterioration, and effective protocols for symptom management
- inclusion of patients and their families in negotiating the aims and goals of care
- development and implementation of individualised management plans
- promotion of and support for self-care (e.g. taking medicines, following lifestyle management advice about smoking cessation, physical activity and exercise programs, nutrition and limiting alcohol use, and monitoring and interpreting symptoms<sup>37</sup>) as appropriate to patients' needs, capacities and preferences
- the use of behavioural strategies to support patients in modifying risk factors and adhering to their management plans
- continuity of care across healthcare services, including acute care, primary care and community care
- monitoring of program outcomes and systems to ensure continuous quality improvement.

While there is high-level evidence for implementing combinations of these management principles, there is limited evidence to enable patient outcomes to be attributed to specific program components<sup>38</sup> due to the difficulty of assessing complex interventions.<sup>39</sup> Much of the evidence is derived from studies undertaken in academic research facilities, and effective protocols and processes identified in these settings may be difficult to replicate in practice due to resource constraints, including the available skill mix.<sup>40,41</sup>





The allocation of tasks within the multidisciplinary team is a complex issue. It is often based on pragmatic considerations, as determined by local workforce constraints and resources. Some aspects are governed by professional regulations and scope of practice.

A number of components of effective multidisciplinary CHF care can be identified from the most successful structured CHF programs documented in published literature.<sup>1,2,15</sup> Recommended components are outlined in *Components of multidisciplinary CHF care* on page 16.

There is insufficient high-quality evidence on which to make strong recommendations for the optimal time to commencement, duration and intensity of structured multidisciplinary CHF programs for patients discharged from hospital after admission for exacerbation of CHF. The appropriate 'dose' and intensity of a program depend on the individual's care needs. The intensity of interventions depends on development of a personalised care plan based on the patient's overall risk of their CHF getting worse.

The appropriate time for a patient to move from more intensive contact with the multidisciplinary care team to less intensive ongoing care in the community depends on the individual's clinical stability and achievement of various therapeutic targets. The following interim recommendations are based on review of published data and the views of Australian health professionals involved in the provision of CHF care who responded to a 2009 survey conducted by the Heart Foundation.

- Patients with CHF assessed as NYHA functional class II–III (at the time of discharge from hospital after an admission for CHF) should commence contact with a structured multidisciplinary CHF program or commence multidisciplinary care within one week of hospital discharge. This group of patients should receive multidisciplinary care for at least 12 weeks.
- Patients at higher risk at the time of discharge from hospital (NYHA functional class IV or other characteristics indicating high risk<sup>1</sup>) should commence contact with a structured multidisciplinary CHF program or commence multidisciplinary care within 24 hours of discharge. This group of patients should receive multidisciplinary care for an indefinite period, based upon a comprehensive needs assessment and provided in consultation with their GP, specialist doctor/s and other health professionals involved in their care.

# Health system organisation for multidisciplinary CHF care

## Multidisciplinary CHF care and chronic disease management

Current chronic care management research emphasises the importance of integrated and coordinated approaches and cross-sector collaboration. The Innovative Care for Chronic Conditions framework (adapted from the Chronic Care Model)<sup>42</sup> provides a useful framework for structuring healthcare planning and delivery across all levels of service provision. Within this model, key considerations for planning a health system that will support effective care for people with chronic disease, including CHF services, include:<sup>35,42</sup>

→ developing policy to establish healthcare models that facilitate and support evidence-based care

- investing in models of healthcare delivery that coordinate care across disease conditions, healthcare providers and settings
- providing information to patients and providers and supporting self-care (as appropriate to the individual's capacity and preferences)
- promoting evidence-based treatment strategies in clinical services
- developing links across healthcare providers and services
- empowering communities to engage in self-care and decision making, and reducing the stigma of living with a chronic condition.

Multidisciplinary care for people with CHF can be delivered according to various models. This document does not presuppose that the components described on pages 16–26 must be delivered through conventional post-discharge structured CHF programs or hospital-based clinics, although this approach is likely to be optimal where available.

Planning for delivering multidisciplinary CHF care at the national, state or local level involves consideration of:

- the needs of the target population
- systems to coordinate health services and promote continuity of care
- workforce availability
- effective management of data and monitoring of the quality of care
- adequate resourcing for staffing, consumables and administrative costs
- efficient delivery of the core components of effective care as set out in this document.

## Population needs

Planning multidisciplinary CHF programs must take into consideration the social, political and cultural fabric of contemporary Australian society, including:

- the burden of CHF
- the geographic distribution of the target population
- the age of people with CHF
- the capacity of the target population to access services, particularly people in rural and remote communities
- coordination with primary and secondary cardiovascular disease prevention initiatives
- other demographic factors, including socioeconomic characteristics and ethnicity, with particular attention to the needs of Aboriginal and Torres Strait Islander people
- cultural norms, health literacy,\* expectations for healthcare and ensuring care is provided within a culturally appropriate framework.

\* Health literacy is the knowledge and skills required to understand and use information relating to health issues such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies, and staying healthy. [Source: 4233.0 – Health Literacy, Australia, 2006. Available at [www.abs.gov.au](http://www.abs.gov.au)]



## Health service coordination

Multidisciplinary CHF care begins in hospital and continues after discharge. Therefore, effective protocols are needed to ensure continuity of care between health systems and good communication between all healthcare providers, including primary, secondary and tertiary care health professionals, allied health professionals and family members.

The following issues must be considered at all levels of planning:

- mechanisms for identifying and engaging the target population
- ensuring continuity of care for patients who access both public and private sector services
- agreed protocols and processes for transfer between health services
- clearly described, agreed roles for all service providers
- effective data management (see below).

### The role of the acute sector

The roles of acute sector services in multidisciplinary CHF care include:

- developing and implementing protocols for identifying patients who require multidisciplinary CHF care
- multidisciplinary care meetings and case conferences during the hospital stay
- discharge planning processes that include identifying available multidisciplinary CHF care opportunities (noting that the person may be eligible to access both private and public health services, including the Department of Veterans' Affairs)

- coordinating with community-based services (e.g. general practice, community or accredited pharmacists, diabetes educators and cardiac rehabilitation programs, community and private nursing services, Home and Community Care Program) to provide care after discharge
- specifying a plan for managing the patient's medicines following discharge (e.g. referring the patient to their GP or a community pharmacist who has been contacted by the inpatient care team to ensure continuity of care).

### The role of general practice

Planning for multidisciplinary CHF care must take into account the important role of general practice in the Australian health system. Approximately 88% of Australians visit their GP at least once a year.<sup>43</sup> Therefore, whenever multidisciplinary CHF care is delivered outside the general practice setting, it is essential that the multidisciplinary team contacts and collaborates with the patient's GP.

Sometimes GPs might take a central role in coordinating multidisciplinary CHF care. In these circumstances, it is essential for GPs to consult with specialist clinicians to make sure that assessments are conducted and medicines are managed in accordance with current evidence-based guidelines. Patients should also be referred to a cardiologist for evaluation if their CHF worsens.

The roles of general practice in multidisciplinary CHF care include:

- identifying and referring to services that are accessible to the patient
- coordinating a multidisciplinary team
- collaborating with a pharmacist to assess and adjust the medicine regimen (e.g. through a Home Medicines Review) to reduce the risk of hospitalisation for CHF exacerbations.<sup>44</sup>

The role of practice nurses in managing chronic disease is rapidly expanding. This change has been driven by increased funding targeting the community sector to meet the increasing burden of chronic diseases, and by the need to provide services in regional, rural and remote settings. Approximately 58% of general practices employ a practice nurse.<sup>45</sup> The roles of practice nurses in multidisciplinary CHF care include:

- managing registers and recall systems
- identifying patients who would benefit from multidisciplinary CHF care
- targeting patients for the education, resources or support services from which they are most likely to benefit
- identifying patients eligible for structured care plans
- providing administrative and clinical support.

It is important to ensure that practice nurses receive support and mentorship from heart failure nurse specialists.

## Workforce planning

Necessary actions to build adequate workforce capacity at regional and local service levels include:

- identifying treatment goals and desired outcomes
- recruiting staff with the required professional skill set and scope of practice to meet each of the goals
- establishing referral processes that best use the skills of available personnel to meet patients' needs and involve collaboration between providers
- accessing other available services that may be able to assist (e.g. local or visiting community health services or cardiac rehabilitation service providers)
- building capacity in services that are geographically remote from specialist services, providing access to appropriate training, developing effective protocols for referral and consultation (e.g. telephone follow-up, telemedicine systems, outreach approaches), and supporting staff through clinical supervision and mentoring
- establishing appropriate funding models, including staff development and remuneration commensurate with the required skill set.

The use of a formal checklist (see Table 3 on page 14 and the end of this document) may help in allocating tasks and ensuring that all core components of planning and care are considered, to meet the standards set out in the key performance indicators (see page 27).

## Data management

Planning for effective multidisciplinary CHF care involves establishing information technology and data management infrastructure necessary to support:

- processes to identify the target population – people with symptomatic (NYHA functional class II–IV) CHF after hospitalisation for an exacerbation of CHF
- efficient patient monitoring and recall to ensure appropriate assessments and treatments are completed at pre-agreed intervals
- all aspects of coordination between healthcare providers (e.g. referral protocols and follow-up systems)
- decision support systems based on clinical guidelines and agreed protocols
- efficient transfer of patient data, including clinical data and an up-to-date medicines list, between all healthcare providers (e.g. through electronic communication or patient-held records)
- monitoring of health service use and health outcomes
- quality improvement programs based on key performance indicators at local, state and national levels.

Table 3. Sample checklist for planning multidisciplinary CHF care

Recommended components of multidisciplinary CHF care	Implemented		Delivered by	
	Yes	No*	Core team	Wider team
<b>Identify program objectives</b>				
→ Define intended recipients of multidisciplinary CHF care e.g. patients admitted to hospital with a primary diagnosis of CHF				
→ Recruit target population e.g. implement protocols within the hospital and establish effective referral links with local general practices and Aboriginal medical services				
→ Define and measure outcome goals <sup>†</sup> e.g. to reduce rates of unplanned readmission; to refer patients back to care of GP at pre-defined point in care				
<b>▼ Biomedical care: Assessment and documentation of biomedical factors<sup>‡</sup></b>				
→ Confirm CHF diagnosis e.g. echocardiography to document CHF diagnosis				
→ Assess functional capacity e.g. initial and subsequent six-minute walk test				
<b>▼ Biomedical care: Tailored medical management</b>				
→ Prescribe and titrate medicines as recommended in current national treatment guidelines e.g. current prescription for ACE inhibitor/angiotensin receptor blocker and beta blocker, dose titration schedule, assessment of adherence to medicines				
→ Develop a treatment plan to manage comorbid and related conditions e.g. prescription of warfarin for patients with atrial fibrillation, regular assessment of HbA1c for patients with diabetes				
→ Routinely provide preventive care e.g. immunisations as recommended in national guidelines, assessment of lifestyle risk factors, prevention of thromboembolism				
→ Develop personalised treatment plans e.g. personalised exercise program, clearly defined medicines regimen plan				

Continued over...

\* When the 'No' column is ticked, the reason should be documented (e.g. beyond the scope of the service). Any failure to adhere to these recommendations should be discussed by the people responsible for clinical governance.

† For suggested key performance indicators, please refer to *Key performance indicators* on page 27.

‡ Details of these components are described in the next section, *Components of multidisciplinary CHF care*. A full checklist is provided at the end of this document.

Recommended components of multidisciplinary CHF care	Implemented		Delivered by	
	Yes	No*	Core team	Wider team
<b>▼ Self-care education and support: Assessment and documentation of self-management status</b>				
→ Assess patients' capacity for self-care e.g. formal assessment of patient ability to self-care, health literacy, cognitive function, screening for depression				
<b>▼ Self-care education and support: Self-care education and counselling (patients and carers)</b>				
→ Provide information and support for self-care, appropriate to patient's circumstances e.g. ensure understanding of the causes and consequences of CHF, purpose of medicines, medicines to avoid				
<b>▼ Self-care education and support: Documented personalised action plan</b>				
→ Develop action plans and provide clear instructions to patients and carers e.g. daily weight monitoring and recording in personal diary, personalised actions to take when weight or symptoms change				
<b>▼ Psychosocial care: Assessment and documentation of psychosocial factors</b>				
→ Determine individual needs e.g. apply validated tool to assess concurrent depression, social support needs and carer's coping				
<b>▼ Psychosocial care: Management of psychosocial factors</b>				
→ Develop and document plan to personalise care to the patient's cultural and linguistic preferences and abilities e.g. referral to psychologists, involve healthcare interpreters and Aboriginal health workers, arrange support for carers				
<b>▼ Palliative care: Assessment and documentation of advance care/palliative care needs</b>				
→ Negotiate goals of treatment and care with patient and carers e.g. routine discussion and offering of advance care plan, regular reassessment and documentation of palliative care options				

This checklist illustrates the range and type of factors to be considered when planning or assessing structured multidisciplinary CHF care. Each item applies to the service as a whole. Ticking the 'Yes' column indicates that the service has implemented systems and protocols to make sure that each component is routinely delivered to all patients, except where contraindicated or otherwise not applicable.

\* When the 'No' column is ticked, the reason should be documented (e.g. beyond the scope of the service). Any failure to adhere to these recommendations should be discussed by the people responsible for clinical governance.

† For suggested key performance indicators, please refer to *Key performance indicators* on page 27.

‡ Details of these components are described in the next section, *Components of multidisciplinary CHF care*. A full checklist is provided at the end of this document.

# Components of multidisciplinary CHF care



To provide a practical checklist, components are grouped according to four broad domains:

- biomedical care
- self-care education and support
- psychosocial care
- palliative care.

However, it is acknowledged that effective multidisciplinary CHF care requires a holistic approach in which aspects of these domains will overlap considerably.

All the described interventions must be tailored to patient preferences and be based on assessment of the individual's physical, social, psychological, cultural and spiritual needs.

Items listed under the subheading 'Where possible' represent aspects of care that are supported by published evidence and/or expert consensus, but which may not be available in some settings. These items should not be considered to represent a lower priority.

Because CHF is a progressive condition that is characterised by periodic acute exacerbations, the most appropriate management strategy may change over time. Therefore, the assessments and evaluations described within the components of multidisciplinary care must be repeated from time to time, at intervals determined by clinical judgement with reference to current management guidelines.

Implementation of these recommendations will necessitate the development of minimum skill sets for team members responsible for some components. This will ensure the safety and quality of patient care and align with professional scope of practice as determined by regulatory and professional bodies. Specification of such skill sets is outside the scope of this document.

# ► Biomedical care

## Clinical history, physical assessment and functional status

### Core requirement

Assessment and documentation of clinical and functional status.

### Aims

- To identify people at high risk of hospitalisation and death (NYHA class II–IV, with or without other high-risk features\*).
- To obtain all data necessary to determine an appropriate treatment plan and establish a baseline for ongoing monitoring and evaluation.
- To identify and manage related conditions (e.g. ischaemia, diabetes, renal dysfunction, arrhythmias or anaemia).

### Checklist

- Documentation of the patient's diagnosis of CHF.
- Clinical history recorded, including procedures and medicines (prescription and non-prescription).
- Assessment of the patient's symptoms (e.g. dyspnoea and fatigue).
- Assessment of the patient's functional status (e.g. six-minute walk test and NYHA functional class<sup>†</sup>).
- Physical examination of the patient (at each visit), with particular attention to assessment of their vital signs, cardiovascular system (including volume status), signs of deterioration and comorbid conditions.\*
- Assessment and management of the patient's cardiovascular risk factors (e.g. hypertension, dyslipidaemia, diabetes, smoking and obesity).
- Electrocardiogram done.
- Echocardiogram done.
- Pathology tests (biochemistry and haematology) done.\*
- Assessment for reversible causes of CHF (e.g. myocardial ischaemia and anaemia).
- Assessment of the patient's nutritional status.

- Assessment of the patient's cognitive function<sup>46, 47</sup> using a reliable and valid instrument.
- Assessment of issues associated with ageing and frailty (e.g. risk of falls, vision or hearing impairment, and incontinence).
- Assessment of indications of patient need for surgical procedures and supportive devices (e.g. implantable cardioverter defibrillators, pacemakers and left-ventricular assist devices).\*
- Monitoring and follow-up of the patient's existing devices.

### Where possible

- Home visit (e.g. by team member or community nurse) to obtain a comprehensive understanding of the patient's circumstances (physical, social and psychological), assess their capacity for self-care, assess their treatment adherence and negotiate a treatment plan with patients and their families.
- Assessment of the patient's peak oxygen demand – volume of oxygen consumed per minute at maximal exercise (VO<sub>2</sub> max).

For assessment tools, see appendix B.

\* Please refer to current Australian evidence-based CHF management guidelines.

† The NYHA functional classification is summarised in reference 1.

**Note on plasma brain natriuretic peptide (BNP):** BNP or N-terminal proBNP improve diagnostic accuracy in patients presenting with unexplained dyspnoea.<sup>48</sup> These tests should be considered when the diagnosis is not clear following the initial clinical evaluation, especially if an echocardiogram cannot be performed promptly.<sup>1</sup> The role of BNP or N-terminal proBNP in treatment monitoring has not been established. Based on current evidence, the use of natriuretic peptides as a guide to therapy does not appear to improve clinical outcomes, compared with symptom-guided treatment, when applied to all patients with CHF. However, results appear to be more favourable in younger patients and further trials are needed.<sup>49</sup>



## Managing other conditions

### Core requirement

Systems for ensuring that comorbid and related conditions are detected and managed effectively, and that these conditions or their treatment do not worsen CHF.

### Aims

- To ensure early recognition, clinical assessment and management of associated and comorbid disorders, such as anaemia, arthritis, atrial fibrillation, cancer, chronic kidney disease, depression, diabetes, gout, sleep apnoea and chronic obstructive pulmonary disease (COPD).
- To prevent hospitalisations and adverse events.

### Checklist

- Assessment of the patient's comorbidities and tailoring of their management plan, self-care education and action plan<sup>‡</sup> accordingly.
- Assessment for depression (see *Psychological factors*, page 24).
- Assessment of the patient's potential for adverse effects of medicines (see *Medicine management*, page 19).
- Assessment and documentation of the patient's renal function and tailoring of fluid restriction accordingly.
- Regular reassessment of the patient's biochemistry (including urea and creatinine) and haematology (including haemoglobin) parameters.
- Education and support for patients with diabetes and their carers to achieve strict blood glucose control.

- Anticoagulation therapy and monitoring of clotting time for patients with atrial fibrillation.
- Referral for patient to specialists (e.g. diabetologist, renal physician, palliative care physician or respiratory physician) as required.
- Arrangement of patient participation in self-management programs for specific comorbid conditions (e.g. diabetes and COPD).

For self-care resources, see appendix B.

- 
- ‡ An action plan is a written document indicating to the patient and/or carer when and how to respond to a change in symptoms or physical status. Actions include contacting a health professional and/or changing the treatment regimen (e.g. diuretic dose). An action plan must be personalised, based upon an assessment of the patient's capabilities, health beliefs and resources.

## Medicine management

### Core requirement

Implementation of evidence-based treatment guidelines and monitoring patient adherence to prescribed medicines.

### Aims

- To ensure patients receive evidence-based medicines.
- To avoid complications due to medicines that may worsen CHF or interactions between medicines.

### Checklist

- Prescription and titration of recommended medicines (e.g. ACE inhibitors and beta blockers) according to guidelines.\*
- Involvement of community pharmacist, accredited pharmacist or hospital pharmacist in patient care planning.
- Ongoing monitoring and evaluation of patient's medicines regimen (both prescription and non-prescription medicines, including complementary medicines), and checking for medicines that may worsen CHF, such as nonsteroidal anti-inflammatory drugs (NSAID), and potential interactions between medicines.
- Implementation of flexible diuretic regimens, where appropriate (see *Management of fluid balance*, page 22).
- Education and counselling for patients and their carers to make sure they understand:
  - the purpose and dosing schedule of medicines
  - monitoring considerations, if applicable (e.g. diuretic and anticoagulant therapy)
  - which medicines to avoid because they may worsen CHF (e.g. NSAIDs).
- Provision of a personalised medicines list to patients and carers that should be carried at all times, checked for currency at each visit and updated whenever the regimen changes.
- Checking the patient has a current prescription for ongoing medicines, access to a pharmacy and received advice on eligible funding arrangements (referral to pharmacist and/or social worker as necessary).
- Assessment of the patient's adherence to medicines and use of behavioural prompts and tools (e.g. dose administration aids).

- Establishment of protocols for reassessing adherence in the event of deteriorating symptom control.

### Where possible

- Arrangement of a comprehensive medicines assessment (e.g. checking appropriate use and identifying medicine-related problems) performed by a pharmacist in the community setting (e.g. a Home Medicines Review or Residential Medication Management Review).

For assessment tools and medicine management resources, see appendix B.

## Prevention and management of CHF exacerbations

### Core requirement

Systems for early recognition, thorough investigation, clinical assessment and management of worsening CHF.

### Aims

- To ensure early recognition, clinical assessment and management of worsening CHF.
- To prevent hospitalisation and adverse events.

### Checklist

- Patient self-monitoring of their daily weight in accordance with a negotiated action plan.
- Provision of a personalised CHF action plan that takes into account disease severity and patient preferences, and specifies who to contact at any time of the day or night.
- Reassessment of functional status (see *Clinical history, physical assessment and functional status*, page 17), adherence to management plan (including medicines), lifestyle risk factors, cognitive function, depression and ability to self-care.

\* Please refer to current Australian evidence-based CHF management guidelines. Allocation of these responsibilities within the multidisciplinary team will be governed by professional regulations and scope of practice. Multidisciplinary teams that lack prescribing capacity should liaise with the patient's primary care doctor to ensure effective medicine management.

- Assessment of potential precipitants, such as infection, adverse effects of medicines (see *Medicine management*, page 19), comorbidity and hot weather.
- Assessment of the patient's social factors (e.g. coping, carer burden and access to services).
- Provision of clear instructions to the patient or carer on who they should contact at each step of the action plan.
- Matching the frequency of contact, choice of interventions and intensity of management to the patient's personal risk level and needs.
- Establishing protocols for patient referral to specialised services (e.g. cardiologist with a special interest in CHF and electrophysiologist), or involving heart failure nurses or specialists in consultations (e.g. in remote settings).
- Ensuring all members of the patient's care team are informed of changes in health status or management plan.

#### Where possible

- Establishment of a dedicated single point of contact.
- Development of protocols for expedited referral to acute services.
- Development of systems for professional mentorship and consultation in regional and remote healthcare settings.

For assessment tools, see appendix B.

## Other preventive care

### Core requirement

Processes for optimising biomedical and psychosocial wellbeing through thorough preventive care.

### Aims

- To prevent CHF exacerbations and hospitalisations due to pneumonia or influenza.
- To manage infection risk through prevention and early detection.
- To provide healthcare and advice with attention to both the health implications of CHF and general health considerations applicable to the patient's age and social, cultural and economic circumstances.

### Checklist

- Provision of influenza and pneumococcal vaccinations to patients, as recommended in current evidence-based guidelines.
- Promotion of patient skin care, bladder and bowel hygiene to prevent common infections (e.g. cellulitis and lower urinary tract infections), and regular dental check-ups to optimise periodontal health.
- Early intervention (e.g. prompt referral to patient's GP) if the patient's symptoms suggest urinary tract or chest infections.
- Monitoring the patient for risks of thromboembolism, particularly during periods of prolonged bed rest and in patients with atrial fibrillation.
- Development of strategies to reduce risk of complications common among older patients (e.g. falls, decubitus ulcers and delirium).
- Assessment of the patient's daily activities and interventions or referral as needed (e.g. referral to an occupational therapist, an exercise physiologist or a physiotherapist).
- Provision of advice on sleep hygiene as required.
- Monitoring of the patient's changes in social status.

# ► Self-care education and support

## Education and counselling about CHF and its management

### Core requirement

Provision of clear and reliable information for patients and carers on CHF causes, symptoms, exacerbating factors and management (medical and lifestyle).

### Aim

→ To provide educational information, resources and advice on self-care, commensurate with the patient's cognitive function, health literacy,\* and social, cultural, physical and psychological resources.

### Checklist

- Assessment of the patient's and their carer's health literacy and cognitive function, using valid and reliable instruments.
- Assessment of the patient's self-care ability using a standardised protocol.
- Education and counselling for the patient and their carer on CHF and the medicines used to manage it.
- Education and counselling for the patient and their carer on lifestyle management (see *Lifestyle management of CHF*, page 23).
- Education and counselling for the patient and their carer on management of fluid balance (see *Management of fluid balance*, page 22).
- Education and counselling for the patient and their carer about implantable cardioverter defibrillators and left-ventricular assist devices, if applicable, including monitoring requirements (or referral to a specialist educator).
- Provision of written information that is clear and easy to read for the patient and their carer.

- Negotiation of goals of treatment and advance care planning<sup>†</sup> with the patient and their carer as early as possible (see *Advance care planning*, page 25).
- Referral of patient to community-based support groups as appropriate.
- Checking that the patient and their carer have understood the information provided (including medicines list and action plan) and agree to the recommended management plan.

For self-care resources and assessment tools, see appendix B.

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\* Health literacy is the degree to which people obtain, process and understand basic health information and services to make appropriate health decisions. [Source: US Department of Health and Human Services, [www.hrsa.gov/healthliteracy](http://www.hrsa.gov/healthliteracy)]

† Advance care planning is defined as the process of preparing for likely scenarios near the end of life, which usually includes assessment of, and discussion about, a person's understanding of their medical condition and prognosis, values, preferences and personal and family resources. [Source: Palliative Care Australia. Palliative and end of life care. Glossary of terms. Edition 1 2008. Available at [www.palliativecare.org.au/Portals/46/docs/publications/PCA%20Glossary.pdf](http://www.palliativecare.org.au/Portals/46/docs/publications/PCA%20Glossary.pdf) Accessed April 2010]



## Management of fluid balance

### Core requirement

Systems for ensuring that each patient's fluid balance is monitored and managed effectively.

### Aims

- To ensure that an optimal protocol for fluid management (by the health professional, patient or carer, as appropriate) is understood and agreed.
- To ensure early recognition and management of fluid overload or dehydration.
- To prevent hospitalisations and adverse events.

### Checklist

- Assessment of the patient's symptoms (e.g. dyspnoea, fatigue, orthopnoea and oedema).
- Assessment of whether or not the patient's medical condition/s will enable self-management of fluid balance (e.g. assessment of renal function).
- Recording of the patient's euvoelaemic ('dry') target weight<sup>‡</sup> in a place that is readily accessible to them and the multidisciplinary team.
- Assessment of the patient's ability to self-manage fluid balance and/or flexible diuretic regimen (e.g. cognitive status, physical capabilities, eyesight and understanding of implications for self-care).
- Patient's daily weight monitored and recorded in a diary by patient/carer.
- Where suitable, initiation of a flexible diuretic regimen (individually planned according to patient's dry weight and approved by treating physician), with appropriate education, support and instructions on who to contact as needed during the day or night.
- For patients unable to self-manage, provision of a personalised fluid management strategy.

- Assessment of the patient's daily fluid and salt intake from food and drink (with consideration of hot and cold weather extremes).
- Assessment of the patient's adherence to fluid restriction and understanding of potential consequences of non-adherence (e.g. fluid overload, worsening symptoms or hospitalisation).
- Provision of specific strategies for the patient to manage diuretics in various situations (e.g. when travelling).
- Ensuring the patient understands the purpose of their medicines and the correct way to use them, and is aware of which medicines can worsen CHF by causing fluid retention (e.g. NSAIDs).
- Discussion with the patient on lifestyle factors that affect adherence to the fluid balance management plan, strategies to manage these, and strategies for dealing with hot weather or thirst.
- Ongoing monitoring of the patient's electrolytes (particularly serum sodium and potassium levels) and renal function.

### Where possible

- Home visit to assess factors in the home environment that affect the patient's ability to self-care, regulate fluid intake and follow an action plan.
- Dedicated single point of contact provided to the patient and their carer.
- Assessment of the patient's self-care ability by a standardised assessment on entry to the program, at 12 weeks and then every six months.

For self-care resources and assessment tools, see appendix B.

<sup>‡</sup> Dry weight is defined as the weight at which a patient who has been fluid overloaded and treated with a diuretic reaches a steady weight with no remaining signs of overload.

## Lifestyle management of CHF

### Core requirement

Systems for minimising lifestyle risk factors for CHF.

### Aims

- To ensure patients and carers are aware that lifestyle factors affect CHF.
- To promote behaviour changes needed to achieve a healthy lifestyle and optimise functional status.

### Checklist

- Assessment of the patient's and their carer's understanding of lifestyle risk factors and their management.
- Education, counselling and support for the patient and their carer to achieve:
  - smoking cessation (including referral to QUIT\* and nicotine replacement therapy as indicated)
  - healthy eating and limited intake of salt and caffeinated drinks
  - appropriate alcohol limits, including total abstinence for patients with alcohol-related cardiomyopathy (refer to current CHF management guidelines and national alcohol guidelines<sup>50</sup>)
  - recommended levels of physical activity, including an exercise program as appropriate<sup>51</sup> (refer to current CHF management guidelines and Heart Foundation physical activity recommendations for people with cardiovascular disease<sup>52</sup>).
- Referral of the patient to other services and support organisations as required, with special consideration of cultural and linguistic diversity.
- Assessment of the patient's adherence to lifestyle changes.

### Where possible

- Referral of the patient to allied health professionals for specialised counselling for smoking cessation, stress management or dietary advice if required.
- Involvement of multicultural healthcare workers and Aboriginal health workers in the patient's care.

- Referral of the patient to an allied health professional (e.g. exercise physiologist or physiotherapist) for a supervised, tailored exercise program for people with CHF.

For self-care resources and assessment tools, see appendix B.

## Carer education

### Core requirement

Carer education and counselling about the patient's condition/s and CHF management.

### Aims

- To ensure carers receive and understand information about CHF and its day-to-day management to equip them to prevent hospitalisations and adverse events.
- To support carers in their role.

### Checklist

- Assessment of the carer's health literacy educational needs.
- With the patient's permission, inclusion of the carer in education sessions.
- Assessment of the carer's understanding of the patient's condition and strategies to manage CHF.
- Provision of support to the carer to minimise caregiver burden and distress.
- Assessment of the carer's social factors (e.g. carer burden and coping with patient's limitations).
- Referral of the carer to support services (e.g. Commonwealth Respite and Carelink Centres, Home Medicines Review, community nursing services, occupational therapy, social services, home care services and Meals on Wheels).
- Referral of the carer to social services as needed for access to benefits and resources.

For carer information resources and assessment tools, see appendix B.

\* See [www.quitnow.info.au](http://www.quitnow.info.au) for contact information for QUIT organisations around Australia.

# ► Psychosocial care

## Psychological factors

### Core requirement

Routine consideration of patient's psychological health.

### Aims

- To ensure that patients are assessed for psychological morbidity, particularly depression.
- To ensure patients with psychological morbidity receive appropriate treatment.

### Checklist

- Routine assessment of the patient for depression using valid and reliable instruments.
- Referral of patients with depression or other mental illness for appropriate treatment.
- Consideration of pre-existing/current mental illness (including potential adverse effects of psychotropic agents) when planning CHF management.
- Assessment of the patient's level of social support and access to carer.
- Monitoring for changes in the patient's social factors (e.g. employment status and relationships) that may increase risk of exacerbations.
- Provision of access to printed and/or online information and resources for patients and carers.

### Where possible

- Referral of the patient to specialist mental health providers (e.g. clinical psychologists and psychiatrists) when indicated.

For depression assessment tools, see appendix B.

## Sociocultural factors

### Core requirement

Provision of multidisciplinary CHF care within a framework of cultural competence.<sup>†</sup>

### Aim

- To ensure the multidisciplinary CHF program is accessible, acceptable and appropriate to people from culturally and linguistically diverse populations.<sup>53</sup>

### Checklist

- Assessment of the patient's cultural and social beliefs and how these may affect CHF management (e.g. fasting customs, need for gender segregation for exercise and preferences regarding disclosure of prognosis).
- Assessment of the patient's language proficiencies and health literacy.
- Provision to the patient of information translated into an appropriate language.

### Where possible

- Involvement of healthcare interpreters, multicultural healthcare workers and Aboriginal health workers in the patient's care.

For language resources, see appendix B.

<sup>†</sup> Cultural competency requires the program and its staff to value diversity, have the capacity for cultural self-assessment, be conscious of the dynamics that occur when cultures interact, institutionalise cultural knowledge, and adapt service delivery so that it reflects an understanding of the diversity between and within cultures. Refer to NHMRC guidance on cultural competency in health, available at [www.nhmrc.gov.au/publications/synopses/hp25syn.htm](http://www.nhmrc.gov.au/publications/synopses/hp25syn.htm).

# ► Palliative care

## Advance care planning

### Core requirement

Negotiation of end-of-life issues with the patient and their carer.

### Aim

→ To optimise planning to avoid futile treatments, investigations and distress for patients and their families at the end of life.

### Checklist

- Assessment of, and discussion with the patient about, the patient's understanding of their condition and its prognosis.
- Negotiation with the patient and their family to develop an advance care plan that:
  - is commensurate with legal and ethical guidelines and tailored to the patient's wishes
  - includes definitive statements on symptom management strategies and the patient's preferences for cardiopulmonary resuscitation, level of intervention and use of diagnostic testing
  - is reviewed at each consultation and whenever there is an alteration in clinical status.
- Communication of the patient's wishes to all team members and relevant healthcare providers.
- Routine inclusion of care planning and agreed treatment goals in clinical consultations and the decision-making process, with the understanding that preferences for care may change over time.
- Discussion with the patient and their family (in consultation with the patient's cardiologist) about preferences for deactivation of implantable cardioverter defibrillators and withdrawal of left ventricular assist devices, and documentation of decisions.<sup>34, 54</sup>
- Monitoring of the patient to identify factors associated with increased risk of dying (e.g. worsening renal failure, low serum sodium, anaemia or increasing frailty).

For advance care planning resources, see appendix B.

## End-of-life care

### Core requirement

Integration of a palliative approach\* into CHF multidisciplinary care for patients facing the strong possibility of death within 12 months<sup>†</sup> and who have advanced symptoms that are resistant to optimal pharmacological and non-pharmacological therapies.

### Aims

- To ensure patients, carers and families are aware of the prognosis and the likely risks and benefits of treatments.
- To integrate a personalised program of palliative care into the patient's multidisciplinary CHF care.
- To establish effective collaboration between all providers to meet the patient's needs in accordance with their expressed preferences.

### Checklist

- Routine consideration of, and discussion with patients/carers about, palliative care for patients likely to die soon (e.g. patients with advanced age, recurrent hospitalisation for decompensated CHF and/or a related diagnosis, NYHA class IV symptoms, poor renal function, cardiac cachexia, low sodium concentration or refractory hypotension necessitating withdrawal of medical therapy).<sup>1</sup>
- Clarification of the goals of treatment with patients/carers.

\* Care that aims to improve the quality of life for people with an eventually fatal condition and their families by reducing their suffering through early identification, assessment and treatment of pain, and their physical, psychological, social, cultural and spiritual needs. [Definition used by Palliative Care Australia, adapted from the World Health Organization. Reproduced with permission from Palliative Care Australia. Source: Palliative Care Australia. Palliative and end of life care. Glossary of terms. Edition 1, 2008. Available at [www.palliativecare.org.au/Portals/46/docs/publications/PCA%20Glossary.pdf](http://www.palliativecare.org.au/Portals/46/docs/publications/PCA%20Glossary.pdf). Accessed December 2009.]

† Strong markers of imminent death include advanced age, recurrent hospitalisation for decompensated chronic heart failure and/or a related diagnosis, NYHA class IV symptoms, poor renal function, cardiac cachexia, low sodium concentration and refractory hypotension necessitating withdrawal of medical therapy.<sup>1</sup>



- Review and implementation of the patient's advance care plan in consultation with patient and carer.
- Reassessment of the patient's medicines regimen (may include withdrawal of some medicines).
- Development of protocols for managing:
  - intractable fluid overload
  - intractable angina
  - deteriorating renal function
  - dyspnoea.
- Management of other distressing symptoms (e.g. fatigue, lower limb oedema, constipation and pain).
- Consideration of providing the patient with home oxygen therapy.
- Consideration of deactivating the patient's implantable cardioverter defibrillator.
- Review of the patient's family and social support.
- Communication with all other medical and community services involved in the patient's care, to make sure all relevant healthcare providers are aware of the patient's preferences as negotiated and documented during advance care planning.

# Key performance indicators

The components of multidisciplinary CHF care identified in this document represent the essentials of best practice and should be considered mandatory when assessing the performance of a CHF service or structured post-discharge program.

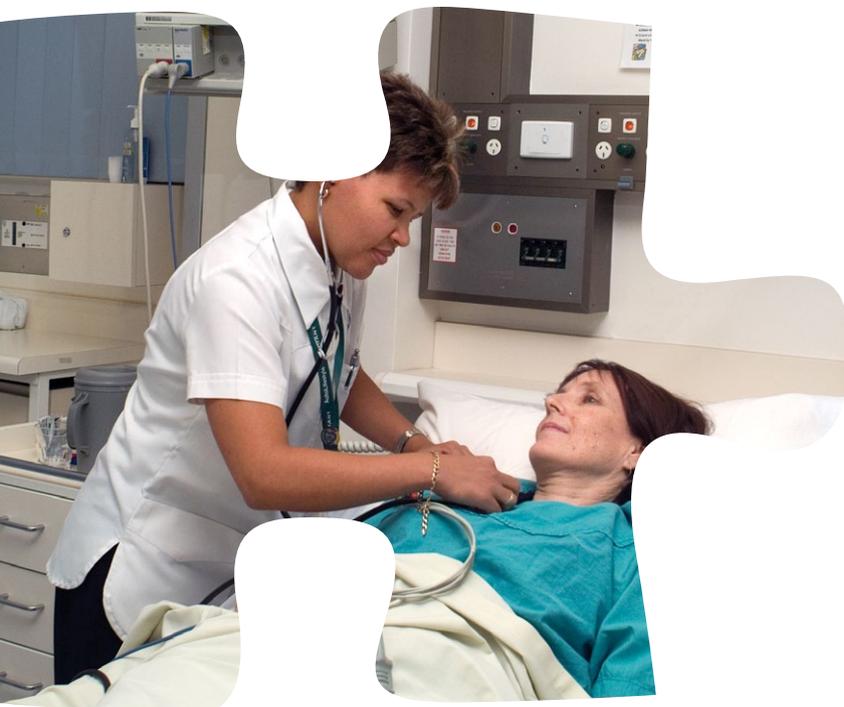
To achieve optimal outcomes for patients, the quality of multidisciplinary CHF care should be monitored, and protocols and systems should be modified in response to measured outcomes. Continuous quality-improvement activity is increasingly undertaken within health services and is consistent with national health system reform initiatives.<sup>18</sup>

Potentially useful performance indicators include process-related measures (e.g. the proportion of patients with CHF referred to multidisciplinary CHF care) and outcome-related measures (e.g. the proportion of patients readmitted to hospital over a 12-month period). Performance indicators may be measured at a patient, provider and program level.

The performance indicators suggested in Table 4 on page 28 are based on evidence for improved outcomes associated with certain aspects of care.<sup>2,9,13,15,16,33,36</sup> These are provided to help health professionals, planners and policy makers monitor multidisciplinary CHF care and improve its effectiveness.

In practice, the particular set of key performance indicators selected for use by multidisciplinary teams might be determined at the service level, as negotiated with state and territory jurisdictions. For each selected indicator, this process would include decisions about the choice of patient subgroup in which the indicator is measured, the intervals at which data are collected, and the numerical result that would indicate that the service or region has met target quality expectations. A sample is shown in Table 5 on page 30.

A national minimal set of key performance indicators for multidisciplinary CHF care should also be developed through a consultation process involving health professionals, patients, relevant peak bodies and those responsible for program governance. These indicators should be suitable for electronic collection in practice, applied consistently across all jurisdictions, and amenable to use in quality improvement programs as well as planning and resource allocation.





**Table 4. Suggested key performance indicators (not in order of priority)**

Measure (numerator)	Patient group to which indicator applies (denominator)	Timing*
<b>Process measures (%)</b>		
Patients referred to multidisciplinary CHF care	Patients admitted to hospital with a primary diagnosis of CHF	N/A
Patients with documented cardiac structure and function (echocardiography)	Patients participating in multidisciplinary CHF care	At enrolment (or recorded at time of diagnosis) Reassessed every two years
Patients in whom functional capacity has been assessed†	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge‡
Patients with a current prescription for ACE inhibitor or angiotensin receptor blocker‡	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients with a current prescription for ACE inhibitor or angiotensin receptor blocker at dosages recommended in evidence-based guidelines	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients with a current prescription for beta blocker‡	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients with a current prescription for beta blocker at dosages recommended in evidence-based medicine‡	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients taking warfarin	Patients with atrial fibrillation participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients in whom medicine adherence has been assessed†	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients immunised against pneumonia/influenza	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge

Measure (numerator)	Patient group to which indicator applies (denominator)	Timing*
<b>Process measures (%) continued...</b>		
Patients for whom all relevant lifestyle risk factors (e.g. smoking, poor nutrition, salt intake, risky alcohol use, physical inactivity, unhealthy body weight) have been assessed and recorded	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients with a personalised management plan that includes medical management and lifestyle risk factor management	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients with a personalised exercise program	Patients participating in multidisciplinary CHF care	At enrolment 12 weeks after commencing or at discharge
Patients with a personalised written action plan	Patients participating in multidisciplinary CHF care	12 weeks after commencing or at discharge
Patients in whom self-care ability has been assessed <sup>†</sup>	Patients participating in multidisciplinary CHF care	12 weeks after commencing or at discharge
Patients in whom health literacy has been assessed <sup>†</sup>	Patients participating in multidisciplinary CHF care	12 weeks after commencing or at discharge
Patients in whom cognitive function has been assessed <sup>†</sup>	Patients participating in multidisciplinary CHF care	12 weeks after commencing or at discharge
Patients who have been screened for depression <sup>†</sup>	Patients participating in multidisciplinary CHF care	12 weeks after commencing or at discharge
Patients in whom quality of life has been assessed <sup>†</sup>	Patients participating in multidisciplinary CHF care	12 weeks after commencing or at discharge
Patients referred to their GP via a written discharge summary	Patients discontinuing multidisciplinary CHF care	On discharge
Patients with an advance care plan	Patients participating in multidisciplinary CHF care	12 weeks after commencing or at discharge
Patients discharged within a specified time period (e.g. six or 12 months)	Patients who have commenced multidisciplinary CHF care	N/A
<b>Outcome measures (%)</b>		
Unplanned hospital admissions	Patients participating in multidisciplinary CHF care	Within 28 days of commencement 12 months after commencement
Deaths	Patients participating in multidisciplinary CHF care	Within 28 days of commencement 12 months after commencement

\* Intervals are based on consensus opinion. All specified intervals are approximate. Baseline measures (e.g. at enrolment) should also be made for comparisons.

† Using an appropriate instrument (e.g. one that is reliable and validated in patients with CHF, where available).

‡ Except where contraindicated or not tolerated.

**Table 5. Sample key performance indicator structured multidisciplinary CHF care programs: echocardiography**

<b>Key performance indicator</b>	Percentage of patients with documented cardiac structure and function (echocardiography report)
<b>Timing</b>	At time of diagnosis (or since) to confirm CHF Reassessed every two years
<b>Group of patients in which indicator is measured (numerator)</b>	Patients enrolled within past 12 months who have undergone echocardiography
<b>Group of patients to which indicator applies (denominator)</b>	All patients with CHF enrolled within past 12 months
<b>Calculation:</b>	% documented echocardiography for period = ([number of patients with echocardiogram documented in medical records] divided by [total number of patients enrolled]), multiplied by 100.

# Acknowledgements

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- Professor Patricia Davidson, Curtin University and St Vincent's Hospital, Sydney
- Dr Andrea Driscoll, Monash University
- Dr Nancy Huang, Heart Foundation until January 2010
- Zoe Aho, Heart Foundation
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- Jenni Harman, medical writer

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# Appendices

## A. Development process for this document

This document was developed following a recommendation by the Joint Heart Failure Program\* to develop resources to support the implementation of multidisciplinary care programs for CHF in Australia. The Heart Foundation provided executive support for the development of this document. The project was guided by an executive advisory group and undertaken by a project working group (below).

Development of the document involved four phases.

- 1. Consultation and engagement** (January to March 2009). State representatives were consulted to determine the appropriate scope of a resource to support best practice in multidisciplinary CHF care. The Joint Heart Failure Program invited health professionals involved in CHF programs to contribute information, such as existing sources of guidance used in planning and setting up programs, clinical outcomes indicators used to evaluate programs, and the content of successful programs.
- 2. National survey** (May 2009). A national survey of providers and experts working in the field was conducted to identify components of current Australian programs and to canvass health professionals' opinions on the appropriate staffing and structure of CHF management programs.
- 3. Development of CHF program resource** (May to December 2009). The CHF Executive Advisory Group identified the key components of multidisciplinary CHF care, based on Australian and international evidence, including meta-analyses, systematic literature reviews, policy and position statements, and expert consensus. The CHF Project Working Group drafted the document in consultation with the CHF Executive Advisory Group. The draft document was posted on the Heart Foundation website for public review in November 2009. All comments received were collated and considered by the CHF Project Working Group, and the draft amended accordingly. The amended draft was reviewed and further revised by the CHF Executive Advisory Group.

- 4. Communication and dissemination** (2009/2010). An implementation forum, attended by key stakeholders including policy makers and health professionals, was held in December 2009 to consider strategy for disseminating and promoting this document throughout Australia. Implementation activities will align with concurrent policy and healthcare reform initiatives.

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\* The Joint Heart Failure Program was established in 2004 as a collaboration between the National Heart Foundation of Australia, the National Prescribing Service and the National Health and Medical Research Council's National Institute of Clinical Studies. The program has initiated a range of strategies to promote best practice in the diagnosis and management of CHF and reduce the mismatch between current clinical practice and the best available evidence.

## B. Tools and resources

The following are some examples of tools and resources that health professionals involved in multidisciplinary CHF care may find useful. The utility of specific tools may vary according to the care setting.

### For patients

Information	
Heart Foundation booklet: <i>Living well with chronic heart failure</i>	Copies available from the Heart Foundation <b>Email:</b> <a href="mailto:health@heartfoundation.org.au">health@heartfoundation.org.au</a> <b>Phone:</b> 1300 36 27 87
CHF information sheet, available in 16 languages	<a href="http://www.heartfoundation.org.au/Professional_Information/Clinical_Practice/CHF">www.heartfoundation.org.au/Professional_Information/Clinical_Practice/CHF</a> <b>Phone:</b> 1300 36 27 87
HealthInsite (Australian Government website directory of reliable health information)	<a href="http://www.healthinsite.gov.au">www.healthinsite.gov.au</a>
National Continence Helpline	<b>Phone:</b> 1800 33 00 66
Patient Medication Profile Service	<a href="http://www.guild.org.au/pps/content.asp?id=1893">www.guild.org.au/pps/content.asp?id=1893</a>
Practical support	
Alert systems (e.g. bracelets and wallet cards)	<a href="http://www9.health.gov.au/ccsd/">www9.health.gov.au/ccsd/</a>
Heartmoves (a low- to moderate-intensity exercise program developed by the Heart Foundation for people with health conditions)	<a href="http://heartmoves.heartfoundation.org.au">http://heartmoves.heartfoundation.org.au</a>
Support organisations	
beyondblue	<a href="http://www.beyondblue.org.au">www.beyondblue.org.au</a>
The Cardiomyopathy Association of Australia	<a href="http://www.cmaa.org.au">www.cmaa.org.au</a>
Carers Australia	<a href="http://www.carersaustralia.com.au">www.carersaustralia.com.au</a>
CareSearch (palliative care knowledge network)	<a href="http://www.caresearch.com.au">www.caresearch.com.au</a>
Continence Foundation of Australia	<a href="http://www.continence.org.au">www.continence.org.au</a>
Diabetes Australia	<a href="http://www.diabetesaustralia.com.au">www.diabetesaustralia.com.au</a>
Heartbeat Victoria Inc.	<a href="http://www.heartbeatvictoria.org">www.heartbeatvictoria.org</a>
Kidney Health Australia	<a href="http://www.kidney.org.au">www.kidney.org.au</a>
Heart Foundation	<a href="http://www.heartfoundation.org.au">www.heartfoundation.org.au</a> <b>Phone:</b> 1300 36 27 87
Palliative Care Australia	<a href="http://www.palliativecare.org.au">www.palliativecare.org.au</a>

**Tools**

National Prescribing Service (tools and tips for consumers on the use of medicines)	<a href="http://www.nps.org.au/consumers/tools_and_tips">www.nps.org.au/consumers/tools_and_tips</a>
Respecting Patient Choices (advance care planning program)	<a href="http://www.respectingpatientchoices.org.au">www.respectingpatientchoices.org.au</a>

**Australian Government programs and services**

Information on the Medicare safety net	<a href="http://www.medicareaustralia.gov.au/public/services/msn/index.jsp">www.medicareaustralia.gov.au/public/services/msn/index.jsp</a>
Commonwealth Respite and Carelink Centres	<a href="http://www9.health.gov.au/ccsd/">www9.health.gov.au/ccsd/</a> <b>Phone:</b> 1800 052 222
Veterans' Medicines Advice and Therapeutics Education Services (MATES) helpline	<b>Phone:</b> 1300 556 906

**For health professionals**

**Practical aids**

Heart Foundation action plan (included with the consumer booklet <i>Living well with chronic heart failure</i> and with the summary version of the booklet)	Copies available from the Heart Foundation <b>Email:</b> <a href="mailto:health@heartfoundation.org.au">health@heartfoundation.org.au</a> <b>Phone:</b> 1300 36 27 87 <a href="http://www.heartfoundation.org.au/Professional_Information/Clinical_Practice/CHF">www.heartfoundation.org.au/Professional_Information/Clinical_Practice/CHF</a>
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**Tools and information**

Australian Pharmaceutical Advisory Council (APAC) publication: <i>Guiding principles for medication management in the community</i>	<a href="http://www.health.gov.au/internet/main/publishing.nsf/Content/apac-publications-guiding">www.health.gov.au/internet/main/publishing.nsf/Content/apac-publications-guiding</a>
<i>The Australian immunisation handbook</i>	<a href="http://immunise.health.gov.au">http://immunise.health.gov.au</a>
Heart Failure Association of the European Society of Cardiology tools	<a href="http://www.escardio.org/communities/HFA/Pages/welcome.aspx">www.escardio.org/communities/HFA/Pages/welcome.aspx</a>
Institute for Healthcare Improvement (IHI) CHF tools for hospitals	<a href="http://www.ihl.org">www.ihl.org</a>
IHI/American College of Cardiology Hospital to Home Program	<a href="http://www.h2hquality.org">www.h2hquality.org</a>
<i>Heart Foundation physical activity recommendations for people with cardiovascular disease</i> <sup>52</sup>	<a href="http://www.heartfoundation.org.au/Professional_Information/Lifestyle_Risk/Physical_Activity">www.heartfoundation.org.au/Professional_Information/Lifestyle_Risk/Physical_Activity</a>
National Prescribing Service resources	<a href="http://www.nps.org.au/health_professionals/drugs_and_therapeutic_topics/heart_failure">www.nps.org.au/health_professionals/drugs_and_therapeutic_topics/heart_failure</a>
Palliative Care Australia standards and guides	<a href="http://www.palliativecare.org.au">www.palliativecare.org.au</a>
Guidelines for developing advance care directives	Refer to state or territory government websites

**Functional assessment tools**

American Thoracic Society statement: <i>Guidelines for the Six-Minute Walk Test</i> <sup>55</sup>	<a href="http://www.thoracic.org/statements/resources/pfet/sixminute.pdf">www.thoracic.org/statements/resources/pfet/sixminute.pdf</a>
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### Health literacy assessment tools

Fact sheet and list of tools compiled by the Heart Failure Society of America [www.hfsa.org/pdf/health\\_literacy.pdf](http://www.hfsa.org/pdf/health_literacy.pdf)

### Self-care questionnaires

European heart failure self-care behaviour scale<sup>56</sup>

Kansas City cardiomyopathy questionnaire<sup>57</sup>  
(available in various languages) MAPI Institute  
[www.mapi-institute.com](http://www.mapi-institute.com)

Minnesota living with heart failure questionnaire<sup>58</sup>  
(available in various languages) [www.mlhfq.org](http://www.mlhfq.org)  
MAPI Institute  
[www.mapi-institute.com](http://www.mapi-institute.com)

Self-care of heart failure index<sup>59, 60</sup>

Medicine adherence assessment tools<sup>61</sup>

### Psychometric assessment tools

Beck Depression Inventory II<sup>62</sup>

Cardiac Depression Scale<sup>63</sup>

Montreal Cognitive Assessment Screening Test [www.mocatest.org](http://www.mocatest.org)

Mini-mental state examination<sup>64</sup> [www.health.gov.au/internet/main/publishing.nsf/Content/mental-pubs-m-mangp-toc~mental-pubs-m-mangp-app~mental-pubs-m-mangp-app-2](http://www.health.gov.au/internet/main/publishing.nsf/Content/mental-pubs-m-mangp-toc~mental-pubs-m-mangp-app~mental-pubs-m-mangp-app-2)

### Australian Government programs and services\*

Medicare Benefits Schedule Chronic Disease Management items for primary care coordination of multidisciplinary care (general practice management plans and team care arrangements, including GP items and practice nurse and Aboriginal health worker monitoring and support) [www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-chronicdiseasemanagement](http://www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-chronicdiseasemanagement)  
[www.health.gov.au/mbsprimarycareitems](http://www.health.gov.au/mbsprimarycareitems)

Home and Community Care Program [www.health.gov.au/internet/main/Publishing.nsf/Content/hacc-index.htm](http://www.health.gov.au/internet/main/Publishing.nsf/Content/hacc-index.htm)

Home Medicines Review [www.medicareaustralia.gov.au/provider/pbs/fourth-agreement/hmr.jsp](http://www.medicareaustralia.gov.au/provider/pbs/fourth-agreement/hmr.jsp)

Residential Medicines Management Review [www.health.gov.au/internet/main/publishing.nsf/Content/medication\\_management\\_reviews.htm](http://www.health.gov.au/internet/main/publishing.nsf/Content/medication_management_reviews.htm)

Veterans' MATES [www.veteransmates.net.au/VeteransMATES/VeteransMATEServlet?page=index](http://www.veteransmates.net.au/VeteransMATES/VeteransMATEServlet?page=index)

Commonwealth Respite and Carelink Centres [www9.health.gov.au/ccsd/](http://www9.health.gov.au/ccsd/)

### Community language resources

Australian Institute of Interpreters and Translators Incorporated (AUSIT) publication: *Guidelines for health professionals working with interpreters* [www.ausit.org/pics/HealthGuide08.pdf](http://www.ausit.org/pics/HealthGuide08.pdf)

HealthInsite non-English resources and directory of services [www.healthinsite.gov.au/topics/Languages\\_Other\\_Than\\_English](http://www.healthinsite.gov.au/topics/Languages_Other_Than_English)

### Australian professional associations

Australian Association of Consultant Pharmacy	<a href="http://www.aacp.com.au">www.aacp.com.au</a>
Australasian Cardiovascular Nursing College	<a href="http://www.acnc.net.au">www.acnc.net.au</a>
Australian Cardiovascular Health and Rehabilitation Association	<a href="http://www.acra.net.au">www.acra.net.au</a>
Australian General Practice Network	<a href="http://www.agpn.com.au">www.agpn.com.au</a>
Australian Disease Management Association	<a href="http://www.adma.org.au">www.adma.org.au</a>
Australian College of Nurse Practitioners	<a href="http://www.acnp.org.au">www.acnp.org.au</a>
Australian Practice Nurses Association	<a href="http://www.apna.asn.au">www.apna.asn.au</a>
The Cardiac Society of Australia and New Zealand	<a href="http://www.csanz.edu.au">www.csanz.edu.au</a>
Dietitians Association of Australia	<a href="http://www.daa.asn.au">www.daa.asn.au</a>
Palliative Care Australia	<a href="http://www.palliativecare.org.au">www.palliativecare.org.au</a>
Pharmaceutical Society of Australia	<a href="http://www.psa.org.au">www.psa.org.au</a>
The Society of Hospital Pharmacists of Australia	<a href="http://www.shpa.org.au">www.shpa.org.au</a>
The Royal Australian College of General Practitioners	<a href="http://www.racgp.org.au">www.racgp.org.au</a>

### Other professional associations

American Association of Heart Failure Nurses	<a href="http://aahfn.org">http://aahfn.org</a>
American College of Cardiology	<a href="http://www.acc.org">www.acc.org</a>
American Heart Association	<a href="http://www.americanheart.org">www.americanheart.org</a>
European Society of Cardiology	<a href="http://www.escardio.org">www.escardio.org</a>
Heart Failure Society of America	<a href="http://www.hfsa.org">www.hfsa.org</a>

\* Please also refer to health services provided by states and territories.

# References

1. National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand (Chronic Heart Failure Guidelines Expert Writing Panel). Guidelines for the prevention, detection and management of chronic heart failure in Australia, 2006. Melbourne: National Heart Foundation of Australia, 2006.
2. Hauptman PJ, Rich MW, Heidenreich PA, et al. The heart failure clinic: a consensus statement of the Heart Failure Society of America. *J Card Fail* 2008; 14: 801–15.
3. National Collaborating Centre for Chronic Conditions. Chronic heart failure. Management of chronic heart failure in adults in primary and secondary care. London: National Health Service [UK] National Institute of Clinical Excellence, 2003.
4. Rich MW, Beckham V, Wittenberg C, et al. A multidisciplinary intervention to prevent the readmission of elderly patients with congestive heart failure. *New Engl J Med* 1995; 333: 1190–5.
5. Stewart S, Blue L, editors. Improving outcomes in chronic heart failure: specialist nurse intervention from research to practice. 2nd ed. London: BMJ Books, 2004.
6. Department of Health [UK]. National service framework for coronary heart disease. London: Department of Health, 2000.
7. NSW Health. NSW clinical service framework for heart failure. North Sydney: New South Wales Department of Health, 2003.
8. Nielsen GB, Bartely A, Coleman E et al. Transforming care at the bedside how-to guide: creating an ideal transition home for patients with heart failure. Cambridge, MA: Institute for Healthcare Improvement, 2008.
9. Phillips CO, Singa RM, Rubin HR, Jaarsma T. Complexity of program and clinical outcomes of heart failure disease management incorporating specialist nurse-led heart failure clinics. A meta-regression analysis. *Eur J Heart Fail* 2005; 7: 333–41.
10. Driscoll A, Tonkin AM, Worrall-Carter L, et al. Abstract 2719: A higher program intensity/complexity score is associated with lower morbidity and mortality in patients participating in heart failure programs. *Circulation* 2008; 118: S768.
11. Hunt SA, Abraham WT, Chin MH, et al. ACC/AHA 2005 Guideline update for the diagnosis and management of chronic heart failure in the adult. *Circulation* 2005; 112: e154–e235.
12. National Heart Foundation of Australia. Living well with chronic heart failure. Melbourne: Heart Foundation, 2008.
13. McAlister FA, Stewart S, Ferrua S, McMurray JJJV. Multidisciplinary strategies for the management of heart failure patients at high risk for admission. A systematic review of randomized trials. *J Am Coll Cardiol* 2004; 44: 810–19.
14. Clark RA, Inglis SC, McAlister FA, et al. Telemonitoring or structured telephone support programmes for patients with chronic heart failure: systematic review and meta-analysis. *BMJ* 2007; 334: 942.
15. Yu DS, Thompson DR, Lee DT. Disease management programmes for older people with heart failure: crucial characteristics which improve post-discharge outcomes. *Eur Heart J* 2006; 27: 596–612.
16. Roccaforte R, Demers C, Baldassarre F, et al. Effectiveness of comprehensive disease management programmes in improving clinical outcomes in heart failure patients. A meta-analysis. *Eur J Heart Fail* 2005; 7: 1133–44.
17. Phillips CO, Wright SM, Kern DE, et al. Comprehensive discharge planning with postdischarge support for older patients with congestive heart failure: a meta-analysis. *JAMA* 2004; 291: 1358–67.
18. Australian Government National Health and Hospitals Reform Commission. A healthier future for all Australians – Final Report of the National Health and Hospitals Reform Commission – June 2009. Canberra: Commonwealth of Australia, 2009.
19. Krumholz HM, Currie PM, Riegel B, et al. A taxonomy for disease management. A scientific statement from the American Heart Association Disease Management Taxonomy Writing Group. *Circulation* 2006; 114: 1432–45.
20. Australian Institute of Health and Welfare. Australia's health 2008. Cat. no. AUS 99. Canberra: AIHW, 2008.

21. Clark RA, McLennan S, Dawson A, et al. Uncovering a hidden epidemic: a study of the current burden of heart failure in Australia. *Heart Lung Circ* 2004; 13: 266–73.
22. Najafi F, Dobson AJ, Jamrozik K. Recent changes in heart failure hospitalisations in Australia. *Eur J Heart Fail* 2007; 9: 228–33.
23. Inglis SC, Clark RA, Shakib S, et al. Hot summers and heart failure: seasonal variations in morbidity and mortality in Australian heart failure patients (1994–2005). *Eur J Heart Fail* 2008; 10: 540–9.
24. Najafi F, Dobson AJ, Jamrozik K. Is mortality from heart failure increasing in Australia? An analysis of official data on mortality for 1997–2003. *Bull World Health Organ* 2006; 84: 722–8.
25. Najafi F, Dobson AJ, Hobbs M, Jamrozik K. Temporal trends in the frequency and longer-term outcome of heart failure complicating myocardial infarction. *Eur J Heart Fail* 2007; 9: 879–85.
26. Penm E. Cardiovascular disease and its associated risk factors in Aboriginal and Torres Strait Islander peoples 2004–05. Cardiovascular disease series no. 29. Cat. no. CVD 41. Canberra: Australian Institute of Health and Welfare, 2008.
27. Caughey GE, Vitry AI, Gilbert AL, Roughead EE. Prevalence of comorbidity of chronic diseases in Australia. *BMC Public Health* 2008; 8: 221.
28. Driscoll A, Worrall-Carter L, Hare DL, et al. Evidence-based chronic heart failure management programs: Reality or myth? *Qual Saf Health Care* 2009; 18: 450–5.
29. Clark RA, Driscoll A. Access and quality of heart failure management programs in Australia. *Aust Crit Care* 2009; 22: 111–16.
30. Driscoll A, Worrall-Carter L, McLennan S, et al. Heterogeneity of heart failure management programs in Australia. *Eur J Cardiovasc Nurs* 2006; 5: 75–82.
31. Gonth J, Guallar-Castillón P, Banegas J, Rodríguez-Artalejo F. The effectiveness of disease management programmes in reducing hospital re-admission in older patients with heart failure: a systematic review and meta-analysis of published reports. *Eur Heart J* 2004; 25: 1570–95.
32. Whellan D, Hasselblad V, Peterson E, et al. Metaanalysis and review of heart failure disease management randomized controlled clinical trials. *Am Heart J* 2005; 149: 722–9.
33. Sochalski J, Jaarsma T, Krumholz HM, et al. What works in chronic care management: the case of heart failure. *Health Aff (Millwood)* 2009; 28: 179–89.
34. The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2008 of the European Society of Cardiology. ESC guidelines for the diagnosis and treatment of acute and chronic heart failure 2008. *Eur J Heart Fail* 2008; 29: 2388–442.
35. Phillips SM, Davies JM, Tofler GH. NICS Heart Failure Forum: improving outcomes in chronic care. *Med J Aust* 2004; 181: 297–9.
36. van Tol BAF, Huijsmans RJ, Kroon DW, et al. Effects of exercise training on cardiac performance, exercise capacity and quality of life in patients with heart failure: a meta-analysis. *Eur J Heart Fail* 2006; 8: 841–50.
37. Riegel B, Moser DK, Anker SD, et al. State of the science: promoting self-care in persons with heart failure: a scientific statement from the American Heart Association. *Circulation* 2009; 120: 1141–63.
38. Campbell N, Murray E, Darbyshire J, et al. Designing and evaluating complex interventions to improve health care. *BMJ* 2007; 334: 455–9.
39. Anderson R. New MRC guidance on evaluating complex interventions. *BMJ* 2008; 337: a1937.
40. Clark AM, Savard LA, Thompson DR. What is the strength of evidence for heart failure disease-management programs? *J Am Coll Cardiol* 2009; 54: 397–401.
41. Ghali JK. Sex, race and ethnicity: providing quality care for elderly patients hospitalized with heart failure. *Aging Health* 2009; 5: 171–6.
42. Epping-Jordan JE, Pruitt SD, Bengoa R, Wagner EH. Improving the quality of health care for chronic conditions. *Qual Saf Health Care* 2004; 13: 299–305.
43. Knox SA, Harrison CM, Britt HC, Henderson JV. Estimating prevalence of common chronic morbidities in Australia. *Med J Aust* 2008; 189: 66–70.

44. Roughead EE, Barratt JD, Ramsay E, et al. The effectiveness of collaborative medicine reviews in delaying time to next hospitalization for patients with heart failure in the practice setting: results of a cohort study. *Circ Heart Fail* 2009; 2: 424–8.
45. Australian General Practice Network. National Practice Nurse Workforce Survey report. Canberra: Australian General Practice Network, 2008.
46. Cameron J, Worrall-Carter L, Riegel B, et al. Testing a model of patient characteristics, psychologic status, and cognitive function as predictors of self-care in persons with chronic heart failure. *Heart Lung* 2009; 38: 410–8.
47. McLennan SN, Pearson SA, Cameron J, Stewart S. Prognostic importance of cognitive impairment in chronic heart failure patients: does specialist management make a difference? *Eur J Heart Fail* 2006; 8: 494–501.
48. Ewald B, Ewald D, Thakkinstian A, Attia J. Meta-analysis of B type natriuretic peptide and N-terminal pro B natriuretic peptide in the diagnosis of clinical heart failure and population screening for left ventricular systolic dysfunction. *Intern Med J* 2008; 38: 101–13.
49. Pfisterer M, Buser P, Rickli H, et al for the TIME-CHF Investigators. BNP-guided vs symptom-guided heart failure therapy: the Trial of Intensified vs Standard Medical Therapy in Elderly Patients With Congestive Heart Failure (TIME-CHF) randomized trial. *JAMA* 2009; 301: 383–92.
50. National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. Canberra: Commonwealth of Australia, 2009.
51. Flynn KE, Piña IL, Whellan DJ, et al. Effects of exercise training on health status in patients with chronic heart failure: HF-ACTION randomized controlled trial. *JAMA* 2009; 301: 1451–9.
52. Briffa T, Maiorana A, Allan R, et al on behalf of the Executive Working Group and National Forum Participants. National Heart Foundation of Australia physical activity recommendations for people with cardiovascular disease. Sydney: National Heart Foundation of Australia, 2006.
53. National Health and Medical Research Council. Cultural competency in health: a guide for policy, partnerships and participation. Canberra: Commonwealth of Australia, 2006.
54. Beattie J. Implantable cardioverter defibrillators in patients who are reaching the end of life. London: British Heart Foundation, 2007.
55. American Thoracic Society. ATS statement: guidelines for the six-minute walk test. *Am J Respir Crit Care Med* 2002; 166: 111–17.
56. Jaarsma T, Årestedt KF, Mårtensson J, et al. The European Heart Failure Self-care Behaviour scale revised into a nine-item scale (EHFScB-9): a reliable and valid international instrument. *Eur J Heart Fail* 2009; 11: 99–105.
57. Soto GE, Jones P, Weintraub WS, et al. Prognostic value of health status in patients with heart failure after acute myocardial infarction. *Circulation* 2004; 110: 546–51.
58. Rector T, Kubo S, Cohn J. Patients' self-assessment of their congestive heart failure. Part 2. Content, reliability and validity of a new measure, the Minnesota Living with Heart Failure questionnaire. *Heart Fail* 1987; 3: 198–209.
59. Riegel B, Carlson B, Moser DK, et al. Psychometric testing of the self-care of heart failure index. *J Card Fail* 2004; 10: 350–60.
60. Riegel B, Lee CS, Dickson VV, Carlson B. An update on the self-care of heart failure index. *J Cardiovasc Nurs* 2009; 24: 485–97.
61. Rolley JX, Davidson PM, Dennison CR, et al. Medication adherence self-report instruments: implications for practice and research. *J Cardiovasc Nurs* 2008; 23: 497–505.
62. Beck AT, Steer RA, Brown GK. Manual for the Beck Depression Inventory-II. San Antonio: Psychological Corporation, 1996.
63. Hare DL, Davis CR. Cardiac Depression Scale: validation of a new depression scale for cardiac patients. *J Psychosom Res* 1996; 40: 379–86.
64. Folstein MF, Folstein SE, McHugh PR. "Minimal state". A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* 1975; 12: 189–98.

# Multidisciplinary CHF care planning checklist

This checklist can be used to check whether a structured multidisciplinary care program or service providing multidisciplinary CHF care includes recommended components.

Recommended components	Implemented (✓)		Delivery <sup>‡</sup>	
	Initially*	Repeated <sup>†</sup>	Core team	Wider care team
<b>▼ Biomedical care: Assessment and documentation of biomedical factors</b>				
Documentation of CHF diagnosis				
Full clinical history				
Symptoms (including dyspnoea, fatigue, orthopnoea and oedema)				
Functional status				
Physical examination				
Cardiovascular risk factors				
Electrocardiography				
Echocardiography				
Biochemistry and haematology				
Assessment for reversible causes of CHF				
Nutritional status				
Cognitive function				
Indications for surgical procedures (e.g. revascularisation) and supportive devices (e.g. ICDs, pacemakers, LVADs)				
Comorbid conditions (e.g. diabetes and arthritis)				
Depression				
Potential adverse medicine effects				
Renal function				
HbA1c (patients with diabetes)				
Risk of thromboembolism (particularly for patients with atrial fibrillation)				

## Notes

\* Includes a system for ensuring that each of the recommended components is delivered at the appropriate time (e.g. at enrolment in structured multidisciplinary care or soon after commencing contact with the multidisciplinary care team).

† Includes a system for ensuring that each recommended component (e.g. an assessment or an aspect of care) is repeated at appropriate, predetermined intervals. Such systems may include protocols for flagging records, recalling patients and auditing records from time to time.

‡ All components should be included to ensure comprehensive effective care, but not all need to be provided within the immediate (core) care team. Some aspects of care will require referral to other providers and services with links to the multidisciplinary care team.



Recommended components	Implemented (✓)		Delivery <sup>‡</sup>	
	Initially*	Repeated <sup>†</sup>	Core team	Wider care team
<b>▼ Biomedical care: Tailored medical management</b>				
Prescription and titration of medicines recommended in current treatment guidelines				
Documentation of medicines regimen (prescription, non-prescription and complementary medicines)				
Monitoring of medicines regimen (prescription, non-prescription and complementary medicines) for potential and actual unwanted effects				
Flexible diuretic regimen if appropriate				
Provision of personalised medicines list				
Checking patient has continued access to long-term medicines (current prescription/s, feasible dispensing logistics, affordable)				
Assessment of adherence				
Home Medicines Review or Residential Medication Management Review				
Patient self-monitoring of daily weight				
Assessment of factors that could exacerbate CHF				
Frequency of contact matched to patient need				
Vaccinations according to current guidelines				
Infection prevention				
Falls prevention				
Sleep hygiene				
Referrals to specialists as needed				
Involvement of pharmacist in care planning				
All care team members informed of changes in patient's health or management				

#### Notes

\* Includes a system for ensuring that each of the recommended components is delivered at the appropriate time (e.g. at enrolment in structured multidisciplinary care or soon after commencing contact with the multidisciplinary care team).

† Includes a system for ensuring that each recommended component (e.g. an assessment or an aspect of care) is repeated at appropriate, predetermined intervals. Such systems may include protocols for flagging records, recalling patients and auditing records from time to time.

‡ All components should be included to ensure comprehensive effective care, but not all need to be provided within the immediate (core) care team. Some aspects of care will require referral to other providers and services with links to the multidisciplinary care team.

Recommended components	Implemented (✓)		Delivery*	
	Initially*	Repeated†	Core team	Wider care team
<b>▼ Self-care education and support: Assessment and documentation of self-management status</b>				
Patient's health literacy and education needs				
Carer's health literacy status and education needs				
Patient's ability to perform activities of daily living				
Patient's self-care ability				
Patient's coping and self-care in home environment				
Appropriateness of self-management of fluid balance/flexible diuretic regimen (based on assessments of renal function, cognitive status, physical capabilities, eyesight, understanding)				
Daily fluid and salt intake from food and drink				
Recording of dry target weight				
Smoking status				
Eating habits				
Alcohol consumption				
Physical activity level				
Bodyweight/Fat composition status				
Patient's understanding of self-care information, treatment plan, medicines list, action plan, lifestyle risk factor management				
Carer's understanding of self-care information, treatment plan, medicines list, action plan, lifestyle risk factor management				
Adherence to fluid restriction				
Adherence to lifestyle changes				
<b>▼ Self-care education and support: Self-care education and counselling (patients and carers)</b>				
CHF physiology and symptoms				
Medicines used to manage CHF				
Medicines to avoid (e.g. NSAIDs)				
Medicine monitoring processes (e.g. diuretics, anticoagulant therapy)				
Lifestyle management of CHF				
Management of fluid balance				
ICDs/LVADs (if applicable)				

**Notes**

- \* Includes a system for ensuring that each of the recommended components is delivered at the appropriate time (e.g. at enrolment in structured multidisciplinary care or soon after commencing contact with the multidisciplinary care team).
- † Includes a system for ensuring that each recommended component (e.g. an assessment or an aspect of care) is repeated at appropriate, predetermined intervals. Such systems may include protocols for flagging records, recalling patients and auditing records from time to time.
- ‡ All components should be included to ensure comprehensive effective care, but not all need to be provided within the immediate (core) care team. Some aspects of care will require referral to other providers and services with links to the multidisciplinary care team.

Recommended components	Implemented (✓)		Delivery <sup>‡</sup>	
	Initially*	Repeated <sup>†</sup>	Core team	Wider care team
Provision of clear written information appropriate to the patient's needs				
Provision of information translated into appropriate languages (if applicable)				
Link with community-based support group				
Smoking cessation plan (if applicable)				
Referral to specialist smoking cessation services (if applicable)				
Healthy eating plan				
Referral to dietitian as needed				
Appropriate alcohol limits identified, determined by risk level				
Physical activity/Exercise plan				
Referral to occupational therapist, exercise physiologist or physiotherapist as needed				
Carer included in patient education sessions				
Arranging participation in self-management programs for specific comorbid conditions (e.g. diabetes and COPD)				
Referral to community-based support groups				
▼ Self-care education and support: Written personalised action plan				
Daily weight and recording				
Flexible diuretic regimen (if applicable) or tailored fluid management strategy				
Clear instructions on what to look for/what to do/who to contact				
Consideration of advance care planning issues				

**Notes**

\* Includes a system for ensuring that each of the recommended components is delivered at the appropriate time (e.g. at enrolment in structured multidisciplinary care or soon after commencing contact with the multidisciplinary care team).

† Includes a system for ensuring that each recommended component (e.g. an assessment or an aspect of care) is repeated at appropriate, predetermined intervals. Such systems may include protocols for flagging records, recalling patients and auditing records from time to time.

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Recommended components	Implemented (✓)		Delivery <sup>‡</sup>	
	Initially*	Repeated <sup>†</sup>	Core team	Wider care team
<b>▼ Psychosocial care: Assessment and documentation of psychosocial factors</b>				
Depression				
Level of social support				
Accessibility of carer/s				
Access to services				
Changes in social factors (e.g. unemployment, death/illness of spouse or carer)				
Cultural and social beliefs that may affect care				
Language proficiencies				
Health literacy				
Carer's coping				
<b>▼ Psychosocial care: Management of psychosocial factors</b>				
Care appropriate to patient's cultural and linguistic context				
Referral to psychiatrists as needed				
Referral to psychologists as needed				
Involvement of healthcare interpreters (if applicable)				
Involvement of multicultural healthcare workers (if applicable)				
Involvement of Aboriginal health workers (if applicable)				
Referral to social services/support services				
Support for carers				

Recommended components	Implemented (✓)		Delivery <sup>‡</sup>	
	Initially*	Repeated <sup>†</sup>	Core team	Wider care team
<b>▼ Palliative care: Assessment and documentation of palliative care needs</b>				
Negotiation of treatment goals early in care				
Advance care planning offered early in care				
Patient's understanding of prognosis				
Patient's preferences for palliative care				
Monitoring of worsening renal failure, low serum sodium, anaemia, increasing frailty				

#### Notes

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Recommended components	Implemented (✓)		Delivery <sup>‡</sup>	
	Initially*	Repeated <sup>†</sup>	Core team	Wider care team
<b>▼ Palliative care: Advance care planning</b>				
Developed in negotiation with patient and family				
Includes agreement on symptom management				
Includes agreement on cardiopulmonary resuscitation				
Includes agreement on level of intervention				
Includes agreement on use of diagnostic testing				
Includes agreement on deactivation/continuation of ICDs/LVADs (if applicable)				
Advance care plan regularly revised				
Advance care plan communicated to team				
<b>▼ Palliative care</b>				
Reassessment of medicine regimen in palliative phase				
Protocol for managing intractable fluid overload				
Protocol for managing intractable angina				
Protocol for managing deteriorating renal function				
Protocol for managing dyspnoea				
Management of distressing symptoms (e.g. fatigue, lower limb oedema, constipation, pain)				

Recommended components	Implemented (✓)		Delivery <sup>‡</sup>	
	Initially*	Repeated <sup>†</sup>	Core team	Wider care team
<b>Professional support and development</b>				
Mentorship for less experienced multidisciplinary care team members				
Regular access to expert consultation (regional and remote healthcare settings)				
Incorporation of key performance indicators into work plans				
Processes for communication between primary, secondary and tertiary healthcare services				

HbA1c: glycated haemoglobin (%); ICDs: implantable cardioverter defibrillators; LVADs: left-ventricular assist devices; NSAIDs: nonsteroidal anti-inflammatory drugs; COPD: chronic obstructive pulmonary disease.

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