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# Chronic heart failure management in Australia

## Time for general practice centred models of care?

### Background

Chronic heart failure (CHF) is an increasingly prevalent problem within ageing populations and accounts for thousands of hospitalisations and deaths annually in Australia. Disease management programs for CHF (CHF-DMPs) aim to optimise care, with the predominant model being cardiologist led, hospital based multidisciplinary clinics with cardiac nurse outreach. However, findings from contemporary observational studies and clinical trials raise uncertainty around the effectiveness and sustainability of traditional CHF-DMPs in real-world clinical practice.

### Objective

To suggest an alternative model of care that involves general practitioners with a special interest in CHF liaising with, and being up-skilled by, specialists within community based, multidisciplinary general practice settings.

### Discussion

Preliminary data from trials evaluating primary care based CHF-DMPs are encouraging, and further studies are underway comparing this model of care with traditional hospital based, specialist led CHF-DMPs. Results of studies of similar primary care models targeting diabetes and other chronic diseases suggest potential for its application to CHF.

### Keywords

heart failure; chronic disease; health services; delivery of healthcare

Chronic heart failure (CHF) affects over 300 000 Australians with another 30 000 new cases diagnosed each year, and accounts for 43 000 hospitalisations and 2200 deaths annually.<sup>1</sup> In every 1000 encounters, general practitioners will manage seven patients with CHF.<sup>2</sup> United Kingdom data shows that half of all CHF patients are diagnosed in the primary care setting, and a third of all CHF patients are managed predominantly by GPs.<sup>3</sup>

### Traditional models of care

Current Australian guidelines<sup>4</sup> recommend all patients with CHF, where appropriate, be offered enrolment into a multidisciplinary disease management program. The dominant model of care of the 64 disease

management programs for CHF (CHF-DMPs) in Australia involve hospital based clinics and outreach services (comprising home visits and telephone contacts) led by nurses and clinical pharmacists with cardiologist oversight.<sup>5</sup> In this model of care, the GP has assumed a secondary and often disconnected role in managing comorbidities and intercurrent acute illnesses unrelated to either secondary prevention or palliation of CHF. However, such models of care face contemporary challenges on two fronts.

### Operational challenges to existing CHF-DMPs

Access and sustainability are two key issues. Currently only 20% of patients with CHF discharged from hospital in Australia are managed in existing CHF-DMPs,<sup>5</sup> and access is especially limited in regional and rural communities where only 8% of CHF-DMPs are currently located.<sup>6</sup> Only a minority (13–17%) of older patients with moderate-to-severe heart failure regularly attend hospital based CHF clinics<sup>7</sup> due to poor functional status, lack of available transport, multiple comorbidities and perceived inconvenience. This helps explain why a recent trial showed home based care to be more effective than hospital clinics in reducing days of hospitalisation and healthcare costs in patients with CHF.<sup>8</sup> A large population based study in Canada showed that only 10% of patients attended CHF clinics and, in the absence of frequent visits and intensive medication management, CHF-DMPs actually increased hospital admissions over 4 years, with very marginal reductions in all-cause mortality.<sup>9</sup>

Many CHF-DMPs are also not following evidence based guidelines, include patients who are asymptomatic in whom the diagnosis of CHF has not been confirmed (16% overall), do not allow specialist nurses to titrate medications, and inconsistently apply different models of care.<sup>10</sup> An audit of four CHF-DMPs in Brisbane (Queensland) found that among patients not receiving target doses at hospital discharge, only a quarter achieved target doses within 6 months.<sup>11</sup>

These findings may explain in part why an evaluation of Victorian CHF-DMPs found no difference in hospital admissions and emergency presentations between patients participating in such programs and those not participating.<sup>12</sup>

In terms of sustainability, only half of CHF-DMPs have secure long term funding, with 15% of programs ceasing operations in 2005 due to inadequate budget.<sup>13</sup> With increasing numbers of patients with CHF predicted over coming years, and the financial push for hospitals to devolve management of ambulatory care sensitive conditions to general practice under new activity based funding formulae, the long term viability of many hospital based CHF-DMPs is in doubt.

### Evidentiary challenges to existing CHF-DMPs

Trials performed since 2005 often report little or no benefit arising from different models of CHF-DMP.<sup>14–16</sup> This challenges the notion of a single effective model of care that applies across all settings and contexts. In particular, a large real-world randomised trial of nine DMPs involving 30 000 patients with heart failure and diabetes in the United States found no reductions in mortality, hospitalisation, costs, or physical or mental disability.<sup>17</sup> Re-appraisal of multiple previous meta-analyses, in which pooled data from trials before 2004 had found in favour of CHF-DMP based care, also reveals marked variations in selection and quality of included studies, with inadequate descriptions of intervention components and usual care, together with insufficient accounting for methodological and statistical heterogeneity across studies.<sup>18</sup> In addition, many of these studies suffered from systematic bias, because only individuals who were able or willing to participate (<20% of screened subjects in all trials) were enrolled.<sup>19</sup>

More recent studies also yield conflicting results. For example, a Cochrane review analysed 25 trials (n=5942) categorised as those involving case management (post-discharge monitoring often involving telephone follow up and home visits by specialist nurses); clinic interventions (CHF clinics run by cardiologists or protocol-guided nurses); and multidisciplinary interventions (post-discharge transitional care delivered by a multidisciplinary team).<sup>20</sup> At 12 months, case

management reduced all cause mortality by 34%, CHF related readmissions by 53%, and all cause hospital admissions by 25%. Multidisciplinary interventions reduced all cause and CHF related readmissions by 54% and 55% respectively, while CHF clinics showed non-significant reductions in all three outcomes. In contrast, another meta-analysis found CHF clinics reduced CHF readmissions by 49% at 12 months, with weekly or fortnightly clinic visits immediately post-discharge yielding greatest benefit.<sup>21</sup> A recent trial suggested patients referred to hospital based CHF clinics derive no further benefit compared to GP based maintenance care after 12 months,<sup>22</sup> while another trial reduced this period to 3 months.<sup>23</sup> A recent Dutch trial suggested that the care of low risk patients with mild to moderate CHF could be transferred to GPs with advanced CHF skills within 4 weeks.<sup>24</sup>

Other questions that remain unanswered include the optimal intensity and duration of CHF-DMPs, patient selection (who derives the greatest benefit and who is unlikely to benefit), cost effectiveness during long term follow up, and generalisability of results from trials involving academic health centres to routine patient care.<sup>25</sup>

### Opportunities for a more general practice based approach to heart failure management

Among patients with CHF recently discharged from hospital emergency departments, early collaborative care involving cardiologists and GPs enables higher quality care and improved survival compared to either cardiologist or GP care alone.<sup>26</sup> Moreover, the three key elements required for effective CHF-DMP<sup>27</sup> of trained specialist nurses, education of patients and caregivers about CHF, and ready access to clinicians trained in CHF can be delivered in primary care settings. Evidence is emerging that suggests that primary care based, multidisciplinary CHF-DMPs centred on GPs with a special interest in CHF achieve similar outcomes and at potentially lower cost (*Table 1*).<sup>24,28–30</sup> If specialist outreach is added, whereby visiting specialists collaborate with and up-skill GPs in primary care clinics, health outcomes are further improved, care is rendered more efficient and guideline-consistent, and demand on inpatient services and hospital clinics is lessened.<sup>31</sup>

Such a model has been replicated in a large urban general practice in Brisbane involving the care of diabetic patients by GPs with a special interest who work in a multidisciplinary ‘beacon’ general practice in partnership with visiting specialists (*Table 2*).<sup>32</sup> This model has achieved better control of blood sugars and risk factors than that of a comparable cohort treated in hospital clinics, reduced demand on hospital clinics as evidenced by reduced waiting lists for new referrals, and decreased the overall costs of care, despite higher attendance rates for GP appointments. Experience with a similar model of diabetes care in a regional general practice in Toowoomba (Queensland) has recently been reported.<sup>33</sup> While diabetes carries a better prognosis than symptomatic CHF, there is no reason why this model cannot be extended to CHF management. Other models of care are evolving, with ongoing trials evaluating effects of nuanced CHF-DMPs, customised according to the clinical characteristics and needs of local patient populations and the resources and skills of local primary care teams.<sup>34,35</sup>

Primary care based models of care have several advantages. Most older patients with CHF have other comorbidities and psychosocial issues whose monitoring and management are best understood and coordinated by a GP located geographically within easy reach. Patients appreciate the ability within general practice settings to have sensitive issues discussed, be seen by the same team members, be treated holistically rather than through the prism of a single disease, and be reviewed quickly and as often as clinically necessary.<sup>36</sup> Such an approach calls for more selective and time efficient specialist input in patient care, thus allowing specialist led CHF-DMPs to concentrate more of their efforts on younger patients with more advanced disease in whom invasive cardiology intervention may be warranted. At the very least, primary care based CHF-DMPs should be considered for the majority of CHF patients who do not have access to, or are unable to participate in, traditional hospital based CHF-DMPs.

### The convergence of new GP-based models of care with current national healthcare reform

From July 2012, 62 Medicare Locals have commenced working closely with their local hospital and health services (LHSSs) in establishing better

integrated models of chronic disease care for their communities. New models of GP based chronic disease management, such as described here, allow selected patients with CHF to receive safe and optimal care (both for CHF and other comorbidities) locally, from appropriately trained GPs with a special interest working in collaboration with other GPs and specialists. This allows CHF management to be devolved from increasingly constrained tertiary or secondary care hospitals, to primary care settings with enhanced capacity. This may afford greater access to care for disadvantaged patients with CHF at lower cost to the healthcare system and

allow more patients to receive, and be adherent to, optimal care regimens with subsequent gain in health outcomes. Current healthcare reforms, mandating closer integration between Medicare Locals and LHHs driven by new healthcare performance measurement and funding frameworks, will demand new approaches to complex chronic disease management.

### Key points

- Patients with chronic heart failure are growing in number and most are elderly with multiple comorbidities.
- Traditional cardiologist led, hospital based

disease management programs for CHF with cardiac nurse outreach appear to have limited effectiveness, often because patients cannot access hospital based clinics, or treatment regimens involving multiple comorbidities are not optimised. The financial sustainability of many CHF-DMPs is also in doubt.

- An alternative model of care involves GPs with a special interest in CHF who liaise with specialists co-located in multidisciplinary community based general practices. Preliminary data are encouraging, and further studies are underway to address whether this model of care delivers similar outcomes compared with traditional CHF-DMPs.

**Table 1. Trials of GP-mediated chronic heart failure care**

- In a New Zealand trial, 197 patients were randomised to usual GP care versus clinical review at a hospital-based CHF clinic early after discharge, combined with regular clinical follow up alternating between the GP and the CHF clinic.<sup>28</sup> Over 12 months follow up, there was no significant difference between groups for the combined end-point of death or hospital readmission, although readmissions alone were reduced by 26% in the CHF clinic group. In contrast to most CHF-DMP trials, patients in this trial were more representative of real-world patients with CHF in terms of age, comorbidity burden, and median number of medications taken
- In a Swedish trial, 160 patients with CHF attending primary care clinics were randomised to either intensive follow up performed by CHF nurses and GPs providing information and education about CHF and optimisation of CHF treatment according to recognised guidelines, or usual care. Over 12 months, there were significant improvements in cardiac function and fewer unplanned GP visits, emergency department visits and hospitalisations compared to usual care<sup>29</sup>
- In a Danish randomised trial involving 921 patients with CHF, GPs who managed low risk patients with mild to moderate CHF initially stabilised in cardiologist led clinics for periods as short as 4 weeks, achieved reductions in mortality and hospitalisations over 2.5 years that matched those of patients who continued to be managed in cardiologist led CHF clinics<sup>24</sup>
- In Oregon (USA), a heart failure clinic staffed by two family physicians and nurses was established in a large primary care practice.<sup>30</sup> Using a pre-post study design, among 93 patients seen two or more times, use of anti-angiotensin therapy was already high (84%) and did not change over time, but doses of angiotensin converting enzyme inhibitors increased by more than 50%, and beta-blocker use increased from 40% to 63% at 6 months. Emergency room visits or all-cause hospitalisations were reduced by approximately 40% and quality of life was significantly improved

**Table 2. A collaborative specialist GP model of chronic disease management<sup>32</sup>**

The Primary Care Amplification Model builds primary care capacity by uniting local general practices around a central 'beacon' practice. The 'beacon' practice is based on five interrelated elements: appropriate change management; evidence based clinical team care; appropriate professional development (including team training) and the creation of GPs with advanced skills in CHF care (known as 'GP fellows') as a result of postgraduate training and on-site liaison with and supervision from specialists; effective information and communication technology; and a governance structure which supports the outcomes sought. Visiting specialists work in collaboration with and up-skill GP fellows, while the latter undertake patient consultations and formulate management plans

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