Heart failure disease management works, but will it succeed?

John S. Rumsfeld*, Frederick A. Masoudi

Denver VA Medical Center, Denver Health Medical Center, University of Colorado Health Sciences Center, Denver, Colorado, USA

This editorial refers to "The effectiveness of disease management programmes in reducing hospital readmission in older patients with heart failure: a systematic review and meta-analysis of published reports" by J. Gonseth et al. on page 1570 and "Heart failure clinics and outpatient management: review of the evidence and call for quality assurance" by F. Gustafsson and J.M.O. Arnold on page 1596.

Quality of care is defined as "the degree to which health services... increase the likelihood of desired health outcomes and are consistent with current professional knowledge." Despite tremendous advances in our understanding of the pathophysiology of heart failure and the development of efficacious therapies, the quality of care for patients with heart failure is suboptimal. For example, although ACE-inhibitors carry a Class I guideline recommendation for patients with left ventricular systolic dysfunction, less than 70% of eligible patients receive such therapy at the time of discharge from a heart failure hospitalisation. ACE-inhibitor use is even lower among heart failure outpatients, and rates of use of other indicated therapies such as β-blockers are lower still. In other words, the potential of scientific advances to optimise patient outcomes has not been realized because of the failure to implement these discoveries fully in clinical care.

The implementation of 'guideline-based' therapies in clinical practice is challenging because of the complexity of the recommendations for care. For example, in symptomatic patients with ischaemic cardiomyopathy, current guidelines support the use of seven or more medications and consideration of interventions such as coronary revascularization, implantable defibrillators, and biventricular pacemakers. Heart failure care is also intensive, requiring close monitoring on the part of clinicians (e.g., the initiation and up-titration of β-blockers) and patient self-management (daily weights, diet modification, titration of diuretics, etc.). Finally, heart failure is a disease of the elderly, whose care is often complicated further by factors such as competing co-morbid diseases, polypharmacy, and reduced functional and/or cognitive status.

Nonetheless, the complexity of heart failure care and challenges of treating older patients do not excuse therapeutic nihilism. The burden of heart failure on patients is so great that evidence-based treatment carries great promise for benefit. Even when the primary goal of therapy is not to prolong life, objectives such as the minimization of symptoms, improvement or maintenance of functional status, and optimisation of quality of life are critical from the patients' perspective. Because many of the therapeutic interventions for heart failure have favourable impact on a wide range of outcomes, it remains essential to deliver guideline-recommended care whenever possible.

So how can the quality of heart failure care be improved? Unfortunately, there has been little specific research to date to guide clinicians on the best methods of heart failure care delivery. What has been shown in the broader literature, however, is that the most effective quality improvement interventions are multi-disciplinary (e.g., involving nurses or pharmacists in care delivery), multi-faceted (e.g., incorporating multiple components such as critical pathways, reminders and feedback), and "activate" the patient (e.g., education, self-management). While the patient–clinician interface should always remain at the centre of care, clinicians require strong support from the systems of care in which they practice. As noted by Donald Berwick,
One promising method of improving the quality of heart failure care is the implementation of disease management programmes (DMPs). DMPs are broadly defined as “multidisciplinary efforts to improve the quality and cost-effectiveness of care... for chronic conditions”.

In this issue of the Journal, Gonseth et al. present the results of a rigorous systematic review/meta-analysis of the efficacy of DMPs for reducing hospital readmission in older heart failure patients. They found that DMPs reduced the frequency of re-admission by 30% and were cost-effective, particularly when home visits by nurses were a component of the program. Furthermore, there was a trend toward reduced mortality and demonstrable benefits across different health care settings.

Also in this issue, Gustafsson and Arnold review the efficacy of DMPs with an emphasis on key components of disease management interventions. They found that most DMPs centre on: (1) optimization of guideline-based medical therapy; (2) patient education with focus on self-management (e.g., weight, triage of heart failure signs and symptoms); and (3) psycho-social support. Exercise training has been incorporated in some programs and may have an increasing role. Importantly, disease management interventions are almost always a collaborative effort, in which nurse co-management (e.g., home visits or telephone care) is an important, if not primary, feature. Some DMPs are clinic-based, some are home-based (i.e., care providers visit patient homes), some are centred on telephone care, and many use a combination of these modalities. The model of collaborative care with structured follow-up is analogous to successful depression interventions in primary care.

Despite evidence that DMPs are effective, however, they are not widely employed. Anecdotally, many of the centres in the US that have studied DMPs have not continued these programmes beyond the study period. In other words, DMPs work in studies, but do not appear to be succeeding in clinical practice. There are several possible explanations for this:

- **Diffusion of new knowledge can be slow**: Changes in clinical practice can take years, and the evidence for DMPs is fairly recent. Also, a new approach to care delivery may not capture the attention of clinicians in the same way as a new device or medication. However, changing care delivery to increase delivery of proven therapies may have as much or more impact on patient outcomes than any new device or drug.
- **Lack of clarity of the necessary components of a DMP**: The ‘best way’ to design and implement a DMP is not clear. As emphasised in the two articles in this issue, the interventions described in the literature are heterogeneous and the published reports lack sufficient detail to guide implementation elsewhere. Furthermore, less than half of screened patients were enrolled in the randomized trials, so it is not clear if disease management would benefit all heart failure patients or should instead be targeted to specific subsets. Finally, unlike a study with a discrete timeline and finish, DMPs in clinical practice will require indefinite monitoring, ideally with ongoing feedback on performance and iterative adjustments to the intervention to remain clinically relevant and to improve care continually.
- **Amount of evidence**: Although there is favourable evidence for DMPs with regard to hospitalisation and guideline-indicated medication use, there is limited data on their impact on mortality and patient health status (symptom burden, functional limitation, and quality of life), as well as on their longer-term effects.
- **Cost, inertia, and incentives**: Although DMPs appear to be cost-effective from the societal perspective, they require up-front investment at the hospital/clinic level. Furthermore, the clinical inertia to design, implement, and monitor a DMP is significant. Finally, at least for most of the United States health care system, there may be perverse financial disincentives to implementing DMPs (i.e., hospitals in a fee-for-service system may receive less reimbursement with lower hospitalisation rates).

What should be done to address these barriers?

- **Further research**: Although the articles in this issue provide an important synthesis of evidence to date for DMPs, more studies are needed. Most pressing are robust assessments of the impact of DMPs on mortality and patient health status, but also essential is the demonstration of the sustainability of effect of such programmes over longer time periods. Further data on which patients benefit most may help guide targeting of DMPs in clinical practice. Also, explicit evaluation of co-intervention for co-morbid conditions such as diabetes, chronic obstructive pulmonary disease, and depression should be considered. Finally, promising new modalities of disease management should be tested, such as tele-monitoring and e-health solutions (e.g., web-based interaction with patients at home).
- **Professional society guidance**: Endorsement by professional societies may add to the momentum for more widespread implementation of DMPs. Working collaboratively, societies such as the European Society of Cardiology, the American College of Cardiology, and the heart failure societies should provide guidance for the design, implementation, and monitoring of DMPs for practicing cardiologists and hospitals.
- **Policy changes**: Perhaps most difficult, policy changes are needed to ensure that interventions like DMPs that improve patient outcomes are aligned with the financial incentives of health care systems. Incentives that implicitly support the denial of ‘best care’ are unacceptable.

Even without further studies, professional society guidance, or policy changes, there are key messages for clinicians regarding heart failure disease management. First, there is adequate evidence to support the
efficacy of DMPs to reduce hospitalisation and enhance compliance with guideline-recommended pharmacotherapy. Second, the broader medical and quality improvement literature clearly demonstrates the importance of collaborative care in providing the highest quality of care for chronic diseases. With the ageing population in Europe and the US, the vast majority of heart failure patients will have multiple co-morbid conditions, and multi-disciplinary, multi-faceted interventions may be the only way to deliver effective care in this challenging population. However, until DMPs are widely implemented in clinical care, they cannot be deemed a successful tool for improving patient outcomes. Now is the time for practicing cardiologists and hospitals to develop and implement disease management programmes for heart failure. Only then may the full potential of advances in the clinical science of heart failure be realised.

References