

Treating the right patient at the right time: Access to heart failure care

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Heart failure affects over 500,000 Canadians, and 50,000 new patients are diagnosed each year. The mortality remains staggering, with a five-year age-adjusted rate of 45%. Disease management programs for heart failure patients have been associated with improved outcomes, the use of evidence-based therapies, improved quality of care, and reduced costs, mortality and hospitalizations.

Currently, national benchmarks and targets for access to care for cardiovascular procedures or office consultations do not exist. The present paper summarizes the currently available data, particularly focusing on the risk of adverse events as a function of waiting time, as well as on the identification of gaps in existing data on heart failure. Using best evidence and expert consensus, the present article also focuses on timely access to care for acute and chronic heart failure, including timely access to heart failure disease management programs and physician care (heart failure specialists, cardiologists, internists and general practitioners).

Key Words: Access; Heart Failure; Waiting times

The Canadian Cardiovascular Society (CCS) is the national professional society for cardiovascular specialists and researchers in Canada. In 2002, at the Canadian Cardiovascular Congress Public Policy Session, Senator Wilbert Keon stated that an important role of a national professional organization such as the CCS is to develop national benchmarks for access to cardiovascular care that could be validated and adopted or adapted by the provinces. Currently, national benchmarks and targets for access to care for cardiovascular procedures or office

Traiter le bon patient au bon moment : L'accès aux soins pour l'insuffisance cardiaque

L'insuffisance cardiaque touche plus de 500 000 Canadiens, et 50 000 nouveaux patients sont diagnostiqués chaque année. Le taux de mortalité demeure énorme, avec un taux ajusté selon l'âge de 45 % après cinq ans. Les programmes de prise en charge des patients atteints d'insuffisance cardiaque s'associent à une amélioration des issues, au recours à des thérapies probantes, à une amélioration de la qualité de vie et à une diminution des coûts, de la mortalité et des hospitalisations.

Pour l'instant, il n'existe pas de points de référence nationaux et de cibles d'accès aux interventions cardiovasculaires ou aux consultations en cabinet. Le présent article résume les données disponibles, et est axé sur le risque d'événements indésirables découlant des temps d'attente, ainsi que sur le dépistage des lacunes dans les données sur l'insuffisance cardiaque. Au moyen des meilleures données probantes disponibles et du consensus de spécialistes, le présent article porte également sur l'accès rapide aux programmes de prise en charge de l'insuffisance cardiaque et aux soins de médecins (spécialistes de l'insuffisance cardiaque, cardiologues, internes et omnipraticiens).

consultations do not exist. While some provinces have established targets for access to some cardiovascular procedures, a national consensus does not exist for waiting time targets, issues of regional disparities, or even on how to measure or approach the problem. The CCS, as a professional organization with a broad-based membership of cardiovascular experts, is ideally suited to initiate a national discussion and commentary on waiting times and access to care issues as they pertain to the delivery of cardiovascular care in Canada.

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The CCS Council formed an Access to Care Working Group (the 'Working Group') in the spring of 2004 in an effort to use the best science and information to establish reasonable triage categories and safe waiting times for access to common cardiovascular services and procedures. The Working Group has elected to start the process with a series of commentaries. The Working Group considers access to the full breadth of cardiovascular services necessary for optimum cardiovascular care, and commentaries were selected to reflect that breadth. Each commentary is intended to be a first step in a process to establish national targets. These commentaries summarize the current variability of benchmarks and waiting times across Canada, where this information is available. They also summarize the currently available data, particularly focusing on the risk of adverse events as a function of waiting time, as well as on the identification of gaps in existing data. Using best evidence and expert consensus, each commentary takes an initial position on what the optimal benchmark for access to care should be for the cardiovascular service or procedure. The commentaries also call upon cardiovascular researchers to fill the gaps in this body of knowledge and to further validate safe waiting times for patients at varying degrees of risk.

The present report focuses on timely access to care for both acute and chronic heart failure (HF), and includes timely access to HF disease management programs (DMPs) and physician care (HF specialists, cardiologists, internists and general practitioners). Access to device therapies are addressed by Simpson et al in the access to electrophysiology commentary (pages 741-746). HF is defined as the inability of the heart to pump a sufficient amount of blood to meet the demands of the body at normal filling pressures. HF affects approximately 500,000 Canadians, and 50,000 new patients are diagnosed each year. The prevalence of HF rises with increasing age such that 1% of Canadians over 65 years of age and 4% of Canadians over 70 years of age have HF (1). Because the Canadian population is aging, the prevalence of HF and HF hospitalizations will continue to increase (2). The median survival for chronic HF patients is 1.7 years for men and 3.2 years for women, with a five-year age-adjusted mortality of 45% based on the time period between 1990 and 1999 (3). HF remains the diagnosis that most commonly brings a patient to hospital for medical admission. In addition, readmission rates are 25% to 59% within six to 12 months of hospital discharge (4-7). HF is a chronic disease with frequent acute exacerbations; as such, HF patients are complex, resource intensive and frequently require access at multiple levels within the health care system.

DMPs provide multidisciplinary intensive therapy for patients with HF, including optimal proven drug therapies, investigation, education and monitoring (eg, targeted home visits, phone, fax, clinic, Internet), and provide support to patients, physicians and other health care providers (8,9). DMPs appear to have the greatest impact in high-risk HF patients (10). Care of HF in such programs is associated with reduced hospital admissions (detectable within 30 days of initiation), reduced length of stay and an improvement in clinical outcomes (11,12).

In addition, with the exception of one study (predominantly HF outpatients without recent hospitalization) (13), the majority of studies have shown that comprehensive DMPs are cost effective for the high-risk HF population. In addition, DMPs are associated with improved use of evidence-based therapies, including those that use angiotensin-converting

enzyme inhibitors, angiotensin receptor blockers, beta-blockers and spironolactone. Two meta-analyses (14,15) have demonstrated a mortality benefit with DMPs for patients at high risk for admission and those recently discharged from hospital. A more recent meta-analysis (16) confirmed a reduction in mortality and hospitalizations in HF patients managed through a DMP. In a randomized study (17), home-based interventions that involved nurses specially trained for HF reduced rehospitalization rates. A specially trained and supervised nurse intervention approach may be more accessible to outlying communities. It is not clear which method of DMP is optimal, although several common features are seen in studies reported to decrease adverse outcomes. These include repeated assessments, inclusion of family or caregivers in the treatment plan, proactive education, clear pre-discharge planning with set follow-up plans, persistent and repeated medication review with follow-up monitoring for potential adverse effects, including blood work, and implementation of evidence-based therapies. Minimal components include a physician experienced in HF care and an additional health care practitioner (usually but not always a nurse with expertise in HF management and follow-up).

These results are achieved by implementing and following clinical practice guidelines to improve utilization rates of evidence-based medical therapies and increase patient adherence with therapy. The most common causes of admission for HF are medication and dietary nonadherence, thus further underscoring the importance of DMPs (18). HF DMPs are often located in centralized, tertiary care facilities – a system that can impact the availability to all Canadians. Many communities that are unable to provide full DMPs instead provide nurse educator support and social services. Within Canada, the Improving Cardiovascular Outcomes in Nova Scotia (ICONS) study has demonstrated a reduction in mortality and hospitalization rates for HF patients managed via an HF DMP compared with those discharged to community care (Dr Jon Howlett, personal communication). The Montreal Heart Institute showed that intervention with a DMP was associated with lower rehospitalization rates and improved quality of life (19). Differential hospitalization rates in areas with versus those without DMPs require further research, especially in light of the geographical challenges that exist within the Canadian context.

With the increasing number of HF hospitalizations projected over the next decade, and given the aging baby boomer population, it is likely that there will be a progressive increase in the number of patients with HF that require hospitalization, evaluation, therapy and follow-up. Given this projected demographic deluge of patients with HF, it is imperative to address access to care and determine who should be providing that care. Underutilization of proven HF therapies is well described; hence, not only is access to care critical, but access to health care professionals and DMPs with HF expertise is vital. Hence, any administrative and organizational obstacles to the delivery of optimal care must be identified and addressed. It is important to develop medically defined target waiting times and the system requirements for disease management for patients in each objectively defined risk category (Table 1).

It is also important that patient transfers between institutions for the purpose of access be included in the access and waiting time benchmarks. Finally, these benchmarks and targets should be based on need and not on current resource availability.

TABLE 1
Waiting time benchmarks for the evaluation of heart failure (HF) patients by a health care provider

Triage category	Access target	Examples	Evidence	Health care provider
Emergent (very high risk)	<24 h	<ul style="list-style-type: none"> • Acute severe myocarditis • Cardiogenic shock • Transplant evaluation – acutely unstable patient • First episode of acute pulmonary edema • Acute cardiac valvular regurgitation 		HFS, cardiologist
Urgent (high risk)	<2 weeks	<ul style="list-style-type: none"> • Progressive HF • New diagnosis of HF – unstable, decompensated • Postmyocardial HF • New progression to AHA/ACC Class D • Posthospitalization discharge heart failure 	Clinical trials	HFS, DMP, cardiologist
Semiurgent	<4 weeks	<ul style="list-style-type: none"> • AHA/ACC Class C • New diagnosis of HF – stable, compensated 	ICONS data, disease management data	HFS, DMP, cardiologist, internist
Scheduled	<6 weeks <12 weeks	<ul style="list-style-type: none"> • Chronic HF management • AHA/ACC Class A and B 		FP, internist, cardiologist, DMP or HFS

Consideration should be given to having semiurgent (internist) and nonurgent (general practitioner) HF patients initially assessed and managed by an internist, general practitioner or other HF-trained health care practitioner (eg, advanced practice nursing). It is critical that current Canadian Cardiovascular Society Consensus Conference Recommendations on the diagnosis and management of HF patients be widely disseminated and implemented by health care providers that treat HF patients. Emergent (HF specialist [HFS]) and urgent consultation should be assessed by an HFS and/or a cardiologist as available. American Heart Association/American College of Cardiology (AHA/ACC) Class A: At high risk for heart failure but without structural heart disease or symptoms of HF; AHA/ACC Class B: Structural heart disease but without signs or symptoms of HF; AHA/ACC Class C: Structural heart disease with prior or current symptoms of HF; AHA/ACC Class D: Refractory HF requiring specialized interventions (26). DMP Disease management program; FP Family physician/general practitioner; ICONS Improving Cardiovascular Outcomes in Nova Scotia

METHODOLOGY

Published reports of outcomes for patients with HF in a variety of clinical scenarios and those outlining risk factors for hospital readmission were reviewed. In the case of chronic HF following hospitalization, published meta-analyses of randomized, controlled clinical trials were abstracted for outcome data, and descriptions of the interventions were applied (20-25). These data were collated, and the timing of intervention was documented. For HF following acute myocardial infarction (MI), posthospital discharge event rates were noted. Finally, observational data from the ICONS database were abstracted and event rates (adjusted for multiple potentially confounding variables) were noted (Dr Jon Howlett, personal communication). For chronic HF, event rates and treatment protocols for death and hospitalization were noted from the publications of recent trials. Expert opinion was applied to determine reasonable follow-up times for patients with stable, chronic HF of varying degrees.

The current literature on clinical practice guidelines was also reviewed (26,27). Predicted times to heart failure evaluation were extracted from epidemiological data showing increasing mortality with increasing waiting times. Where these times were not explicit in the cardiovascular medical literature, they were developed through clinical expert consensus. The Expert Consensus Panel was composed of the Canadian Cardiovascular Consensus Conference Primary Panel on the Diagnosis and Management of Heart Failure (see Appendix). The Working Group's purpose was to develop benchmarks for appropriate waiting times. These benchmarks were then sent out to a secondary panel for wider validation. This expert opinion and consensus is reported below.

RESULTS

There were three meta-analyses of randomized trials and one review assessing DMP approaches to HF care (9,14-16). Studies included older and younger patients, patients following hospitalization, and the full spectrum of HF, including patients with severe HF. Interventions usually included predischarge

teaching, with specific reference to medication training and identification of potential barriers to adherence. Following discharge, interventions invariably began within two weeks and consisted of telephone calls, home visits or clinic visits. Thereafter, visits ranged from weekly to monthly. End point evaluations ranged from three to 18 months of follow-up. Overall, there was a 30% reduction in death and rehospitalization rates, and the curves tended to separate very early.

Following high-risk MI (defined as MI complicated by left ventricular dysfunction and/or clinical HF), the event rate curve was hyperbolic, with a very high event rate in the first month following discharge, and linear rates thereafter (28-30). Furthermore, the one-year mortality of these patients was 12%, despite contemporary therapy, including revascularization and the use of beta-blockers, acetylsalicylic acid, statins and angiotensin-converting enzyme inhibitors. Thus, patients with post-MI HF should be treated as high risk, similar to patients with new-onset HF or those recently hospitalized due to HF.

Analysis of the data from the ICONS study showed that event curves clearly separated within 10 to 15 days, indicating an almost immediate effect of disease management interventions (Dr Jon Howlett, personal communication).

In clinical trials involving chronic, stable HF, most protocols mandated increased visit frequency (every two to four weeks) during titration of any medication, with follow-up at least monthly for blood testing for the first three months. Most follow-up in the maintenance phase (after drugs titrated) occurred every three to four months. In any event when instability occurred (symptoms or otherwise), a visit within one week was warranted with either the family doctor or a health care professional from a DMP.

RECOMMENDATIONS

For a list of recommended waiting time benchmarks for the evaluation of HF patients, please see Table 1. In emergency situations (ie, very high risk – transplant or mechanical circulatory

support evaluation, acute valvular rupture, cardiogenic shock, acute myocarditis, first episode of acute pulmonary edema), patients should undergo an initial evaluation within 24 h of presentation by an HF specialist, or by a cardiologist when an HF specialist is unavailable. If the patient presents to a hospital that lacks cardiology or HF expertise, then arrangements should be made for urgent evaluation by a cardiology or HF specialist, especially if the patient is eligible for transplant or mechanical circulatory support.

The urgent HF patient is defined as being at high risk for hospitalization or mortality, specifically post-MI patients with symptomatic HF, HF with an unstable disease course, or worsening symptoms; those with functional New York Heart Association Class III/IV symptoms; those requiring an emergency room visit and receiving intravenous diuretics; those with several hospitalizations (two or more) within the past year; and those with recently diagnosed HF. The initial intervention for high-risk patients should include pre-discharge planning, followed by post-discharge contact by phone, clinic visit or home visit within two weeks, or referral to a DMP or a specialist or internist appointment within two weeks. Not all recently diagnosed HF patients require a comprehensive DMP; however, those patients defined as high risk should be referred to a DMP. In terms of lower-risk, newly diagnosed HF patients, further study is required to elucidate which patients will derive the greatest benefit from a DMP.

In the lower-risk HF patient with milder stable outpatient symptoms not requiring an emergency room visit or hospital admission, an initial evaluation by a general practitioner, internist or specialist, or DMP is warranted within four weeks, with follow-up monthly for at least three months, and then every three to 12 months thereafter (Consensus opinion).

For patient follow-up, titration of established medications should occur with visits at least monthly, although these visits should ideally occur at two-week intervals. At all visits, assessment of potential side effects or complications of therapy should occur.

CONCLUSIONS

For high-risk patients, multidisciplinary, specialized HF DMPs that educate patients to enhance self-care activities, apply up-to-date, evidence-based best medical therapies, and provide follow-up monitoring by specially trained staff, should be available and utilized. This type of intervention is cost-neutral to cost-saving and is associated with reduced mortality (pooled data), reduced HF and all-cause hospitalizations, improved adherence to evidence-based therapies (via prescribing practices and patient adherence) and improved quality of life. Where specialized HF DMPs are not available, referral to cardiovascular specialists with an interest in HF is recommended, and telephone intervention, including telephone follow-up or telemonitoring, enhanced communication with a primary care physician or educational programs designed to enhance patient self-care activities, may be considered (14).

Implementation of the proposed waiting time benchmarks will have profound implications for Canada's publicly funded health care system. This is particularly true at all levels within cardiology and the interdisciplinary groups that treat HF patients. More patients will be referred urgently to the HF DMPs located within a local community, regional or tertiary

care centre. Patients may require repatriation back to their community or regional hospital, and this will impact on both equipment and personnel. Information transfer and electronic health records would greatly facilitate this process. Such a multidisciplinary approach will involve recruitment and training of personnel. Given that 90% of patients with HF are being treated by primary care practitioners, it is imperative to consider how to incorporate elements of HF DMPs into the multidisciplinary chronic disease management strategies in these settings (31).

Given that approximately 50,000 new patients are diagnosed with HF each year, and that there are presently 500,000 HF patients, it is imperative that processes and resources are put in place to ensure comprehensive and timely access to care for the HF population. In addition to established DMP and HF specialists, there is also a need for collaborative care with community internists and family practitioners, nurse-delivered HF care and other novel approaches, including telehealth technologies.

APPENDIX

Canadian Cardiovascular Society Consensus Conference recommendation on heart failure 2006 – Diagnosis and management primary panel members

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APPENDIX – continued
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