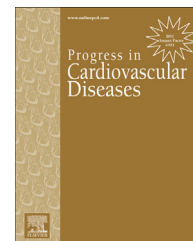


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Cardiac Rehabilitation Series: Canada

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ABSTRACT

Cardiovascular disease is among the leading causes of mortality and morbidity in Canada. Cardiac rehabilitation (CR) has a long robust history here, and there are established clinical practice guidelines. While the effectiveness of CR in the Canadian context is clear, only 34% of eligible patients participate, and strategies to increase access for under-represented groups (e.g., women, ethnic minority groups) are not yet universally applied. Identified CR barriers include lack of referral and physician recommendation, travel and distance, and low perceived need. Indeed there is now a national policy position recommending systematic inpatient referral to CR in Canada. Recent development of 30 CR quality indicators and the burgeoning national CR registry will enable further measurement and improvement of the quality of CR care in Canada. Finally, the Canadian Association of CR is one of the founding members of the International Council of Cardiovascular Prevention and Rehabilitation, to promote CR globally.

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Cardiovascular disease incidence and prevalence in Canada

Cardiovascular disease (CVD) is a leading cause of morbidity and mortality in Canada; the effects of which are seen across all segments of the population. In 2009, diseases of the heart were the second leading cause of death in Canada,¹ representing 20.7% of all deaths, and an age-adjusted death rate of 146.1 per 100,000. In men, the rate varied between 3.9 per 100,000 to 3,645.8 per 100,000, and in women, it ranged from 2.4 per 100,000 to 3,082.8 per 100,000 in those aged 25–34 and 85 years or greater, respectively.

With regard to morbidity, CVD (ICD-9: 390–459; ICD-10-CA: 100–199) accounted for 15.8% of all hospitalizations in 2005–6.² Similar to declines observed in mortality rates, a dramatic decrease in the rate of CVD hospitalization has also

been observed in Canada.³ Between 2000 and 2005, age-standardized discharge rates for circulatory disease decreased from 8.6 per 100,000 to 8.0 per 100,000 Canadians, in both men and women alike.² More recent self-report data from 2011–2012 estimate that 4.8% of the Canadian population (12 y+) and almost 1 in 5 older adults (i.e., ≥65 years) have a history of coronary heart disease (Fig 1). During the same year, the age-standardized rate of acute myocardial infarction was 205 per 100,000 (Fig 2).

Regional and demographic variations in CVD have also been shown, owing in part to differences in risk factors and patterns of hospitalization and treatment. For example, data from the 2007 Canadian Community Health Survey indicates that self-reported heart disease varied between 2.7% in the Northwest Territories and 6.4% in Nova Scotia,⁴ with higher prevalence in the east, and lower prevalence in the west and north of Canada. In 2005,

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Abbreviations and Acronyms
CACR = Canadian Association for Cardiac Rehabilitation
CCRR = Canadian Cardiac Rehab Registry
CCS = Canadian Cardiovascular Society
CR = cardiac rehabilitation
CVD = cardiovascular disease
ICCPR = International Council of Cardiovascular Prevention and Rehabilitation
QI = quality indicator

hospitalizations for circulatory conditions varied considerably in both men and women. In men, rates exceeded 1,500 per 100,000 in Saskatchewan and the Northwest Territories, to a low of 387 per 100,000 in Nunavut.² For women, rates were highest in New Brunswick (1,032 per 100,000) and British Columbia (609 per 100,000), and lowest in Nunavut (449 per 100,000).²

Beyond the above noted age and sex differences, significant ethnic (and time-in-country) variation in CVD has also been observed, with a particularly high prevalence of CVD amongst South Asians, and a relatively low prevalence in those of Chinese descent.⁵ Indeed it is now well-accepted that Canadians of South Asian, African-Caribbean and Aboriginal origin represent a high-risk segment of the population, with rates of CVD morbidity and mortality 2 to 3 times that of their counterparts of European-origin.^{6,7}

Current cardiac rehabilitation delivery model

In Canada, there is a long and robust history of cardiac rehabilitation (CR). In the 1970s, Dr. Terry Kavanagh began to explore the benefits of exercise and rehabilitation post-myocardial infarction.⁸ Establishing appropriate exercise prescriptions would elicit an improvement in aerobic capacity and maintain safety of patients.^{9,10} In the 1980s, a CR program was established at the Toronto Rehabilitation Institute, which could accommodate as many as 1,800 outpatients weekly, and was widely-regarded as the largest and most prestigious CR center in the world.

Today there are approximately 220 CR programs in Canada, providing services to more than 50,000 new patients annually (personal communication, Stacey Grocholski, Executive Director Canadian Association of Cardiac Rehabilitation, March 4, 2013). According to the online directories of CR programs (Table 1), the province of Ontario has the greatest number of programs. Provinces with minimal CR capacity include Quebec, and Newfoundland and Labrador (with only 1 program). There are no known programs in the Northwest Territories, Yukon, or Nunavut. Funding for CR programs varies widely by province, as set by the provincial Ministries of Health. While this provincial variation is likely due to different population densities, it is perceived that funding for CR is inadequate in most provinces and almost negligible in some others.

The Canadian Association for Cardiac Rehabilitation (CACR) is the national leader in cardiovascular disease prevention and rehabilitation (Table 1). Their mission is the enhancement and maintenance of cardiovascular health of Canadians through CR practice, research and advocacy. There are also regional CR networks, namely the Canadian Rehabilitation Network of Ontario (Table 1), and the Atlantic Cardiac Rehabilitation Network (Table 1), which includes Cardiac Rehab New Brunswick. The latter network offers an online continuing education course for professionals and students involved in CR (Table 1). CACR, as well as these networks, hold annual meetings to promote the exchange of information, professional education, and to foster research. CACR has published three editions of its clinical practice guidelines, in 1999,¹¹ 2004¹² and finally in 2009.¹³

Practice

The core components of CR are published in the Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease Prevention, 3rd Edition in Chapter 11.¹³ They are: [1] systematic patient referral processes, [2] patient assessments, [3] health behavior interventions and risk factor modification, [4] adaptations of program models to improve accessibility,

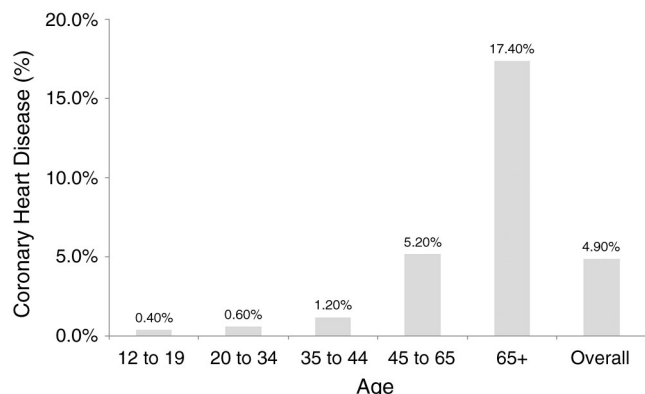


Fig. 1 – Prevalence of self-reported coronary heart disease in Canada, 2011-12.

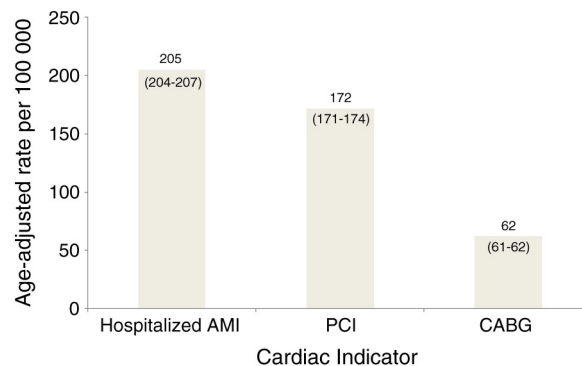


Fig. 2 – Age-standardized rate of hospitalization and revascularization procedures in Canada, 2011-12.

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