

An Assessment of Specialist Physician Referral Practices for Long-Term Cardiovascular Risk Reduction in the Community: Are We Using Our Available Resources?

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Abstract

Background: Our aim was to evaluate specialist physicians' referral patterns for cardiovascular risk reduction (CRR) while identifying existing CRR programs in a large Canadian city.

Methods: This was a cross-sectional study involving an electronic survey of cardiologists and internists in Calgary, Alberta, to assess CRR referral patterns. A concurrent online search for programs addressing CRR was undertaken.

Results: Twenty-four CRR programs were identified. Nine (37.5%, 95% CI: 21.2–57.2) required physician referral. Half (50.0%, 95% CI: 31.4–68.6) had no direct patient cost.

A majority of surveyed physicians estimated that more than half of their patients have at least one modifiable risk factor. However, 75.0% (95% CI: 61.2–85.1) had referred less than half of these patients for CRR.

Conclusion: Our study demonstrates a gap in specialist physician referral practices for CRR. Patients with modifiable risk factors may not be accessing valuable CRR resources.

Résumé

Contexte : Notre but consistait à évaluer les habitudes d'orientation des médecins spécialistes en ce qui a trait à la réduction du risque cardiovasculaire (RRCV) et à recenser les programmes de RRCV présents à l'intérieur d'une grande ville canadienne.

Méthodologie : Une étude de prévalence a été menée par sondage électronique auprès des cardiologues et des internistes de la ville de Calgary, Alberta, dans le but d'évaluer les habitudes d'orientation en ce qui a trait à la réduction du risque cardiovasculaire (RRCV). Parallèlement, une recherche sur les programmes de RRCV a été entreprise, en ligne également.

Résultats : On a répertorié 24 programmes de RRCV. Neuf (37,5 %; IC de 95 % : 21,2–57,2) nécessitent que le patient soit recommandé par un médecin. La moitié (50,0 %; IC de 95 % : 31,4–68,6) n'engendrent aucun coût direct pour le patient.

La plupart des médecins interrogés évaluent que plus de la moitié de leurs patients présente au moins un facteur de risque modifiable. Cependant, 75,0 % (IC de 95 % : 61,2–85,1) ont orienté moins de la moitié de ces patients vers un programme de RRCV.

Conclusion : Notre étude montre qu'il y a une lacune dans les pratiques d'orientation des médecins spécialistes relativement aux programmes de RRCV. Ainsi, des patients ayant des facteurs de risque modifiables n'ont pas accès à des ressources précieuses en matière de RRCV.

Cardiovascular disease (CVD) is the leading cause of morbidity and the second leading cause of mortality in Canada^{1,2} It is responsible for approximately one death every 7 minutes,² causing 20% of deaths in Canada per year¹. CVD places a significant burden on individuals, their families and the health care system, with an annual cost of approximately \$20 billion per year.³ Currently, there are an estimated 1.3 million Canadians living with CVD.² The factors that predispose individuals to the development of CVD can be divided into modifiable and non-modifiable risk factors. It is well established that decreasing the number and severity of modifiable risk factors (MRF) can have a large impact on primary prevention of CVD,^{2,4-7} as well as secondary prevention and mitigation of established CVD.⁸⁻¹⁰ Modifiable risk factors include: obesity, diabetes mellitus, hypertension, smoking, dyslipidemia, obstructive sleep apnea, lack of exercise and stress.^{2,6,11} Cardiovascular risk reduction (CRR) programs address modifiable risk factors and have demonstrated appreciable reductions in morbidity and mortality from CVD.^{4,6,11-15}

Unfortunately, Canadian physicians have limited time to counsel their patients regarding CRR.¹⁶ The focus of doctor-patient interactions tends to prioritize diagnosis and management of established medical disease. In this time constrained environment, less time is available for addressing MRF. Furthermore, many physicians are unaware of community resources available to their patients and therefore may miss the opportunity to refer those in need. It is essential that physicians whose patients have the highest burden of MRF are aware of available programs for CRR in their communities to facilitate referral.

The objective of our study was to identify the discrepancy between specialist physicians' referral patterns for CRR programs and the existing programs that are available to patients in a large Canadian city in order to establish areas for future quality improvement.

Methods

This was a cross-sectional study that involved an electronic survey of all cardiologists and internists in Calgary, Alberta, Canada to assess their CRR referral practices. A community audit of all available programs addressing CRR in Calgary, Alberta was also undertaken such that a comparison between specialist referral practices and available programs could be made.

An electronic survey was distributed requesting basic demographic data as well as referral patterns to CRR programs (Figure 1). Contact information for all academic-affiliated cardiologists and internists in Calgary was identified using divisional email lists. The survey was sent to 137 specialists using these institutional email addresses.

Concurrently, an online search was undertaken on May 3rd, 2016 using Google, Alberta Health Services and Calgary-area primary care network websites to identify all outpatient programs in Calgary, Alberta targeting CRR. Key words included "Calgary" AND ("coronary artery disease, cardiovascular disease, smoking, diet, obesity, overweight, high BMI, inactivity, hypertension, high blood pressure, cholesterol, dyslipidemia, OR diabetes") AND ("risk reduction, risk mediation, OR program"). Combinations of keywords were searched and the first 10 pages of each strategy were reviewed until saturation was reached. All identified programs were screened for inclusion into the study. Eligibility for inclusion required program location within Calgary and that at least one cardiovascular risk factor was targeted. Programs were excluded if they did not require in-person attendance. Additionally, all private for-profit businesses, including private gyms, private personal trainers, private weight management centres and pharmacy-based programs were excluded.

Statistical analysis of survey results and the community audit data involved calculation of proportions and 95% confidence intervals and included chi-square and ANOVA testing. Data analysis was conducted using Microsoft Excel and Stata SE version 14.

Results

We encountered 24 programs targeting CRR in Calgary that met our inclusion and exclusion criteria (Table 1). Of these programs, 20 addressed weight loss (83.3%, 95% CI: 61.1–94.0), 17 offered nutritional counselling (70.8%, 95% CI: 48.5–86.2), 14 dealt with smoking cessation (58.3%, 95% CI: 36.8–77.1) and 14 counselled patients on diabetes management (58.3%, 95% CI: 36.8–77.1). A further 12 programs managed hypertension (50.0%; 95% CI: 29.7–70.3), 12 addressed lipid control (50.0%, 95% CI: 29.7–70.3), and 11 offered exercise programs (45.8%, 95% CI: 26.3–66.8). Five programs offered resources for obstructive sleep apnea (20.8%, 95% CI: 8.3–43.2). (Table 2)

1. What is your area of specialty? 

General Internal Medicine

Cardiology

Other (please specify)

2. How long have you been in practice? 

I am still a resident/fellow

0-5 years

6-10 years

11 or more years

3. Have you ever referred a patient to a program within Calgary that address cardiovascular risk factor modification? 

Yes

No

4. Please list as many programs as you are aware of that help patients manage the following cardiovascular risk factors (if you are aware of a program that addresses multiple risk factors, please include it under all relevant categories): 

Obesity

Diabetes

Dyslipidemia

Inactivity

Smoking cessation

Hypertension

Other (please specify)

5. What percent of your patients (both inpatients and outpatients) do you estimate have at least one of the above mentioned cardiovascular risk factors? 

0-25%

26%-50%

51%-75%

76%-100%

6. Of your patients with at least one of these cardiovascular risk factors, what percentage do you refer to one of the risk reduction programs that you have listed above? 

0-25%

26%-50%

51%-75%

76%-100%

7. Where did you learn about cardiovascular risk modification programs in Calgary (choose all that apply) 

Coworkers

Patients

The internet

Television

Other (please specify)

8. How long does it take you, on average, to complete a referral to a risk modification program? 

0-5 minutes

6-10 minutes

11 or more minutes

9. Do you have any mechanisms in place in your practice to improve referral rates to risk modification programs? 

No

Yes (please describe):

Figure 1. Electronic survey of cardiac risk reduction referral practices.

Overall, 18 programs (75.0%, 95% CI: 55.1–88.0) addressed three or more risk factors, and 9 programs (37.5%, 95% CI: 21.2–57.2) required physician referral. Half of the programs (50.0%, 95% CI: 31.4–68.6) had no associated cost to the patient,

and a further third (29.2%, 95% CI: 14.9–49.1) had a direct patient cost of less than \$100 (Table 2).

Overall, 48 out of 137 (35.0%, 95% CI: 27.6 – 43.3) physicians surveyed responded to the cardiovascular risk factor modification questionnaire (Figure 1). 83.3% of respondents (40/48, 95% CI: 70.4–91.3) estimated that more than half of their patients had at least one modifiable cardiovascular risk factor. Three quarters of physicians (75.0%, 95% CI: 61.2–85.1) reported that they refer less than half of their eligible patients to a program that addresses CRR, despite the availability of these programs. Respondents reported that they lacked resources about available programs and 83.3% of physicians surveyed (40/48; 95% CI: 70.4–91.3) reported that they did not have mechanisms in place to improve referral rates to these programs.

Discussion

The objective of our study was to establish whether a discrepancy exists between cardiologist and internist referral practices for CRR and the number of programs available in the community. When the results of our community audit were compared to physician responses regarding available CRR programs, there was a noticeable inconsistency between the number of programs quoted by survey participants, and those identified by the study authors. It is evident that many physicians are not aware of the plethora of community CRR programs available to their patients and are not routinely referring patients to these programs. As 37.4% of the identified programs require physician referral, the lack of awareness and low referral rate are undoubtedly limiting patient access to important resources. To our knowledge this is the first study of its kind to demonstrate a substantial gap between physician referral practices compared to the availability of CRR programs in a large Canadian city.

The long-term economic benefit of addressing CRR in population-based studies is well-established^{4, 5, 17, 18}. The Public Health Agency of Canada's planned spending for 2016-17 to address chronic non-communicable diseases was just under \$60 million. This includes funding for population health approaches that address common risk and protective factors for chronic diseases, including CRR strategies.^{19,20} Similarly, the 2017 Alberta health-spending budget allocated \$700,000 towards funding population and public health programs to confront the issue of an aging population with a high burden of chronic disease.²¹ Given that CVD is our most prevalent chronic disease, costing the Canadian health care system \$20 billion per year,³ these federal and provincial expenditures are relatively minimal and carry significant potential to improve the quality of life of those with CVD, while slowly decreasing the economic impact of this disease over time. However, for this to be the case patients with cardiovascular risk factors need to be accessing

Table 1. Community-based Cardiovascular Risk Reduction Programs in Calgary, Alberta

Name of Program	# CRR services offered	Physician Referral Required	Cost to Patient*	
			Free	<100
Total Cardiology	6	+	+	+
Alberta Healthy Living Program	7	-	+	-
Calgary Weight Management Center	5	+	+	+
C-endo	5	+	+	+
LMC	5	+	+	+
C-Era	7	+	+	+
Trym gym	3	-	-	-
Alberta Quits	1	-	+	-
Sleep Disorders clinic	3	+	+	+
Complex Chronic Disease Management Clinic	7	+	+	-
Endocrinology & Metabolism Program	5	+	+	-
Mosaic Primary Care Network	8	+	+	-
Prescription to Get Active Program	2	+	+	-
Calgary Foothills Primary Care Network	4	-	+	-
Calgary West Primary Care Network	5	+	+	-
East Calgary Family Care Clinic	2	-	+	-
Women's Health Resources	2	-	+	-
Heart Fit Clinic	8	-	-	-
Cardio Metabolic Risk Reduction Program	6	-	-	-
Calgary Foothills Tobacco Cessation Workshop	1	+	+	-
Run to Quit	3	-	-	+
South Health Campus Wellness Centre	6	-	+	-
CUPS Diabetes Education Program	1	-	+	-
Diabetes Calgary Care Centre	3	-	+	+

* Some programs offered additional services for less than \$100, beyond those offered for free.

CRR programs. As we have demonstrated, a substantial amount of this responsibility lies in the hands of specialist physicians and remains contingent on their referral practices, otherwise we are wasting this valuable resource.

Given the high prevalence and substantial impact of CVD on quality of life, this study should serve as a call to action for other centres to survey their own referral practices and implement strategies to improve patient access to these potentially life-saving

Table 2. Number and Percentage of Community Programs Addressing Modifiable Cardiovascular Risk Factors

Modifiable Risk Factor (MRF)	Number of Programs Addressing MRF
Weight loss	20 (83.3, 95% CI: 61.1–94.0)
Nutrition	17 (70.8, 95% CI: 48.5–86.2)
Smoking	14 (58.3, 95% CI: 36.8–77.1)
Diabetes	14 (58.3, 95% CI: 36.8–77.1)
Hypertension	12 (50.0, 95% CI: 29.7–70.3)
Dyslipidemia	12 (50.0, 95% CI: 29.7–70.3)
Exercise Programs	11 (45.8, 95% CI: 26.3–66.8)
Sleep Apnea	5 (20.8, 95% CI: 8.3–43.2)

programs. We propose that a possible method to decrease this gap could be to create and distribute a list of all available resources to all cardiologist and internist offices. Ideally, this document would include all available CRR programs, with referral instructions and contact information. Additionally, an online version of the brochure could be uploaded to the Regional Health Services website for ease of access by any local physician, expanding the use of this information to include primary care providers as well. Lastly, development of a brief screening tool to be used at each office visit would insure that patients are appropriately identified for CRR

Limitations of this study include the use of a surrogate marker for physician referral practices (self-reporting) as opposed to actual referral rates. Unfortunately, referrals to CRR programs are not currently tracked in our health care system, and therefore, identification of true referral rates would be very difficult to determine. Further limitations include the low survey response rate (35.0%); however, the reported average physician response rate for online surveys is approximately 30%,^{22, 23} and there is no consensus or evidence-based lowest recommended response rate required to minimize non-response bias.²² Study strengths include development of a detailed list of CRR programs (Table 1) as well as identification of low referral rates for CRR, which will further inform efforts to mitigate this issue.

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Disclosures

The authors have no disclosures.

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CSIM Mission Statement

Mission Statement

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We believe that General Internal Medicine in Canada plays a central role in the training of current and future clinicians, in clinical research, in patient care, in health promotion, and in health advocacy; and that it unites a body of knowledge, values, and principles of care that lay the foundation for excellence in the Canadian health care system.

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