

Blood Pressure Control in Canada: Through the Looking-Glass Into a Glass Half Empty?

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“Begin at the beginning,” the King said, very gravely, “and go on till you come to the end, then stop.”

Lewis Carroll (1832–1898), *Alice in Wonderland*

An analysis of 1986–1992 data from the Canadian Heart Health Survey demonstrated that the proportion of Canadians controlled to target blood pressure (BP) levels was 13%, which, by any measure, is a poor result.¹ Motivated primarily by this dismal showing relative to other countries including the United States, a core group of dedicated Canadian hypertension experts formed in 1999 the Canadian Hypertension Education Program (CHEP), also known as the Hypertension Canada Guidelines Committee.² Historically, core elements of the CHEP process have included assembly of a multidisciplinary panel of methodological and content experts, a focus on both diagnosis and management, annual literature searches guided by an experienced medical librarian, creation of annually updated evidence-based hypertension guidelines, vetting of new recommendations through a Central Review Committee (methodological experts who are free of industry-related potential conflicts of interest), the need for at least 70% Guidelines Committee consensus to pass a recommendation, and a multipronged implementation approach.³

The CHEP process is a fine example of passionate volunteerism and multidisciplinary collaboration and is certainly alive and thriving under the leadership of and through funding from Hypertension Canada. The Guidelines Committee has since grown to 80 members. The guidelines,⁴ together with supporting rational and references, are now freely available online (guidelines.hypertension.ca), as is a newly developed mobile app. Implementation efforts continue, as does work toward completion of Pediatric guidelines.⁵ Importantly, primary care providers have historically been and continue to be the major target audience for these guidelines. The CHEP process has been credited with optimizing the diagnosis and treatment of hypertension in Canada,^{6,7}

improving the proportion of Canadians controlled to approximately 68% based on analyses of national survey data,⁸ increasing prescribing of antihypertensive medications,⁹ and reducing hypertension-related morbidity and mortality.¹⁰ CHEP deserves some of this credit, to be sure, but we must acknowledge the principal and crucial contributions that the Canadian primary care system has made. It is the frontline physicians, pharmacists, nurses, and allied health workers that are responsible for implementing the best practices required to optimize care for Canadians with hypertension.

Certainly, past accomplishments should be acknowledged and celebrated; however, perhaps we should not be too hasty or too effusive in our sense of self-satisfaction such that we become complacent. This issue of the Journal contains a sobering reminder that much work remains if the goal of optimizing the detection and management of hypertension in all Canadians is to be realized. Caligiuri *et al.* screened 1097 subjects through community and workplace-based mobile health clinics conducted in a large urban center in Manitoba, Canada.¹¹ Using an auscultatory and/or automated technique, BP was measured 4 times, twice in each arm, with the first reading discarded. Fifty percent of the study sample had elevated BP, defined as $\geq 140/90$ mm Hg and 2% had severely elevated BP, defined as $\geq 180/110$ mm Hg. Limitations of these data include the fact that they are derived from a nonsystematic screening process, taken from a single Canadian center and based upon a limited number of BP measurements. Regarding the latter, BP is known to regress to the mean over 4–5 measurement sessions, and thus some of the subjects studied would likely revert to a nonhypertensive status with repeated BP measurement.¹²

Notwithstanding these limitations, this study provides important information that should not be ignored because the data are collected in subjects that differ from those that participate in national surveys. National survey data have known, but oft-unappreciated, limitations. For example,

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in the Canadian Health Measures Survey (CHMS), which was used to derive the latest 68% estimate, a selected sample of privately dwelling volunteer subjects was studied.⁸ The overall response rate after adjusting for the sampling strategy was only 51%.¹³ Importantly, residents of Indian Reserves or Crown lands, institutionalized individuals, dwellers of remote regions, and full-time members of the regular Canadian Forces were excluded. Also, the survey is not designed to oversample and assess vulnerable populations where hypertension is more prevalent and control rates may be lower. In comparison to these data, recent analyses of Canadian primary care practices demonstrate BP control rates of 57% and 78%.^{14,15} Therefore, assessment of control varies according to the setting. Caligiuri *et al.* provide complementary information to the above studies, including assessment of subjects that are not studied in surveys and are not seen by their physician regularly.

One aspect of the CHEP process that has not been well maintained and that has lost considerable momentum through the past decade, is the work of the Outcomes Research Task Force (ORTF). The ORTF resulted from close collaboration between CHEP, the Public Health Agency of Canada, and Statistics Canada among others. ORTF performed and published many studies that, in part, focused on hypertension surveillance in Canada as well as the identification of hypertension-related diagnostic and treatment gaps in this country.^{8–10} Re-establishment and continuation of this crucial and formerly highly successful collaborative initiative is of critical importance, not only to continue national surveillance efforts, but also to move beyond these toward targeted assessments of prevalence, awareness, treatment, and control in subpopulations that are excluded from national surveys. In addition, a significant effort needs to be made to redesign surveys to assess hypertension indicators in vulnerable Canadians, which may include those who are employed and do not access the health care system.

Without proper surveillance, Canada risks falling behind in its efforts to further the detection, treatment, and control of high BP in this country. This comes at a time when the primacy of hypertension as a cause of cardiovascular disease and death is increasingly being recognized. The importance of continued surveillance for what is the number one global risk factor for death and disability in the world cannot be overemphasized.¹⁶ High BP leads to nearly 10 million deaths annually across the world and, in Canada, accounts for nearly 14 billion dollars in direct and indirect costs on a yearly basis.¹⁷ Active surveillance can be tied to provision of protocolized care algorithms, which can be implemented across the health care system, including in community pharmacies.^{18,19} This process can be used to specifically target and optimize control in high-risk and marginalized populations. Indeed, the 2% prevalence of severely elevated BP levels identified by Caligiuri *et al.* is 2% higher than what should be considered acceptable given how readily and easily BP can be measured in this day and age. However, without proper surveillance to identify and measure the extent of care gaps, care optimization is not feasible.

The prevalence of hypertension will continue to rise, as it is driven primarily by aging population demographics and the obesity pandemic.⁸ Aging is most definitely not

reversible and obesity has proven to be similarly unmalleable on a population-wide level.²⁰ Thus, we would be wise to heed the advice of the King to the White Rabbit and recognize that we are not at the end of this narrative. Instead, we are somewhere in the middle, and, therefore, this is most certainly not the time to stop.

DISCLOSURE

R.P. is the past Chair of the Hypertension Canada Guidelines and has done consulting, speaking, or research for the following companies in the past 2 years: Servier, Novo Nordisk, Valencia Technologies, Prometic. N.C. is a consultant to the Novartis Foundation for hypertension control in low to middle income countries and has received travel support from the Novartis Foundation related to the consultancy.

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