

2010 Canadian Hypertension Education Program (CHEP) recommendations: The scientific summary – an update of the 2010 theme and the science behind new CHEP recommendations

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The present article is a summary of the theme, the key recommendations for management of hypertension and the supporting clinical evidence of the 2010 Canadian Hypertension Education Program (CHEP). In 2010, CHEP emphasizes the need for health care professionals to stay informed about hypertension through automated updates at www.htnupdate.ca. A new interactive Internet-based lecture series will be available in 2010 and a program to train community hypertension leaders will be expanded. Patients can also sign up to receive regular updates in a pilot program at www.myBPsite.ca. In 2010, the new recommendations include consideration for using automated office blood pressure monitors, new targets for dietary sodium for the prevention and treatment of hypertension that are aligned with the national adequate intake values, and recommendations for considering treatment of selected hypertensive patients at high risk with calcium channel blocker/angiotensin-converting enzyme inhibitor combinations and the use of angiotensin receptor blockers.

Key Words: *Clinical practice guidelines; High blood pressure; Hypertension; Knowledge translation*

2010 is the 11th year that the Canadian Hypertension Education Program (CHEP) has annually updated recommendations for the management of hypertension. CHEP recognizes that health care professionals and patients have difficulty remaining up to date with hypertension prevention and management recommendations and resources. A survey by the Heart and Stroke Foundation (unpublished) found that many health care professionals were unaware of CHEP recommendations and were unable to name key hypertension recommendations required to optimally diagnose and manage hypertension. Similarly, surveys have indicated that Canadians also have frequent misconceptions about hypertension (1). Therefore, in 2010, CHEP will focus on developing and enhancing mechanisms to assist health care professionals and patients to stay up to date with the latest evidence and resources to prevent, diagnose and manage hypertension.

Les recommandations du Programme éducatif canadien sur l'hypertension (PÉCH) pour 2010 : Résumé scientifique – une mise à jour du thème de 2010 et les critères scientifiques inspirant les nouvelles recommandations du PÉCH

Le présent article résume le thème, les principales recommandations du Programme éducatif canadien sur l'hypertension (PÉCH) pour 2010 sur la prise en charge de l'hypertension ainsi que les données cliniques complémentaires. En 2010, le PÉCH souligne la nécessité que les professionnels de la santé se tiennent informés de l'hypertension au moyen de mises à jour automatisées, accessibles à l'adresse www.htnupdate.ca. Une nouvelle série de cyberconférences interactives sera offerte en 2010, et un programme visant à former les chefs de file communautaires de l'hypertension prendra de l'expansion. Les patients peuvent également s'inscrire pour recevoir des mises à jour régulières dans le cadre d'un programme-pilote, à l'adresse www.myBPsite.ca. En 2010, les nouvelles recommandations comprennent des considérations pour utiliser des tensiomètres automatisés en cabinet, de nouvelles cibles de sodium diététique pour la prévention et le traitement de l'hypertension harmonisées avec les valeurs nationales d'apport suffisant et des recommandations pour envisager le traitement de certains patients hypertendus très vulnérables au moyen d'une association d'inhibiteurs calciques et d'inhibiteurs de l'enzyme de conversion de l'angiotensine ainsi que l'utilisation d'antagonistes de l'angiotensine.

Based on new evidence, there were important changes made to the CHEP recommendations in 2010. Increasing evidence of the usefulness of automated office blood pressure measurement has led to a recommendation to consider automated blood pressure measurement as an option for office blood pressure measurement (2-7). To prevent and control hypertension, dietary sodium targets have been aligned with the Health Canada adequate intake recommendations for adults (8). Based on reconsideration of data from the Ongoing Telmisartan Alone and in combination with Ramipril Global Endpoint Trial (ONTARGET) and other recent clinical trials (9-11), there is a new CHEP recommendation to prescribe an angiotensin-converting enzyme (ACE) inhibitor or an angiotensin receptor blocker (ARB) in most people with ischemic heart disease. However, those with ischemic heart disease assessed as being at low risk and having well-controlled risk factors may not benefit

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from this therapy. Further to the results of the Avoiding Cardiovascular Events in Combination Therapy in Patients Living with Systolic Hypertension (ACCOMPLISH) study (12), CHEP also recommends consideration of the preferential use of a calcium channel blocker (CCB)/ACE inhibitor combination in selected high-risk hypertensive patients who require combination therapy.

The present article is a short summary of the hypertension evidence that supports the 2010 CHEP recommendations as well as opinions from the CHEP executive on important issues in hypertension management in Canada. The full CHEP recommendations are available at www.hypertension.ca and are published in this issue of *The Canadian Journal of Cardiology* (Quinn et al, pages 241-248, and Hackam et al, pages 249-258).

HYPERTENSION CANADA

In 2010, the Canadian Hypertension Society, CHEP and Blood Pressure Canada will merge to create Hypertension Canada, a single national hypertension organization. The development and dissemination of hypertension recommendations and resources will be continued under the label of CHEP, in addition to the rigorous program for developing and implementing the recommendations.

HOW CAN I STAY UP TO DATE WITH HYPERTENSION RECOMMENDATIONS AND RESOURCES?

The hypertension knowledge base continues to rapidly evolve and a large number of educational resources are being developed and regularly updated to assist health care professionals and hypertensive Canadians (Table 1). To assist health care professionals with staying current, three new programs are being launched. The first is a Web site (www.htnupdate.ca) where health care professionals and organizations can register to be informed about new or updated resources. The second program is an interactive Internet-based lecture series on clinically important hypertension topics to facilitate learning and interaction with top Canadian hypertension experts. This will be launched in 2010. Due to the Internet-based nature of this program, health care professionals can learn from the comfort of their own home or office, and take advantage of groups already developed for continuing education activities. Also in 2010, CHEP will host 4 h to 6 h training sessions for health care professionals to facilitate their development into leaders for hypertension education in their communities.

HOW CAN MY PATIENTS STAY UP TO DATE WITH HYPERTENSION RECOMMENDATIONS AND RESOURCES?

Hypertensive Canadians face challenges in finding reliable and current sources of hypertension information. CHEP and Hypertension Canada have a large number of resources for Canadians that are updated regularly (Table 2). Currently, people with hypertension must perform regular searches to stay up to date, and may find unreliable or outdated information. To address this concern, a new hypertension association with a Web site at www.myBPsite.ca is being developed. Those who register will be regularly informed when new resources are developed or existing ones are updated. In addition, an Internet-based public lecture series is planned for 2010.

NEW EVIDENCE HAS ALLOWED CHEP TO ADDRESS ADDITIONAL CLINICAL QUESTIONS IN THE MANAGEMENT OF HYPERTENSION FOR THE 2010 RECOMMENDATIONS

Should I use an automated blood pressure monitor in my office to monitor blood pressure?

In 2010, CHEP recommends consideration of the routine office use of automated monitors designed to take multiple readings and to be used under proper conditions. Increasing evidence suggests automated office readings are more accurate than routine manual office blood

TABLE 1
Health care professional resources

Documents

- CHEP primary care booklet: A brief outline of hypertension management recommendations in a pocket booklet form
- Key messages: The major 6 actions required by health care professionals to prevent and control cardiovascular disease in people with hypertension
- One-page summary: A one-page summary of the CHEP theme, key messages and new recommendations
- Short clinical summary: A brief narrative clinical summary of the current CHEP recommendations, with an emphasis on what is new and what is important. Tables summarize key aspects of hypertension care
- Short scientific summary: A brief narrative summary of what is new and what is important, with an emphasis on the scientific basis for the recommendations. Tables summarize key aspects of hypertension care
- CHEP specialist booklet: Contains the short scientific summary and the exact CHEP recommendations in a pocket booklet format
- Full scientific manuscripts: Detailed manuscripts that indicate the exact CHEP scientific recommendations for the management of hypertension with their scientific rationale. There are separate diagnostic and therapeutic manuscripts

PowerPoint (Microsoft Corporation, USA) slide sets

- Public education slide set: Intended to be used to develop a general talk on hypertension to a public and/or patient audience
- Background slide set: Contains information on the health risks of hypertension and key therapeutic interventions
- Methodology slide set: Outlines the methods CHEP uses to develop its recommendations as well as the key messages and theme for 2010
- Diagnostic slide set: Outlines the diagnostic recommendations of CHEP as well as the key messages and theme for 2010
- Treatment slide set: Outlines the treatment recommendations of CHEP as well as the key messages and theme for 2010
- Blood pressure measurement slide set: Outlines the measurement recommendations for blood pressure and includes advice on office, home and ambulatory blood pressure
- Outcomes slide set: Outlines the various surveillance methods used by CHEP as well as key outcomes associated with CHEP. Ongoing hypertension management gaps are featured
- Hypertension resources: Outlines what Canadian hypertension resources are available

Web site resources

- www.hypertension.ca/tools: To download current resources for health care professionals and patients
- www.htnupdate.ca: To sign up to be regularly updated on new and updated resources for health care professionals and patients and educational opportunities for health care professionals
- www.lowersodium.ca: For educational resources for health care professionals and patients on dietary sodium

Dietary sodium resources

- A short scientific summary of the importance of reducing dietary sodium with advice on how to reduce dietary sodium
- A scientific summary of the evidence for lowering dietary sodium
- Key messages on the importance of lowering dietary sodium with brief intervention advice

Dietary sodium PowerPoint slide sets

- Scientific and clinical slide set: Intended to be used to develop a presentation for a clinical or scientific audience
- Public slide set: Intended to be used to develop a presentation on dietary sodium to a public and patient audience on hypertension
- Sodium quiz

Health care professional resources can be downloaded from the following Web sites: www.hypertension.ca/tools and www.lowersodium.ca. People who sign up at www.htnupdate.ca will be automatically notified when resources are updated or newly developed. CHEP Canadian Hypertension Education Program

TABLE 2
Resources for Canadians who have hypertension

Documents, PowerPoint (Microsoft Corporation, USA) slides and DVDs

- Brief public hypertension recommendations: A single-page brochure that summarizes hypertension and its management for people who have hypertension or are at risk. The summary is based on the 2010 CHEP health care professional management recommendations
- Public hypertension recommendations: A four-page summary of hypertension and its management for people who have hypertension or are at risk. The summary is based on the 2010 CHEP health care professional management recommendations. The 2007 recommendations are available in four Indo-Asian language and cultural translations
- Hypertension in diabetes: A four-page summary of hypertension and its management for people who have hypertension and diabetes. The summary is based on the 2010 CHEP health care professional management recommendations
- How to measure your BP at home: A one-page summary of how to purchase and use a home BP measurement device
- Home measurement of BP: A more detailed four-page summary of how to purchase and use a home measurement device
- Measuring BP the right way: A poster and small card that outlines pictorially the key steps to measuring BP properly at home
- Home measurement DVD: A DVD that has one short and one longer summary of how to measure your BP at home as well as how to purchase and use home BP measurement devices
- Public education DVD (*Hypertension: The Silent Killer*): A short and longer summary of hypertension for the public, or those with or at risk of having hypertension
- Brief action tool: A set of three tools to be used by a health care professional educator to engage a patient more fully in his/her care. Action tool 1 takes approximately 4 min to complete. It defines BP, why a patient needs to be concerned if she/he has high BP, and the risks of hypertension. Action tool 2 takes 10 min to complete and basically motivates a patient to think about changing his/her lifestyle. Action tool 3 takes 7 min to complete. It talks about home measurement and recording of BP, as well as information on BP medication
- Public education hypertension slide set: Intended to be used by a knowledgeable health care professional in developing a presentation on hypertension to the public or people with hypertension

Dietary sodium

- Public education dietary sodium slide set: A slide set that is intended to be used by a knowledgeable health care professional in developing a presentation on dietary sodium to the public or people with hypertension
- Get the facts: A one-page summary of the importance of reducing dietary sodium and the key mechanisms to reduce dietary sodium
- Short summary: A very short summary of why reducing dietary sodium is important and how to reduce dietary sodium
- Booklet: A more detailed summary of why it is important to reduce dietary sodium and how to reduce dietary sodium for the more interested consumer
- Brochure: Beyond the salt shaker – lower your sodium intake and improve your health
- Quiz: A short series of questions and answers for people to test their sodium knowledge. It is in PowerPoint format for use in presentations

Web sites

- www.myBPsite.ca: To join a hypertension association and be regularly updated on hypertension resources and materials that are available
- www.hypertension.ca/bpc: To download patient-related resources
- www.hypertension.ca/chs: To examine the different home measurement devices that have passed international accuracy standards, are available in Canada and been approved by the Canadian Hypertension Society
- www.lowersodium.ca: Patient and health care professional information on dietary sodium
- www.sodium101.ca: Public information on dietary sodium
- www.heartandstroke.ca/bp: For an individualized action plan for lifestyle change and monitoring of BP
- www.nhlbi.nih.gov/hbp/prevent/h_eating/h_eating.htm: For detailed information on following the Dietary Approaches to Stop Hypertension (DASH) diet

BP Blood pressure; CHEP Canadian Hypertension Education Program

TABLE 3
Targets for dietary sodium intake

Age, years	Adequate intake, mg/day	Upper limit, mg/day
19–30	1500	2300
31–50	1500	2300
51–70	1300	2300
71 and older	1200	2300

To prevent and control hypertension, adults should be advised to eat the level recommended as adequate intake and avoid eating over the upper limit

pressure measurement in predicting target organ damage and ambulatory blood pressure readings. However, the therapeutic thresholds for interpreting automated readings remain undetermined and, presently, there are no studies that directly correlate automated office readings with cardiovascular events. An automated office reading of 135/85 mmHg is approximately equivalent to an ambulatory blood pressure reading of 135/85 mmHg. Only one small study in a selected population (attending an ambulatory monitoring clinic) has correlated repeated automated office readings with repeated manual office readings (on which the current therapeutic thresholds are based) (2). In a representative group of Ontario adults, the automated readings were 3/3 mmHg lower than manual readings at a single visit (3). However, in a small selected group of firefighters, the difference between automated and manual office readings disappeared over three to five visits (2). It is notable that other studies report much larger differences between automated office readings and manual office readings (4). Current research on which this recommendation was based often examined populations that were likely to have a high prevalence of white coat hypertension (ie, patients referred for ambulatory blood pressure monitoring), patients whose readings were taken in a specialist's office and patients for whom the office readings were taken on one occasion, or where measurements were not performed by a trained technician using standardized techniques (4,5,7). All of these limitations would be expected to increase the difference between automated and manual blood pressure readings, and limit the ability to define the exact threshold for treating hypertension based on automated office readings in an unselected population of patients in a primary health care setting. Ongoing studies are addressing these outstanding issues to develop a new algorithm for diagnosing hypertension. Despite these limitations, for 2010, CHEP recommends greater use of automated blood pressure readings.

What should be the target for limiting dietary sodium?

CHEP recommends decreasing the target for maximal dietary sodium intake to be consistent with Health Canada's recommended adequate dietary intake recommendations (Table 3) (8). There is increasing evidence that high dietary sodium intake is a health risk. In 2009, high dietary sodium intake was estimated to be the seventh leading risk factor for death in the United States (13). Worldwide, in low- to middle-income countries, reducing dietary sodium was estimated to be more cost effective than reducing smoking (although both are highly recommended) (14). Furthermore, the benefits of dietary sodium restriction in lowering blood pressure continue to be appreciated. In 2009, a small short-term randomized study (15) of sodium reduction in patients with resistant hypertension reported a blood pressure decrease of 22/9 mmHg, with a reduction in average sodium intake from 5796 mg/day to 1060 mg/day. Brief advice for patients to encourage reductions in dietary sodium can be found in Table 4, and resources for health care professionals and patients can be found in Tables 1 and 2.

Are ARBs and ACE inhibitors equivalent?

Previous iterations of the CHEP recommendations have noted the evidence supporting the equivalence of angiotensin receptor antagonists and ACE inhibitors in patients with hypertension with diabetes and in patients with hypertension without other significant comorbidities. In 2010, CHEP reconsidered data from the ONTARGET (9),

Telmisartan Randomised Assessment Study in ACE intolerant subjects with cardiovascular Disease (TRANSCEND) (10) and Prevention Regimen for Effectively Avoiding Second Strokes (PROFESS) (11) trials. ONTARGET (9) was a large, randomized double-blinded trial of more than 25,000 patients that was designed to determine whether telmisartan was noninferior to ramipril at full doses and whether the combination of telmisartan and ramipril was superior to ramipril alone. People older than 55 years of age who had evidence of vascular disease or diabetes with target organ damage were randomly assigned to either telmisartan, ramipril, or a combination of telmisartan and ramipril. There was no significant difference in the primary outcome (cardiovascular death, myocardial infarction, stroke or hospitalization for congestive heart failure) between the three treatment groups. The combination therapy group had more adverse events, leading CHEP to specifically recommend against the use of the combination therapy in people with uncomplicated hypertension, ischemic heart disease without heart failure, previous stroke, nonproteinuric chronic kidney disease or diabetes without albuminuria.

PROFESS (11) was a large randomized factorial trial of ARB-based blood pressure-reducing therapy and antiplatelet therapy to prevent recurrent strokes. Patients with a previous ischemic stroke who were 50 years of age or older were randomly assigned to telmisartan (an ARB) or placebo. The ARB therapy did not reduce the primary end point of recurrent stroke (hazard ratio [HR] 0.95 [95% CI 0.86 to 1.04, $P=0.23$]) or the secondary outcome of major cardiovascular events (stroke, myocardial infarction, vascular death and worsening congestive heart failure) (HR 0.94 [95% CI 0.87 to 1.01, $P=0.11$]) despite a 3.8/2.0 mmHg lower blood pressure. In secondary analyses, a small difference in favour of telmisartan began to emerge after the first six months of therapy. Adverse events were slightly more common with telmisartan treatment.

The TRANSCEND (10) study comprised 5926 people with coronary disease, previous stroke or diabetes mellitus with end-organ damage and intolerance of ACE inhibitors, who were randomly assigned to telmisartan or placebo. While the mean blood pressure difference was 3.2/1.3 mmHg lower at study end in the ARB group, the ARB therapy did not reduce the primary outcome (composite of cardiovascular death, myocardial infarction, stroke or hospitalization for heart failure), but a secondary end point of cardiovascular death, myocardial infarction or stroke approached statistical significance (HR 0.87 [95% CI 0.76 to 1.00, $P=0.068$]). Adverse event rates were similar in the two groups. The low event rates, modest reduction in blood pressure and relatively low entry blood pressures were believed to reduce the statistical power of the trial to detect a benefit of ARB in the PROFESS and TRANSCEND trials. Given the effective equivalence of ramipril to telmisartan in ONTARGET, where telmisartan was noninferior to ramipril, and the wealth of studies demonstrating the benefits of ACE inhibitor therapy in patients with known vascular disease, CHEP has recommended that most people with ischemic heart disease should be treated with an ACE inhibitor or an ARB. Thus, in patients with ischemic heart disease (as in those with diabetes or hypertension without other significant comorbidities), angiotensin receptor antagonists can be used interchangeably with ACE inhibitors. However, in patients with hypertension and congestive heart failure, or following a stroke, ACE inhibitors continue to be preferentially recommended.

Many patients with hypertension need combination therapy. Are there preferred combinations?

Previous iterations of the CHEP recommendations have given only limited advice regarding optimal drug combinations due to limited clinical trial data. There has been little additional guidance beyond recommending that two-drug combinations should include the first-line therapies (diuretics, CCBs, ACE inhibitors, ARBs and, in younger patients, beta-blockers) and that ACE inhibitors, ARBs and beta-blockers should generally not be combined. The 2010 recommendations have highlighted preferred combination therapy for high-risk patients based on the ACCOMPLISH study. In 2009, the ACCOMPLISH trial

TABLE 4
Advice for people to assist them with reducing dietary sodium intake

Do
<ul style="list-style-type: none"> • Buy and eat more fresh foods, especially fruit and vegetables • Choose processed foods with low salt labels or brands with the lowest percentage of sodium on the food label • Wash canned foods or other salty foods in water before eating or cooking • If desired, use unsalted spices to make food taste better • Eat less food at restaurants and fast food outlets, and ask for less salt to be added in your food orders • Use less sauces on your food • Eat foods with less than 200 mg of sodium or less than 10% of the daily value per serving
Do not
<ul style="list-style-type: none"> • Buy or eat heavily salted foods (eg, pickled foods, salted crackers or chips, processed meats, etc) • Add salt in cooking and at the table • Eat foods with more than 400 mg of sodium or more than 20% of the daily value per serving

Adapted with permission from Hypertension Canada and the Canadian Hypertension Education Program

evaluated whether benazepril (an ACE inhibitor) and amlodipine (a dihydropyridine CCB) were more effective than benazepril and a thiazide diuretic in hypertensive individuals 55 years of age or older who were at high cardiovascular risk due to risk factors or previous cardiovascular events (12). Although blood pressures were very similar in both groups during the trial, there was a 20% RR (2.1% absolute) in cardiovascular events and deaths (9.6% versus 11.8%, HR 0.80 [95% CI 0.72 to 0.90]) in those randomly assigned to the ACE inhibitor/CCB group.

Based on the main ACCOMPLISH results, CHEP has recommended that the results from the combination ACE inhibitor/CCB group be considered when combination therapy is required in selected high-risk hypertensive patients. Notably, this recommendation does not invalidate the use of ARB/diuretic or ACE inhibitor/diuretic combinations. These formulations have been demonstrated to be useful for attaining blood pressure control in a high proportion of patients and have been linked to improved adherence with therapy (16-20). Importantly, CHEP still discourages the use of two-drug antihypertensive combinations with an ACE inhibitor, ARB and beta-blockers unless there is a compelling indication such as heart failure, angina or postmyocardial infarction (21). These two-drug combinations may not result in an additive hypotensive effect, and ACE inhibitor/ARB combinations do not improve outcomes but increase adverse effects, as demonstrated in the ONTARGET study (9,22).

COMMENTS FROM THE CHEP EXECUTIVE

CHEP will merge with the Canadian Hypertension Society and Blood Pressure Canada in 2010 to form a single national hypertension organization, Hypertension Canada. While this transition will likely be unnoticed by health care professionals, over time, the merger is expected to increase efficiency and effectiveness in the prevention and control of hypertension in Canada. Canadian educational material for health care professionals and patients will carry the CHEP logo and name. For scientists, Hypertension Canada will develop a strategic plan that will sustain Canada's strength in basic and outcomes research while enhancing Canada's research capacity, especially in community and clinical research. It will ensure communication and collaboration among all four Canadian Institutes of Health Research pillars. Reducing dietary sodium intake will continue to be a priority for Hypertension Canada to prevent hypertension and to improve hypertension control.

CHEP will develop new programs in 2010 to help health care professionals and hypertensive Canadians stay up to date with the best

evidence and resources to prevent and control hypertension. A new Web site (www.htnupdate.ca) will provide an opportunity for health care professionals to sign up to receive electronic notices of all new CHEP hypertension resources and updates. Those who sign up can immediately download all current resources, or the resources can be downloaded at www.hypertension.ca/tools. In addition, a new Internet-based lecture series will be launched in 2010 to allow health care professionals to interact with Canadian hypertension leaders and discuss important hypertension topics. Also, 'train the trainer' sessions have been developed and sessions will be held in venues across Canada to train health care professionals interested in becoming community educators in hypertension.

Canada will host the biennial scientific sessions of the International Society of Hypertension in Vancouver, British Columbia, from September 26 to 30, 2010. Interested scientists and clinicians should plan to attend this premier clinical and scientific meeting.

The state of hypertension diagnosis, treatment and control in Canada will be much clearer in 2010. Three major national surveys will report Canada's performance in the prevention and control of hypertension in 2010. A Statistics Canada – Public Health Agency of Canada survey will report the national prevalence of hypertension, and the awareness, treatment and control rates in February 2010. The survey is much anticipated because the latest national surveys were performed from 1985 to 1992 and many studies since then have suggested that

there are marked improvements in hypertension management (23-27). Furthermore, a detailed Statistics Canada – Public Health Agency of Canada survey of Canadians with hypertension will be reported in 2010. The survey examines the knowledge, attitudes and behaviours of hypertensive Canadians, and will allow tailored and, likely, more effective patient educational resources to be developed. Also in 2010, the first federal-provincial hypertension survey will be published, using linked provincial administrative databases. The methods for these surveys were developed in part by CHEP and allow ongoing examination of the incidence and prevalence of diagnosed hypertension in people with and without diabetes as well as linkages to total mortality rate. CHEP is developing methodology to add assessment of antihypertensive treatment and specific complications and causes of death to this survey. These surveys assess the national impact of programs to prevent and control hypertension and allow CHEP to tailor educational interventions to the objective needs of Canadians.

The CHEP executive thank the more than 100 health care professional volunteers who are working with CHEP to prevent and control hypertension. The collaborative approach among volunteers from clinical practice, academia and government – with the support of the primary care professional associations, the pharmaceutical health care industry, governments, charities and scientific organizations – has been associated with marked improvements in the management and outcomes of hypertensive Canadians.

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