Canadian Journal of Cardiology 28 (2012) 262–269

Position Statement

A Framework for Discussion on How to Improve Prevention, Management, and Control of Hypertension in Canada

Norm Campbell, MD, FRCPC,[a] Eric R. Young, MD, BSc, CCFP, MHSc, FRCPC,[b,c] Denis Drouin, MD,[d,e] Barbara Legowski, BSc Phm, MHSc,[f] Michael A. Adams, PhD,[g] Judi Farrell, BA,[h] Janusz Kaczorowski, MA, PhD,[i] Richard Lewanczuk, MD, PhD, FRCPC,[j] Margaret Moy Lum-Kwong, BScN, MBA,[k] and Sheldon Tobe, MD, FRCPC, FACP, FASH[l]

[a] *Departments of Medicine, Community Health Sciences, and Physiology and Pharmacology, Libin Cardiovascular Institute of Alberta, University of Calgary, Calgary, Alberta, Canada*

[b] *British Columbia Ministry of Health, Victoria, British Columbia, Canada*

[c] *School of Population and Public Health, Faculty of Medicine, University of British Columbia, Victoria, British Columbia, Canada*

[d] *Direction de la santé publique de la Capitale Nationale, Québec, Prévention des maladies cardiovasculaires – Habitudes de vie, Québec, Québec, Canada*

[e] *Family Medicine and Urgency, Continuing Professional Development Office, Faculté de médecine, Université Laval, Québec, Québec, Canada*

[f] *Public Health Consultant, Ottawa, Ontario, Canada*

[g] *Department of Biomedical and Molecular Sciences, Faculty of Health Sciences, Queens University, Kingston, Ontario, Canada*

[h] *Hypertension Canada, Markham, Ontario, Canada*

[i] *Département de médecine familiale et médecine d'urgence, Université de Montréal, Centre de recherche du CHUM, Montréal, Québec, Canada*

[j] *Department of Medicine, University of Alberta, Edmonton, Alberta, Canada*

[k] *High Blood Pressure Strategy, Heart and Stroke Foundation of Canada, Toronto, Ontario, Canada*

[l] *Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada*

ABSTRACT

Increased blood pressure is a leading risk for premature death and disability. The causes of increased blood pressure are intuitive and well known. However, the fundamental basis and means for improving blood pressure control are highly integrated into our complex societal structure both inside and outside our health system and hence require

RÉSUMÉ

L'élévation de la pression artérielle est le principal risque lié à la mort prématurée et à l'incapacité. Les causes de l'élévation de la pression artérielle sont intuitives et bien connues. Cependant, la base et les moyens fondamentaux pour améliorer la maîtrise de la pression artérielle sont fortement intégrés à la structure complexe de notre

Increased blood pressure is a leading risk factor for premature death and disability throughout the world.[1] The risk for death and disability increases as blood pressure increases even within the normotensive range. Strongly arguing for prevention of hypertension is the observation that approximately half of the death and disability from increased blood pressure occurs in people whose blood pressure is in the range generally considered to be clinically normotensive.[1] In Canada, an estimated 20% of adults (5.8 million) have been diagnosed with hypertension and another 20% have 'pre hypertension' (120-139/80-89 mm Hg).[2-4] The health resource utilization associated with increased blood pressure is very high and is estimated to consume 10% of all healthcare spending. Managing hyperten-

Received for publication October 18, 2011. Accepted November 8, 2011.

Corresponding author: Dr Norm Campbell, Departments of Medicine, Community HealthSciences, and Physiology and Pharmacology, Libin Cardiovascular Institute of Alberta, University of Calgary, Calgary, Alberta, Canada. Tel.: +1-403-210-7961.

E-mail: ncampbel@ucalgary.ca

See page 267 for disclosure information.

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doi:10.1016/j.cjca.2011.11.008

a comprehensive discussion of the pathway forward. A group of Canadian experts was appointed by Hypertension Canada with funding from Public Health Agency of Canada and the Heart and Stroke Foundation of Canada, Canadian Institute for Health Research (HSFC-CIHR) Chair in Hypertension Prevention and Control to draft a discussion Framework for prevention and control of hypertension. The report includes an environmental scan of past and current activities, proposals for key indicators, and targets to be achieved by 2020, and what changes are likely to be required in Canada to achieve the proposed targets. The key targets are to reduce the prevalence of hypertension to 13% of adults and improve control to 78% of those with hypertension. Broad changes in government policy, research, and health services delivery are required for these changes to occur. The Hypertension Framework process is designed to have 3 phases. The first includes the experts' report which is summarized in this report. The second phase is to gather input and priorities for action from individuals and organizations for revision of the Framework. It is hoped the Framework will stimulate discussion and input for its full intended lifespan 2011-2020. The third phase is to work with individuals and organizations on the priorities set in phase 2.

société tant à l'intérieur qu'à l'extérieur de notre système de santé et, en conséquence, nécessiteront une discussion sérieuse sur la marche à suivre. Un groupe d'experts canadiens a été désigné par Hypertension Canada qui bénéficie des fonds de l'Agence de la santé publique du Canada et de la chaire de la Fondation des maladies du cœur du Canada et des Instituts de recherche en santé du Canada (FMCC-IRSC) en prévention et contrôle de l'hypertension artérielle pour élaborer un cadre de discussion sur la prévention et la maîtrise de l'hypertension. Le rapport inclut une étude sur l'environnement des activités passées et courantes, les propositions comme principaux indicateurs et les objectifs à atteindre pour 2020, et les changements qui sont susceptibles d'être nécessaires au Canada pour atteindre les objectifs proposés. Les objectifs principaux de l'hypertension sont d'en réduire la prévalence à 13 % des adultes et d'en améliorer la maîtrise à 78 % chez ceux qui en sont atteints. Des changements d'envergure dans la politique gouvernementale, la recherche et l'offre des services de santé sont nécessaires pour que des changements surviennent. Le processus-cadre sur l'hypertension comporte 3 étapes. La première étape inclut le rapport des experts qui est résumé dans le présent rapport. La deuxième est de recueillir les commentaires et de connaître les priorités d'action des individus et des organisations dans la révision du cadre. Il est à souhaiter que le cadre stimulera la discussion et les commentaires tout au long de sa durée de 2011 à 2020. La troisième étape est de travailler avec les individus et les organisations sur l'ensemble des priorités de l'étape 2.

sion requires similar financial resources as stroke, myocardial infarction, and other ischemic heart diseases combined.[5,6] It is clear that an integrated, comprehensive, cost-effective, pan-Canadian approach to the prevention and control of hypertension is required.

In Canada, a strategic plan was developed in 1983 to guide efforts to reduce the hypertension-related burden of cardiovascular disease.[7] The strategy was updated in 2000.[8] The success in implementing these strategies is evidenced by the well organized and world-renowned community of Canadians dedicated to research, prevention, and control of hypertension.[3,9,10] The treatment and control rate for hypertension increased from 13% in the late 1980s to one of the highest rates reported in the world at 66% in 2007-2009, with the hypertension prevalence remaining constant at about 20%.[3] The estimated worldwide prevalence of hypertension is 25% with most developed countries having treatment and control rates of less than 30%.[11,12] In late 2010, in response to a request and funding support from the Public Health Agency of Canada and the Canada Chair in Hypertension Prevention and Control, Hypertension Canada initiated development of a discussion paper outlining a framework to guide efforts on how the burden of disease caused by increased blood pressure could be further reduced over the next decade (for the full Framework report see http://www.hypertension.ca/images/Final_Framework_FR_copy.pdf for the French version and http://www.hypertension.ca/hypertension-policy-dp2 for the English version). The Framework includes an environmental scan of past and current national activities to prevent and control hypertension, and some other countries' strategies and outcomes.

The Framework

Health is a shared responsibility extending from the individual, health care professionals and their organizations, nongovernment health organizations, communities, private sector, provincial, and federal governments. In that context, a decision was made to develop a discussion framework to engage early on, potential partners in determining and prioritizing actions to address hypertension. The Framework development process has 3 steps. The first step is the development of the discussion document outlining a Framework by a small group of content and process experts. This stage, phase 1, was completed on March 31, 2011. The second stage involves the dissemination of the discussion document with the draft Framework to broad groups of stakeholders with a structured feedback process that allows for identification of areas that require revisions, areas in which the respondent organization/individual is interested in engaging, and priorities for action. The structured feedback process of phase 2 is expected to be largely complete in 2012, at which time a pan-Canadian Framework for Healthy Blood Pressure will be produced and disseminated to serve as the foundation for a national strategy. It is expected that, over the long-term, the Framework will be an ever-greening document and resulting in an evolution and advancement of the Framework throughout its 'lifespan.' Phase 3 is the implementation of the Framework involving coordinated prioritized actions by governments, organizations, and individuals to prevent and control hypertension. Actions will be based on the input of partner organizations and Hypertension Canada. It is envisioned that different actions may be led by different organizations or sectors, while the leadership for the strategy will need to rest with the hypertension community and Ministries of Health. Partnerships of nongovernmental organizations, a wide variety of health care professional groups, and where appropriate, the private sector will be critical to enhance current Canadian initiatives. There are no specific funding requests within the proposed Framework. It is expected that all partners implementing the Framework (or the sections relevant to them) will bring resources and contribute to the implementation, as needed. Recognizing the need for specific research strategies and recommendations, Hypertension Canada will develop a strategic plan to guide research in support of the Framework.

Table 1. Hypertension Framework objectives proposed to be achieved by 2020

1. The prevalence of hypertension among adults in Canada is 13%.
2. Ninety percent of adults in Canada are aware of the risk of developing hypertension and of the lifestyle factors that influence blood pressure.
3. Eighty-five percent of adults in Canada are aware that high blood pressure increases the risk of major vascular disease (stroke, heart attack, dementia, kidney failure, heart failure).
4. Ninety-five percent of people in Canada who have hypertension are aware of their condition.
5. Ninety percent of those with hypertension are attempting to follow appropriate lifestyle recommendations.
6. Forty percent of Canadians initially diagnosed with hypertension will become normotensive through lifestyle therapy.
7. Eighty-seven percent of people unable to be successfully treated for hypertension through lifestyle therapy have appropriate drug therapy.
8. Seventy-eight percent of people using drug therapy have hypertension under control.
9. Aboriginal populations (First Nations, Inuit, and Métis) have rates for blood pressure health indicators similar to the general population.

Because many of the risk factors associated with hypertension are similar to those for many other chronic diseases,[1,13-19] it is imperative that this strategic Framework is not seen in isolation, but as complementary to broader population health initiatives such as the Healthy Living Strategy[20] under the umbrella of the Declaration on Prevention and Promotion from Canada's Ministers of Health and Health Promotion/Healthy Living entitled, "Creating a Healthier Canada: Making Prevention a Priority."[21]

The vision of the discussion Framework is: "The people of Canada have the healthiest blood pressure distribution, lowest prevalence of hypertension and the highest rates of awareness, treatment and control in the world."

In keeping with the vision, the Framework proposes aggressive benchmark objectives (Table 1) for the prevention and control of hypertension to be achieved by 2020. The objectives are based on the opinions of the committee and were developed by a semiquantitative process assessing the potential impact of current and proposed interventions if fully implemented. Achieving the objectives will require substantive focused effort. The discussion Framework has 7 overarching recommendations (Table 2) on how the objectives can be achieved. The overarching recommendations are based on the Expanded Chronic Care Model: Integrating Population Health Promotion. Detailed action plans are not included in the Framework and will be developed during the strategic operational planning process when prioritized recommendations are agreed to by partners. In the following sections, each of the objectives and the overarching recommendations are briefly discussed as an introduction to the Framework.

Framework Objectives for 2020

Objective 1: To reduce the prevalence of hypertension among adults to 13%

The prevalence of hypertension among Canadian adults was 19% in 2007-2009. A reduction in the prevalence of hyperten-

Table 2. Overarching recommendations for achieving the hypertension objectives

Recommendation	Description
Build healthy public policy	Develop 1 comprehensive multisector strategy whose goal is for people in Canada to meet the nationally-recommended benchmarks for physical activity and diet (including the recommended dietary reference intakes for nutrients and especially sodium).
Reorient/redesign the health services delivery system	Use an integrated interdisciplinary primary healthcare team approach focusing on healthy living in chronic disease management. A healthy blood pressure/hypertension management approach in Canada—with its partnership base and continuum of health promotion, disease prevention, early detection, treatment, and control—is a best practice model for how to prevent and control other chronic conditions and diseases.
Build partnerships to create supportive environments and evolve the healthcare system	Expand and maintain the partnerships whose contributions have been integral to the current Canadian successes in lowering and controlling hypertension. Build new partnerships to better integrate disease management with population health promotion, engaging all levels of government, health organizations, and healthcare professionals, nongovernment organizations, academics, relevant institutions, and corporations/businesses.
Strengthen community action	Broadly implement across Canada community-based programs operating in places where people live and work that have been shown to substantively prevent, detect, and control hypertension and otherwise integrate best practices for blood pressure management into existing effective community health programs.
Develop personal skills for better self-management	Ensure all people in Canada have the resources, knowledge, and ability they need to optimally prevent, detect, and control hypertension recognizing this recommendation is highly dependent on implementing and maintaining supportive environments.
Improve decision support	Promote a culture of evaluation and continuous quality cycles in the collection of key indicators of high blood pressure prevention, detection, treatment, and control, and evaluate the uptake of findings—that the knowledge about the processes and outcomes of interventions is making a difference.
Optimize information systems	Use rapidly evolving information technology and systems to their ultimate potential to transfer knowledge on how to improve hypertension prevention, detection, treatment, and control.

Table 3. Lifestyle factors that cause hypertension

Lifestyle	Attributable risk for hypertension (%)
"Westernized" diet	31
High dietary sodium	32
Obesity	32
Low dietary potassium	17
Low physical activity	17
High alcohol intake	3

sion can only be achieved by reducing population blood pressure. Table 3 identifies the major attributable risks for hypertension and hence the lifestyle factors for which intervention could have a substantive effect. For example, reducing dietary sodium in the Canadian diet from 3400 mg to 1700 mg per day alone could almost reduce the prevalence of hypertension sufficiently to achieve this objective.[22] Initiatives to improve the overall quality of the diet, increase physical activity, prevent and reduce obesity, and excessive alcohol consumption could similarly reduce the overall prevalence of hypertension.[14]

Objective 2: To ensure 90% of adults in Canada are aware of the risk of developing hypertension and of the lifestyle factors that influence blood pressure; and Objective 3: To ensure 85% of adults in Canada are aware that high blood pressure increases the risk of major vascular disease (stroke, heart attack, dementia, kidney failure, and heart failure)

Supplementing a population-based approach are interventions to activate individuals to take actions to prevent and control hypertension through lifestyle factors.[14,23-25] This necessitates raising the current low level of awareness of personal risk of developing hypertension, how to reduce that risk, and of the benefits of healthy blood pressure, important information to motivate people to take action. There is no current and reliable nationally representative information to assess these objectives. There is no current and reliable information on the rates of Canadians being aware of their risks for developing hypertension, how they can reduce that risk, and the risks of not doing so.[26]

Objective 4: To ensure 95% of people in Canada who have hypertension have been diagnosed and are aware of their condition

In 2007-2009, 83% of adult Canadians who had hypertension were aware that their blood pressure was high[3,4] While assessment of blood pressure is increasingly possible in various settings in Canada such as at home,[27] in community centres,[28] workplaces,[29] and pharmacies,[30,31] selected subgroups of people (eg, young men, visible minorities, recent immigrants, and those who speak neither official language) are less likely to have their blood pressure assessed regularly.[32] To improve awareness of blood pressure levels and especially of high blood pressure in general and in the selected subgroups and vulnerable populations, more programs need to tailor their case finding (detection) including the use of an outreach approach in various settings, to promote awareness of hypertension and self-efficacy in measuring blood pressure.

Objective 5: To ensure 90% of those with hypertension are attempting to follow appropriate lifestyle recommendations; and Objective 6: To ensure 40% of Canadians initially diagnosed with hypertension will become normotensive through lifestyle therapy

In 2009, 10% of adult Canadians who reported being diagnosed with hypertension indicated their blood pressure was controlled with lifestyle changes and in 2007-2009, a similar percent (8%) had controlled blood pressure without taking blood pressure-lowering medications.[4,33] Depending on the specific lifestyle, 60%-90% of Canadians diagnosed with hypertension were making lifestyle changes.[34] An increase in the proportion of adults with blood pressure controlled by lifestyle modifications could be achieved through more effective and widely available population-based interventions and in part by more effective health systems changes emphasizing interdisciplinary approaches focused on developing personal skills to achieve a healthy lifestyle.[14,35-37] Notably, people who report having hypertension but have normal blood pressure and are not taking antihypertensive drug therapy are not currently considered to have hypertension in national hypertension surveys.

Objective 7: To ensure 87% of people unable to be successfully treated for hypertension through lifestyle therapy have appropriate drug therapy; and Objective 8: To ensure 78% of people using drug therapy have hypertension under control

Pharmacotherapy is an important component of the treatment plan for many people with hypertension. Some Canadians do not have access to reimbursement for prescription medications through either private insurance plans (third-party insurance), or the provincial/territorial drug benefit programs, or federal programs for certain groups. This can be a barrier to the treatment and control of chronic diseases such as hypertension.[38] During 2007-2009, 95% of those diagnosed with hypertension were taking antihypertensive drugs and the hypertension control rate among that group was 86%.[3,4] Acknowledging that drug therapy is not indicated for all hypertensive adults suggests that most gains in treatment and control can be attained by increasing the rate of diagnosing those with hypertension and improving the control rate in those prescribed pharmacotherapy. Lifestyle changes will also improve control rates among those prescribed drug therapy. Improving the implementation of chronic disease management programs within the health system and increasing the capacity of community- and work-based programs to screen for and manage hypertension could achieve this objective.[14,35-37]

Objective 9: To ensure Aboriginal populations have similar rates for blood pressure health indicators as the general population

Currently there are few blood pressure measurement surveys in First Nations, Inuit, and Métis communities with which to assess key blood pressure indicators such as prevalence and control rate.[13,39] Developing partnerships to assess and intervene to improve the prevention and control of hypertension in aboriginal communities needs to be prioritized given the heart health crisis in many aboriginal communities. "Made

in Canada" community interventions to improve blood pressure control have been successful in Aboriginal communities but will need a marked increase in capacity and tailoring to the needs of individual communities[40] (see Heart and Stroke Foundation of Ontario, Aboriginal Hypertension Management Program, available at: http://www.heartandstroke.on.ca/site/c.pvI3IeNWJwE/b.5339629/k.E94C/HCP__Aboriginal_Hypertension_Management_Program_Pilot.htm).

Overarching Recommendations

Build healthy public policy

Most chronic noncommunicable and communicable diseases have a common root in the key determinants of health.[13,18,41] A failure of many western societies to address the determinants of health has led to predictions that this generation of young people will be the first since the onset of industrialization to have a shorter lifespan than their parents.[42] Implementation of substantive governmental policies that would broadly impact the determinants of health is required to reverse this trend. The implementation of such policies will require focused activity and strong support from the nongovernmental health sector.[20,43]

The determinants of health are well established and form the foundation of virtually all disease and health strategies.[20,41,43] For Canadians to ultimately benefit from a consensus on the need to act, a single, comprehensive, long-term multisectoral strategy is required. Fundamental to the prevention and control of hypertension is achieving already accepted benchmarks for physical activity and diet (specifically sodium) and this is a critical aspect to healthy public policy (Canada's Physical Activity Guides, available at: http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/pa-ap/03paap-eng.php and Eating Well with Canada's Food Guide available at: http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php). Nongovernmental health care organizations and individual health care professionals need to be more vocal and strongly support required policy changes to make Canada healthier for all.

Unhealthy eating has been estimated to cause 40% of premature deaths from noncommunicable disease[15] and fundamental to the development of substantive healthy public policy relating to diet is the recognition that foods high in calories, saturated and trans fats, sodium, and simple sugars that constitute our diet cause disease.[1,44] Our diets are also deficient in nutrients such as calcium, potassium, and fibre. Foods in Canada need to be clearly labelled with health warnings when the nutrient content is leading to diseases including hypertension. Currently Canadian governments recommend healthy eating. However in many settings, less healthy foods are still purchased using public funds and buildings often with healthy foods difficult to access. Standardized food procurement policies are those that stipulate the nutrient content of foods and are being used in some selected jurisdictions to ensure public funds and policies are consistent with healthy eating.[45] Similarly, although the Supreme Court of Canada ruled that advertising to children is coercive and upheld Quebec's ban on advertising to children, no other Canadian jurisdiction has followed Quebec's lead (Quebec Regulations On Advertising to Children, available at: http://www.pubzone.com/fc/child-que/index.cfm). Advertising unhealthy foods to children is common in Canada in spite of a voluntary ban on such advertising by several companies and the Supreme Court of Canada indicating such advertising is coercive.

In a similar fashion, the environment in which we live is critical as to whether it prevents or sustains regular physical activity.[13] Built environments can facilitate regular activity as part of routine daily activities.[20] Behind diet and activity are often social and economic inequalities. There is an increasing consensus that changing our environment is 1 of the critical steps toward improving health. Reversing the contributing factors that lead to increased caloric consumption, unhealthy eating, and reduced physical activity requires significant structural changes in urban planning, transportation, public safety, education, taxation, health promotion, and food production and marketing.

Reorient/redesign the health services delivery system

The current healthcare system is largely designed for acute disease management. Integrated, interdisciplinary primary healthcare teams where every person has timely access to a primary care provider focusing on systematic approaches to healthy living and chronic disease management can have a substantive impact preventing and controlling hypertension.[13,14,24,25,35-37] By developing partnerships between provinces and nongovernmental health organizations, best practices can be shared and scaled-up across Canada. The current treatment and control of hypertension could be used as a model for evolving the Canadian health care system because of its demonstrated positive effect on health and the effectiveness of health care resource utilization, well organized partnerships that have a strong track record of success, and an established outcomes assessment program.

Build partnerships to create supportive environments and evolve the healthcare system

Strong partnerships have already evolved in the effort to control hypertension.[7,8,13] These need to be nurtured and strengthened while forging and establishing new partnerships. To prevent hypertension, greater engagement of public health organizations and partnerships beyond the cardiovascular community are required. Health care is a provincial government responsibility and far more interactions with provincial governments are needed if hypertension is to be used as a model for evolving the health care system. Corporate partnerships need to be developed, where appropriate. In particular, work-based health programs have great promise for improving hypertension prevention and control.

Strengthen community action

Canada has uniquely successful community-based hypertension interventions.[28-31] It is critical to broadly implement and sustain the community-based programs that have been shown to substantively prevent, detect, and control hypertension in places where Canadian people live and work. Engaging the political territorial associations representing First Nations, Inuit, and Métis peoples to implement established evidence-based community level blood pressure programs adapted to specific community circumstances needs to be a priority.

Develop personal skills for better self-management

All people in Canada should have the resources, knowledge, and ability they need to optimally prevent, detect, and control

hypertension and this is highly dependent on implementing and maintaining supportive environments.[13] The established knowledge translation activities of the Canadian Hypertension Education Program need to expand to reach all Canadians whether they are health care professionals, policy makers, or the public, to ensure they have the best available resources for preventing and controlling hypertension. Innovative new knowledge dissemination and training programs need more refinement and greater capacity.[46]

Improve decision support

Critical to any success will be promoting a culture of evaluation and continuous quality cycles in the collection of key indicators of high blood pressure prevention, detection, treatment, and control, and evaluation of the uptake of findings.[13,47] The evolving pan-Canadian blood pressure and hypertension surveillance monitoring and evaluation systems need to be expanded and sustained to incorporate the new hypertension indicators. First Nations, Inuit, and Métis peoples need to participate in designing physical measures surveys that apply culturally safe methods to collect data on blood pressure and hypertension levels on an ongoing basis. Canadian researchers also need to adopt established or develop new health economic models to guide health policy development and resource allocation and provide this information regularly at both national and provincial levels.

Optimize information systems

Use rapidly evolving information technology and systems to their ultimate potential to transfer knowledge on how to improve hypertension prevention, detection, treatment, and control.[13] Much greater use of information technology is required to ensure optimum point of care decision-making and support of patient self-management activities.

Discussion

Canada has had great success in the effort to prevent and control hypertension based both on the substantive capacity and focus it has developed in the effort to prevent and control hypertension as well as in the marked improvements in the rates of awareness, treatment, and control of hypertension.[3,48]

The new discussion Framework suggests the adoption of a vision and objectives and also outlines recommendations that if aggressively pursued will achieve those objectives. The challenges are not to be underestimated. Developing and sustaining current hypertension initiatives has taken substantive effort, much of it by healthcare professional and scientific volunteers from nongovernmental organizations, as well as governmental organizations and their agencies. To move the new Framework forward will require scaling-up the effort and a marked increase in capacity through new partnerships. The input from a broad group of organizations and individuals in phase 2 of the development of the Framework is critical to select and prioritize activities, and is necessary to strengthen old partnerships and develop new ones that will be required for successful implementation. When the Framework is finalized all partners will need to share a common vision and develop a strategic agreement and operational plan to ensure that the desired outcomes will be achieved. Leadership for the effort will be required and the renewal of the Canada Hypertension Chair by the Canadian Institute for Health Research and Heart and Stroke Foundation of Canada is also an important step. Also critical to guide the effort to prevent and control hypertension will be the need to develop a strategic '4 pillar' approach to hypertension research. Improving the prevention and control of hypertension is a great opportunity to have a large effect on population health in a relatively short time period. Having the vision and making a commitment to fulfil this promise can provide the energy to achieve the Framework objectives.

Acknowledgements

The authors acknowledge Oliver Baclic and Heidi Liepold (Ex officio members representing the Public Health Agency of Canada), and Jeff Reading as additional members of the Framework Development Committee.

Funding Sources

Funded in part by a grant from the Public Health Agency of Canada and from the Heart and Stroke Foundation of Canada - Canadian Institute for Health Research Chair in Hypertension Prevention and Control.

Disclosures

S.T. has received honoraria for academic talks from Pfizer, Bristol-Myers, Sanofi-Aventis, Amgen, Roche, Merck, and Boehringer-Ingelheim; is an investigator on research projects sponsored by Abbott, AstraZeneca, Pfizer, Janssen, Novartis, Bristol-Myers, Sanofi-Aventis, Amgen, Roche, Merck and Boehringer-Ingelheim; and is a member of the Advisory Board for Pfizer, Merck, Abbott, Bristol-Myers, Sanofi-Aventis, Otsuka, and Takeda. N.C. received travel support from Boehringer-Ingelheim in 2010. None of the other authors have any conflicts of interest to disclose.

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