Implementation of recommendations on hypertension: The Canadian Hypertension Education Program

Denis Drouin MD[1], Norman R Campbell MD FRCP[2], Janusz Kaczorowski PhD[3],
for the Canadian Hypertension Education Program and the Implementation Task Force

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The diffusion of research evidence or practice guidelines does not, by itself, lead to changes in practice behaviour or patient outcomes.
The Canadian Hypertension Education Program (CHEP) was specifically structured to have an explicit process to improve the ability of primary care professionals to use CHEP recommendations. The key features of this process are reviewed in the present report. The responsibility for implementation of recommendations is divided between the executive committee of CHEP and the Implementation Task Force (ITF). The executive develops an extensive array of summaries and implementation tools for the recommendations, and encourages and facilitates other organizations to develop educational materials and programs. The ITF creates further implementation tools, tailors the tools to specific health care disciplines and creates discipline-specific dissemination strategies.
Currently, CHEP recommendations are disseminated through updated full scientific manuscripts, short scientific and clinical summaries, one-page handouts, wall posters, pocket cards, advertisements, extensive slide kits, textbooks, didactic lectures and workshops. A Web site with the recommendations in different formats is maintained to allow easy access. More recently, media releases have been used to alert the public and health care professionals to important recommendations.
The transparent and interactive annual process of developing the recommendations by most of Canada's clinical hypertension experts is also viewed as critical to providing uniform educational messages to health care professionals from national and local opinion leaders.
The CHEP ITF includes primary care disciplines and specialties important to blood pressure control. The CHEP process for the implementation of recommendations is very extensive and continues to evolve. There is early evidence for improvement in the management of hypertension in Canada that coincides with the initiation of CHEP, suggesting that CHEP could serve as a model for disease management recommendations.

Key Words: *Canadian Hypertension Education Program; Guideline; Hypertension; Implementation of guideline; Knowledge transfer*

Mise en œuvre des recommandations du Programme d'éducation canadien sur l'hypertension

La simple diffusion de résultats de recherche ou de lignes directrices en matière de pratique ne se traduit pas nécessairement par la modification des habitudes de pratique ou par de meilleurs résultats cliniques.
Le Programme d'éducation canadien sur l'hypertension a été structuré de manière à concevoir un processus explicite visant à améliorer la capacité des professionnels de soins primaires à appliquer les recommandations du Programme. Nous passerons en revue, dans le présent rapport, les points saillants du processus. La responsabilité de l'application des recommandations est partagée entre le comité directeur du Programme et le groupe de travail sur la mise en œuvre. Le comité directeur prépare un large éventail de résumés et d'outils d'application relatifs aux recommandations et invite les autres organisations intéressées à concevoir de la documentation et des programmes éducatifs tout en les soutenant dans leur démarche. Le groupe de travail, quant à lui, crée d'autres outils de mise en œuvre, adapte les outils existants aux différentes disciplines de soins et élabore des stratégies de diffusion, adaptées aux disciplines.
La diffusion des recommandations du Programme se fait actuellement par différents moyens : des textes scientifiques complets mis à jour, des résumés scientifiques et cliniques, des documents d'une page, des affiches, des fiches de petit format, des annonces, des diaporamas approfondis, des manuels, des exposés didactiques et des ateliers. De plus, les recommandations sont présentées sous différentes formes dans un site Web facilement accessible. Dernièrement, des communiqués ont été publiés pour informer le public et les professionnels de la santé d'importantes recommandations. Le processus annuel, interactif et transparent de mise à jour des recommandations par un grand nombre d'experts dans la prise en charge de l'hypertension au Canada est également considéré comme un exercice extrêmement important d'uniformisation des messages éducatifs, envoyés aux professionnels de la santé par des guides d'opinion nationaux et locaux.
Le groupe de travail s'intéresse autant aux disciplines en soins primaires qu'aux spécialités liées à la maîtrise de la pression artérielle. Le processus du Programme pour la mise en œuvre des recommandations est complexe et il évolue sans cesse. Commencent à paraître les premiers signes d'amélioration de la prise en charge de l'hypertension artérielle au Canada, signes qui coïncident avec l'instauration du Programme, ce qui donne à penser que le processus pourrait servir de modèle dans la mise en œuvre de recommandations liées à d'autres maladies.

[1]*Continuing Professional Development Centre, Laval University Faculty of Medicine, Quebec;* [2]*Libin Cardiovascular Institute and the Departments of Medicine and of Pharmacology and Therapeutics, Faculty of Medicine, University of Calgary, Calgary, Alberta;* [3]*Departments of Family Medicine, Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario*
Correspondence and reprints: Dr Denis Drouin, Continuing Professional Development Centre, Laval University Faculty of Medicine, Quebec G1K 7P4. Telephone 418-656-5958, fax 418-656-2465, e-mail denis.drouin@fmc.ulaval.ca
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The worldwide prevalence of hypertension is estimated at 972 million people, of whom three million die annually as a result (1). In Canada and elsewhere around the world, clinical practice guidelines and recommendations for hypertension prevention, detection and management have been periodically produced since the 1970s (2-4), but hypertension recommendations are not generally followed in clinical practice. The rates of detection, treatment and control of hypertension remain suboptimal (5), and effective strategies to improve implementation of hypertension recommendations in clinical practice (3) are urgently needed.

The Canadian Hypertension Education Program (CHEP) was established to address the challenges associated with improved management of hypertension and hypertension-related disease in Canada. CHEP explicitly recognized from the onset that producing annually updated, evidence-based hypertension recommendations was necessary but not sufficient to improve the management of hypertension in Canada. Consequently, a formal Implementation Task Force (ITF) was formed to accelerate and enhance dissemination and implementation of hypertension recommendations. The purpose of the present article is to review the processes, strategies and tools used by the ITF to attain that goal.

REVIEW OF THE EVIDENCE

Simple diffusion of research evidence or practice guidelines does not lead to changes in practice behaviour or patient outcomes (6). A wide range of interventions for the appropriate and effective dissemination of research evidence to accomplish behavioural change in physicians in clinical practice has been proposed and empirically tested. These interventions have included continuing medical education, self-instructed learning, physician and patient reminder systems, practice audit and feedback, academic detailing, financial incentives, endorsements of guidelines by local opinion leaders, continuous quality improvement initiatives, outreach visits, electronic clinical information systems and computerized decision support systems.

Interventions that address physician knowledge only, such as traditional continuing medical education and dissemination of guidelines, are not enough to change practice behaviour (7-9). Some single-strategy interventions, such as the use of electronic reminder systems (10), academic detailing (11) and opinion leader endorsements (12,13), can be modestly effective in altering physician behaviour. This effect is contingent on the context in which they are applied, the nature of the health care setting, practitioner characteristics and the desired behavioural change (14,15). Much evidence suggests that single-strategy interventions are less likely to result in significant improvement of practice behaviour compared with interventions that use two or more strategies in combination (16-20). Oxman et al (17) conducted a systematic review of 102 randomized, controlled trials and found that many single-strategy interventions, such as dissemination of educational materials, use of reminder systems or practice audit and feedback, have modest or negligible practical effects when used alone, but that when multiple strategies are coupled or combined, the effects on changing physician behaviour and improving health outcomes are significant (17-21). Similarly, Wensing and Grol (18) and Wensing et al (19) reviewed 61 randomized, controlled trials and found that 83% of studies that involved a combination of three or more strategies were effective in family practice, compared with only 11% of studies that involved information transfer alone. In 1998, on behalf of the Cochrane Effective Practice and Organization of Care Review Group, Bero et al (22) compiled 18 systematic reviews of the improvement of professional performance and found that multistrategy interventions were effective. Multistrategy approaches for improving health care performance have demonstrated that an organized process of care consisting of a theoretical framework combined with appropriate sets of tools can improve the quality of care delivered in primary care practice (23).

The processes, strategies and tools developed and adopted by the ITF, not unlike the hypertension recommendations themselves, draw heavily on evidence-based literature to accelerate and improve the process of transferring knowledge from research to practice. While the existing literature clearly indicates that there are no 'magic bullets', there are several approaches and principles that have shown promise. These approaches and principles serve as the cornerstones of the ITF's activities: credibility of the source and process; consistent messaging; use of multiple strategies; and, training of local opinion leaders.

Credibility of the source and process

The annual hypertension guidelines produced by CHEP are based on an extensive and complex process involving over 80 expert volunteers. The process of developing recommendations is based on a transparent system of checks and balances that ensures the integrity of the recommendations. Issues regarding the trustworthiness and credibility of evidence have been shown to be important determinants for the uptake of recommendations.

Consistent messaging

It is important to ensure that those managing hypertension receive consistent educational messages. An important reason why recommendations are not followed is the dissemination of conflicting recommendations by various expert interest groups.

Before the establishment of CHEP, there was substantial controversy and many divergent messages on how to best manage hypertension. In many countries, national opinion leaders frequently and publicly provide divergent opinions on the management of hypertension in educational sessions and editorials. This frequently leads to pharmaceutical companies sponsoring educational events based on the lack of uniform expert opinion. The CHEP process uses accepted and agreed-upon rules of evidence that reduce divisive arguments based on personal opinions or potential conflicts of interest, and provide ample opportunities to express and resolve differing opinions. The end result is widespread internal support within the membership of CHEP for the annual recommendations. Full scientific manuscripts are published every year to ensure experts can review and critically appraise the scientific basis for each recommendation. CHEP has been successful in securing the cooperation and support of most pharmaceutical companies in developing educational programs consistent with the recommendations. The consistency of educational programs and coherent messages on hypertension are viewed as critical factors in improving the management of hypertension.

The use of multiple dissemination strategies

The CHEP executive annually selects the key messages from over 100 scientific recommendations that are developed or

reassessed each year. Four or five key evidence-based recommendations are selected each year to highlight areas of hypertension management that are fundamental in reducing cardiovascular morbidity and mortality. In addition to key messages, the executive selects a theme each year to highlight important advances that will improve the prevention, detection and management of hypertension. The CHEP executive attempts to sustain interest in the recommendations by highlighting changes while still focusing on the important issues in management that are relatively constant. Repetition of these 'old but important' messages is important from the communication point of view. The executive develops three or four short summaries of the recommendations, a booklet for experts that concisely outlines each recommendation with a scientific summary of the changes that have occurred, a pocket booklet for primary care professionals that summarizes how to manage hypertension, and an extensive PowerPoint (Microsoft Corporation, USA) slide set on hypertension and the updated management recommendations. The executive is also largely responsible for the dissemination of these tools. The summaries have been published in up to 23 multidisciplinary journals each year, and last year over 100,000 pocket booklets were distributed. Members of the Canadian Hypertension Society, Canadian Society of Nephrology, Canadian Cardiovascular Society and Canadian Council of Cardiovascular Nurses are also notified annually by their respective societies when the slide set and recommendations are posted on the Canadian Hypertension Society's Web site (24).

The ITF has developed wall posters, plasticized desktop summaries, pocket cards, advertisements, slide sets, didactic lectures and workshops. It is structured to have subgroups representing specialties and primary care disciplines that are involved in hypertension care; in this way, it both tailors the implementation tools to be relevant to their disciplines and develops discipline-specific dissemination to undergraduate and postgraduate students and practicing professionals through national, provincial and regional organizations, journals, Web sites and professional training programs. The members of the ITF are listed in Table 1.

CHEP recommendations have also been widely disseminated by several other organizations and programs. The Canadian Hypertension Society's Web site (24) is one of the major dissemination mechanisms from which past and current CHEP recommendations, summaries, slide sets and educational tools can be viewed or downloaded. The Quebec Hypertension Society and the Canadian Hypertension Society collaborate to produce a textbook based on the recommendations, which is extensively disseminated every four years. Importantly, media releases supported by the Heart and Stroke Foundation have also been used to annually alert the public and health care professionals to important changes and additions to recommendations. The Registered Nurses Association of Ontario has also developed extensive nursing recommendations for the management of hypertension based on CHEP recommendations, with additional discipline-specific components (25).

TABLE 1
Implementation Task Force members for the 2006 recommendation process

Co-Chairs	Denis Drouin
	Janusz Kaczorowski
Family physician subgroup	Rob Petrella
	Janusz Kaczorowski
	Brian Gore
	John Hickey
Pharmacy subgroup	Bill Semschuck
	Ross Tsuyuki
	Luc Poirier
Nursing subgroup	Kori Kingsbury
	Jo-Anne Costello
Exercise physiology subgroup	Norm Gledhill
Specialty subgroup	Norm Campbell (Internal Medicine)
	Ross Feldman (Internal Medicine)
	Sheldon Tobe (Nephrology)
	Anil Gupta (Cardiology)
	Guy Tremblay (Cardiology)
	Jim Stone (Cardiology)
	Alain Milot (Internal Medicine)
	Jean-Martin Boulanger (Stroke Neurology)

Opinion leaders

With support from pharmaceutical companies that manufacture antihypertensive medications, CHEP has developed either lectures or workshops based on the recommendations, including interactive 'Train the Trainer' sessions, in which local opinion leaders are trained to apply adult learning theories to facilitate dissemination of the latest CHEP recommendations. Over 100 local and regional opinion leaders have been trained and updated on CHEP recommendations through participation in these educational sessions. Only educational programs that are completely consistent with the content and intent of the recommendations have been endorsed by CHEP. The pharmaceutical industry-sponsored programs have been very extensive, and one of the major successes of CHEP has been the adoption of CHEP recommendations by the Canadian pharmaceutical industry.

DISCUSSION

CHEP has developed an extensive implementation and dissemination program to support the rigorous, evidence-based medical process for the development and implementation of hypertension recommendations. Preliminary data support improvement in the management of hypertension coinciding with the initiation of the CHEP program (26), suggesting that CHEP could be a model for the development and implementation of health care recommendations. The success of CHEP is very likely based on a multitude of factors, including continuous updating, the variety of dissemination tools suiting differing individual practitioner needs, widespread dissemination, adoption of the recommendations by key local, regional and national opinion leaders, adoption and support by multiple professional and commercial organizations, repetition of the same messages and endorsement by allied organizations.

The question of how to accomplish acceptable, efficient and effective transfer of knowledge-based information from those who have it to those who need it is one of the most pressing and challenging issues facing health care systems today, both in Canada and elsewhere in the world. This area of

research is still vastly underdeveloped, and funding organizations need to increase the research capacity and funding for research on knowledge transfer. Simple, isolated interventions are largely ineffective, while the integration of multiple interventions (even those that are ineffective on their own) into contextually appropriate settings has resulted in improved management (27,28). There are many barriers to the optimal management of hypertension. While hypertension recommendations and educational programs address some of these barriers, there are also significant system barriers that prevent health care professionals from providing optimum care for patients with chronic disease. For instance, lack of time, prescription costs and patient nonadherence have been indicated to be important barriers to the implementation of guidelines (29).

Elsewhere in this issue of *The Canadian Journal of Cardiology*, Dr Lewanczuk (30) has addressed system changes in Canada designed, in part, to improve hypertension management. Furthermore, it is recognized that public education and awareness are important in the prevention and management of hypertension; a new Canadian effort to improve public and patient awareness in Canada is summarized by Campbell et al (31). Together, these efforts are likely to improve the management of hypertension in Canada and reduce the burden of cardiovascular disease.

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