The Outcomes Research Task Force and the Canadian Hypertension Education Program

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The present report is an update on the contribution of the Canadian Hypertension Education Program's (CHEP) Outcomes Research Task Force to the surveillance and monitoring efforts surrounding hypertension and hypertension-related conditions in Canada. Components of the program include advocating national physical measures surveys of blood pressure; analysis of national cross-sectional and longitudinal population-based health surveys that assess hypertension diagnosis and treatment; assessment of national and regional pharmacotherapy patterns using existing commercial databases; assessment of national and regional trends in hypertensive complications (stroke, myocardial infarction and congestive heart failure); development of a national system based on provincial administrative data to assess the incidence, prevalence and management of diagnosed hypertension; and assessing some aspects of CHEP implementation. Preliminary data support a large increase in the diagnosis and treatment of hypertension corresponding to the initiation of CHEP.

Key words: Blood pressure control; Cerebrovascular disease; Congestive heart failure; Drug therapy; Epidemiology; Guidelines; Health services research; High blood pressure; Hypertension; Stroke; Surveillance

Surveillance is critical to any health-related process (1). The impetus for the Canadian Hypertension Education Program (CHEP) were the Canadian Heart Health Surveys (CHHS) from 1985 to 1992, which indicated that more than one in five Canadian adults had hypertension, but that only 13% were treated and controlled (2). This was coupled with the results of the National Health and Nutrition Examination Survey (NHANES), which indicated that a similar number of Americans had hypertension, but that the treatment and control rate was 25% (2).

CHEP had two separate processes at initiation – one to create recommendations and one specifically to assist in implementing the recommendations. The key outcome was whether CHEP, a voluntary organization with a mandate to improve the treatment and control of hypertension in Canada, was feasible. In 2002, after three years of annually developing recommendations and a rapidly expanding implementation program, it was believed that CHEP was sustainable and that a process

Le groupe de travail de la recherche sur les issues et le Programme d'éducation canadien sur l'hypertension

Le bref rapport suivant est une mise à jour sur l'apport du groupe de travail de la recherche sur les issues du Programme d'éducation canadien sur l'hypertension (PECH) aux efforts de surveillance et de monitoring de l'hypertension et des troubles reliés à l'hypertension au Canada. Les éléments du programme s'énumèrent comme suit : prôner des enquêtes nationales sur les mesures physiques de la tension artérielle, analyser les enquêtes nationales de population en santé transversales et longitudinales qui évaluent le diagnostic et le traitement de l'hypertension, évaluer les posologies pharmacothérapeutiques nationales et régionales à l'aide des bases de données commerciales en place, évaluer les tendances nationales et régionales de complications de l'hypertension (accident vasculaire cérébral, infarctus du myocarde et insuffisance cardiaque congestive), élaborer un système national fondé sur les données administratives provinciales afin d'évaluer l'incidence, la prévalence et la prise en charge de l'hypertension diagnostiquée et évaluer certains aspects de l'implantation du PECH. Les données provisoires confirment une forte augmentation du diagnostic et du traitement de l'hypertension, qui correspond à la formation du PECH.

was required to determine whether CHEP was fulfilling its mandate. Therefore, in 2003, a separate Outcomes Research Task Force ('Task Force') was developed.

The Task Force first met in October 2003. At the meeting, the need was recognized for a national surveillance program to help assess those factors which CHEP sought to influence – in particular, trends in the incidence and prevalence of hypertension and hypertension-related complications. The Task Force identified a number of core areas for surveillance: national physical measures surveys of blood pressure; analysis of national cross-sectional and longitudinal population-based health surveys to assess hypertension diagnosis and treatment; assessment of national and regional pharmacotherapy patterns using existing commercial databases; assessment of national and regional trends in hypertensive complications (stroke, myocardial infarction and congestive heart failure); a national system based on provincial administrative data to assess the incidence, prevalence and management of diagnosed hypertension; and,

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some aspects of CHEP implementation. In addition, the Task Force recognized its important role in advocating hypertension surveillance. Since 2003, the Task Force has grown to include over 20 members (Table 1) from academia, nongovernment organizations, the provincial governments, the Public Health Agency of Canada and Statistics Canada. CHEP has come to represent a rallying point for researchers interested in hypertension as a public health issue, while emphasizing the importance of basic surveillance of the condition and its related outcomes.

In the present report, we discuss the progress made in developing a hypertension surveillance system and in assessing the impact of CHEP on hypertension management. Many aspects of the surveillance program are associated with, but not directly attributable to, CHEP, and some aspects would have occurred in its absence. They are, nevertheless, included in the report to provide a comprehensive overview of the potential to examine hypertension in Canada.

PHYSICAL MEASURES SURVEYS OF BLOOD PRESSURE

The Task Force initially launched an advocacy program for a physical measures survey to be conducted by Statistics Canada, began the development of a protocol and started fundraising. Coincidentally, and fortuitously, Statistics Canada received funding for a broad-based health survey (Canadian Health Measures Survey [CHMS]). Task Force members were consulted on the blood pressure measurement protocol, and shortly thereafter, the Ontario Heart and Stroke Foundation announced funding for a survey of hypertension and blood pressure in Ontario, to be conducted by doctors Leenan and Fodor. The recommended protocol was adopted in part by both surveys (3). The Ontario survey is ongoing and the CHMS is planned to start in mid-2006, with results being expected in early 2009. A challenge will be to ensure regular physical measures surveys – the only reliable method to assess the prevalence of hypertension – because a large proportion of hypertensive Canadians are unaware of their condition. Tracking interventions is critical in preventing hypertension. Furthermore, blood pressure measurement is the only reliable method to assess the treatment and control rate of hypertension.

NATIONAL POPULATION-BASED HEALTH QUESTIONNAIRE SURVEYS OF HYPERTENSION

Canada has a history of excellent nationally representative population-based health surveys by questionnaire. The National Population Health Survey (NPHS) has a cross-sectional and a longitudinal component. The survey was initiated in 1994 and was conducted every two years. In 2000, the cross-sectional component was replaced by the Canadian Community Health Survey (CCHS). These surveys asked respondents whether they had been diagnosed with hypertension by a health care professional and whether they received antihypertensive drug therapy. The Task Force developed a subgroup to analyze data from the cross-sectional surveys and the Public Health Agency of Canada allocated resources to analyze aspects of the longitudinal NPHS. Preliminary results show that between 1994 and 2003, there was a 51% increase in the prevalence of diagnosed hypertension and a 65% increase in prevalence of drug-treated hypertension. The rate of diagnosis and treatment of hypertension doubled in 1999, the year CHEP was initiated. The proportion of Canadian adults aware of having hypertension and reporting antihypertensive

TABLE 1
Contributors to the Canadian Hypertension Education Program Outcomes Research Task Force

Ernest Amankwah	Gillian Bartlett	Tari Bhattia
Rollin Brant	Norm Campbell	Arun Chockalingam
Denis Drouin	(Co-chair)	(Ex officio)
(Ex officio)	Michael Eliasziw	Bill Ghali
Ru-nie Gao	Brenda Hemmelgarn	Michael Hill
Helen Johansen	Nadia Khan	Colleen Maxwell
Finlay McAlister	Jay Onysko	Stephen Phillips
Hude Quan	(Co-chair)	Larry Svenson
Greg Taylor	Mark Smith	Andy Wielgosz
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(Ex officio)	Jennifer Zhang	

pharmacotherapy is now 85%, whereas this figure was 66% in the 1985 to 1992 CHHS (4). Future challenges include ensuring the continued consistency of survey questions to allow for temporal comparisons; the inclusion of hypertension questions as part of a regular core survey (rather than sporadically across regions) to allow for pan-Canadian comparisons over time; and the inclusion of questions concerning lifestyle modification for hypertension treatment.

NATIONAL PHARMACEUTICAL DATABASES

There are different commercial databases reporting prescription drug use in Canada. CompuScript (IMS Health, Canada) is a commonly used database containing information from approximately 70% of pharmacies in Canada. The data are adjusted to provide nationally representative prescription estimates. A separate database provides the indications for major drug classes based on a sample of Canadian physicians. These databases have been used by CHEP to examine the prescription of antihypertensive drugs in Canada before and after the introduction of CHEP. There has been a very large increase in antihypertensive prescription rates in Canada since the introduction of CHEP (5,6). The increase occurred in generic and trade antihypertensive drugs classes; indications for these classes have remained relatively stable since CHEP's introduction (5). Regional analyses will be conducted to examine the relationship between the increase in prescription of antihypertensive medications and the decrease of cardiovascular mortality and morbidity. CompuScript data will continue to be used to determine whether prescribing rates of drugs are temporally related to changes in CHEP recommendations. The continued support of IMS Health and the Public Health Agency of Canada, with their generous donations of data and analytical expertise, will make this possible.

ASSESSMENT OF NATIONAL TRENDS IN CARDIOVASCULAR MORTALITY AND MORBIDITY

Statistics Canada stores provincial and territorial mortality and hospitalization data for conditions associated with hypertension. In addition, Statistics Canada analysts have developed a program that estimates the incidence and recurrence of hospitalization from stroke, congestive heart failure and acute myocardial infarction. CHEP is examining the changes in morbidity and mortality from these conditions in relation to the time of CHEP initiation and to changes in antihypertensive

prescribing. An initial report is expected in late 2006 through the joint efforts of the Public Health Agency of Canada, Statistics Canada, and experts from academia.

PROVINCIAL DATABASES

The Public Health Agency of Canada intends to develop a surveillance mechanism for chronic diseases using linked provincial administrative databases through the collaboration of the provinces and territories and other chronic disease experts and stakeholders. The model for this program has already been successfully developed for diabetes and it is referred to as the National Diabetes Surveillance System (NDSS) (7). Surveillance programs for hypertension, stroke and mental illness are currently being considered. The linked provincial administrative databases will ultimately allow tracking of disease incidence, management (including drug prescriptions, physician visits, and hospitalization) and mortality. Preliminary data from Ontario show a large increase in the prescription of antihypertensive drugs to persons over the age of 66 years with newly diagnosed hypertension (6,8). An algorithm for diagnosing hypertension using administrative data is critical to this process; it has already been developed in Ontario and is currently being validated in Alberta.

CHEP MONITORING

In addition to monitoring CHEP's impact, the Task Force works closely with the CHEP Implementation Task Force and the Recommendations Task Force to help evaluate aspects of the program to ensure that CHEP recommendations are reaching

the appropriate audiences in appropriate forms. For instance, a needs assessment process is under development to help tailor CHEP products specifically for nurses, pharmacists and family physicians, and to assess the usefulness of those products. It is anticipated that this process will position CHEP to better meet the needs of other disciplines in the future.

CONCLUSION

Assessing CHEP's impact on hypertension management and control in Canada is not a straightforward task. Given the number of factors influencing population health and health care practice and the complex relationships among them, it is essentially impossible to directly attribute any particular change to CHEP. The program has, however, brought together and established an extensive set of surveillance and monitoring program elements. These elements, when 'triangulated', serve to tell us about the degree of success (or failure) of all hypertension control efforts in Canada – of which CHEP is a significant part.

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REFERENCES

1. World Health Report 2002. Reducing risks, promoting healthy life. World Health Organization. Geneva, 2002.
2. Joffres MR, Hamet P, MacLean DR, L'italien GJ, Fodor G. Distribution of blood pressure and hypertension in Canada and the United States. *Am J Hypertens* 2001;14:1099-105.
3. Campbell NR, Joffres MR, McKay DW; Heart and Stroke Foundation of Canada. Hypertension surveillance in Canada: Minimum standards for assessing blood pressure in surveys. *Can J Pub Health* 2005;96:217-20.
4. Campbell NR, Onysko J, Maxwell C, Eliasziw M, Zhang JX; the Canadian Hypertension Education Program. Increases in the diagnosis and drug treatment of hypertensive Canadians. *Can J Cardiol* 2005;21(Suppl C):123.
5. Campbell NR, McAlister FA, Brant R, et al. Temporal trends in antihypertensive drug prescriptions in Canada before and after introduction of the Canadian Hypertension Education Program. *J Hypertens* 2003;21:1591-7.
6. Campbell NR, Tu K, Brant R, Duong-Hua M, McAlister FA. The impact of the Canadian hypertension education program on antihypertensive prescribing trends. *Hypertension* 2006;47:22-8.
7. Health Canada: Responding to the challenge of diabetes in Canada: First report of the National Diabetes Surveillance System (NDSS). Ottawa, 2003.
8. Tu K, Campbell NR, Duong-Hua M, McAlister FA. Hypertension management in the elderly has improved: Ontario prescribing trends, 1994 to 2002. *Hypertension* 2005;45:1113-8.