

Consensus Statement: The Development of a National Canadian Migraine Strategy

WJ Becker, SN Christie, G Mackie, P Cooper, on behalf of the Canadian Headache Society Migraine Strategy Task Force

ABSTRACT: Background: Migraine is a significant cause of suffering and disability in the Canadian population, and imposes a major cost on Canadian Society. Based on current medical science, much more could be done to provide better comprehensive medical care to the millions of individuals with migraine in Canada. **Objective:** To propose and design a national Canadian Migraine Strategy which could be implemented to reduce migraine related disability in Canada. **Methods:** A multidisciplinary task force of the Canadian Headache Society met for a Canadian Migraine Summit Meeting in Halifax, Nova Scotia in June, 2009. Pertinent literature was reviewed and a consensus document was produced based upon the round table discussion at the meeting. **Results:** The outline of a national Canadian Migraine Strategy was created. This strategy is based on the chronic disease management model, and would include: an outline of what constitutes appropriate migraine care for Canadians, educational programs (for health care professionals, individuals with migraine, and the general public), research programs, and the development of the necessary organizations and partnerships to develop further and implement the Canadian Migraine Strategy. **Conclusions:** Based upon the medical literature and expert discussion at the meeting, a national Canadian Migraine Strategy with a patient self-management focus has the potential to improve patient care and reduce headache related disability in Canada.

RÉSUMÉ: Déclaration de consensus sur le développement d'une stratégie nationale canadienne concernant la migraine. Contexte : La migraine est une cause importante de souffrance et d'invalidité dans la population canadienne et comporte des coûts élevés pour la société. En se basant sur les données de la science médicale actuelle, on pourrait faire beaucoup plus pour fournir de meilleurs soins médicaux complets aux millions d'individus atteints de migraine au Canada. **Objectif :** Nous proposons et planifions une stratégie nationale canadienne concernant la migraine qui pourrait être implantée pour réduire l'invalidité due à la migraine au Canada. **Méthodes :** Un groupe de travail multidisciplinaire de la Canadian Headache Society s'est réuni pour discuter d'une telle stratégie sur la migraine à Halifax, en Nouvelle-Écosse en juin 2009. La littérature pertinente a été révisée et un document de consensus, basé sur les discussions qui ont eu lieu lors de la table ronde, a été élaboré. **Résultats :** Nous avons rédigé une ébauche de stratégie nationale canadienne sur la migraine. Cette stratégie est basée sur le modèle de gestion de la maladie chronique et propose d'inclure un synopsis de ce qui constitue des soins appropriés pour les Canadiens atteints de migraine, un programme éducatif (pour les professionnels de la santé, les individus atteints de migraine et le public en général), des programmes de recherche et le développement des organisations et des partenariats nécessaires pour élaborer davantage et mettre en place la stratégie canadienne concernant la migraine. **Conclusions :** Une stratégie canadienne concernant la migraine, centrée sur la gestion par le patient lui (elle)-même et basée sur la littérature médicale et les discussions menées par des experts lors de la réunion, pourrait améliorer le soin des patients et diminuer l'invalidité reliée à la céphalée au Canada.

Can. J. Neurol. Sci. 2010; 37: 449-456

On June 8, 2009, a taskforce of the Canadian Headache Society met in Halifax at a Canadian Migraine Summit Meeting to discuss the development of a national Canadian Migraine Strategy. The task force included health professionals from five Canadian Provinces (Table 1).

The purpose of the meeting was to achieve consensus on the development of a national Canadian Migraine Strategy (CMS) as a means of improving care for patients with migraine in Canada.

BACKGROUND

Migraine is a very expensive brain disorder for Canadians. A population-based study in 1990 found that the average Canadian with migraine experiences 21 days of migraine headache per year, and that 20% of working Canadians with migraine were

unable to function at work on those days. It was calculated that SEVEN million workdays were lost annually in Canada as a result of migraine¹.

The Canadian Women and Migraine Survey done in 2005 showed that the disability caused by migraine in the Canadian

From the Canadian Headache Society, University of Calgary (WJB), Calgary, Alberta; University of Ottawa, Ottawa (SNC); University of Western Ontario (PC), London, Ontario; Richmond Hospital (GM), Vancouver, British Columbia, Canada.

RECEIVED JANUARY 5, 2010. FINAL REVISIONS SUBMITTED FEBRUARY 17, 2010.

Correspondence to: W. J. Becker, Division of Neurology, Foothills Hospital, 1403 29th St NW, Calgary, Alberta, T2N 2T9, Canada.

Table 1: Taskforce members

Neurologists with a special interest in migraine		Family Physicians with a special interest in migraine	
Aube M	Montreal PQ	Magnoux E	Montreal PQ
Becker W J	Calgary AB	Shapero G	Markham ON
Christie SN	Ottawa ON		
Cooper P	London ON	Nurses	
Gawel M	Toronto ON	O'Callaghan I	Calgary AB
Giammarco R	Hamilton ON	South V	Toronto ON
Gladstone J	Toronto ON		
Mackie G	Richmond BC	Pharmacists	
MacLean G	Saint John NB	Worthington I	Toronto ON

population remains high. In answer to the question, "How many days in the last six months would you estimate your migraines/headaches incapacitated you, including missed work days, difficulty doing housework and/or caring for children?" the average number of days given was 10.4 days². This remarkable result indicates that the average woman with migraine suffers at least partial disability on 21 days a year. The high prevalence of migraine in the Canadian population¹⁻³ (migraine occurs in 25% of Canadian women and in 8% of Canadian men), coupled with this degree of disability should make migraine a major public health concern for Canadians. Indeed, the disability related to migraine has been recognized by the World Health Organization, which has ranked migraine as 19th among all causes of disability in terms of years lived with disability⁴. The high cost imposed by migraine upon society and the economy, particularly when both direct healthcare costs and indirect costs related to lost work time are considered, has been recognized in other countries. A recent exhaustive Swedish economic study concluded that the economic cost of migraine in Europe exceeded 27,000 million Euros annually, and that migraine was more costly to society than many other neurological disorders including stroke, Parkinson's disease, epilepsy, brain tumor, and multiple sclerosis⁵.

Canadian health professional and other organizations have recognized the disability produced by migraine, and have worked to improve medical care of patients with migraine in Canada. The Canadian Headache Society is a non-profit physician organization dedicated to promoting research, education, and patient care in the field of headache. Headache Network Canada is a registered charity which provides headache-related information to individuals with migraine, their families, and the public. Both organizations came together at the Canadian Migraine Forum in 2006 where 24 health professionals and six individuals with migraine met to discuss the impact of migraine on Canadians and also various aspects of the health care provided for patients with migraine in Canada⁶⁻⁸. The forum recognized that care for individuals with migraine in Canada was not ideal, and identified several strategies which could help to bring about improvement (Table 2).

Participants at the Migraine Forum also identified a number of barriers which continued to lead to less effective care for patients with migraine, and increased migraine-related disability in Canada. These barriers are listed in Table 3.

The Canadian Migraine Summit Meeting was organized in order to move forward with the improvement of care for those with migraine in Canada, and to build upon the work of the Migraine Forum. The focus of the meeting was the development of a national CMS as a means to improve all aspects of migraine care in Canada.

In this work, participants took some guidance from the work done in the Canadian National Stroke Strategy, which has been very successful in promoting better care for patients with stroke in most jurisdictions in Canada. Although migraine is not as obviously disabling as stroke, there are many reasons for vigorously promoting a national Canadian Migraine Strategy. Although often unseen except by those directly involved in the life of the individual with migraine, the disability and cost produced by migraine can be very significant, as outlined above. In addition migraine is a chronic disorder that often starts early in life during the teenage years, and then persists for many decades. As a result it affects many individuals during their most productive years while they are working and raising a family. The unpredictable timing of migraine attacks also adds to the disruption which they cause in all aspects of life for those with migraine.

The evidence indicates that many individuals with migraine, including many with significant disability, have either never consulted a physician for their migraine, or have done so but have become "lapsed consulters" despite continuing disability and dissatisfaction with their current treatment. For some, physician attitudes may have contributed to this. Migraine can be a difficult and frustrating condition to treat. It is also often an invisible illness as the patient comes to the physician's office between attacks. Time is required to obtain the details necessary to formulate an effective treatment plan, and to work with the patient to develop that plan. This can cause frustration on the part of the physician, particularly if it is not clear what the next step should be. Too often physicians communicate to migraine

Table 2: Recommended strategies from the Canadian Migraine Forum – 2006.

-
1. Development of more health professional leadership in migraine.
 2. Greater utilization of non-Physician Health Professionals in migraine team-based treatment programs.
 3. Greater use of a chronic Disease Management Model for migraine.
 4. Greater organization of individuals with migraine to support treatment programs and migraine education and research.
 5. Better education programs to close the knowledge gap regarding migraine for the public, for physicians, and for patients.
 6. More promotion of migraine-related research.
-

patients that their complaints are a bother. The CMS, perhaps through clear treatment recommendations, must reaffirm that headache patients are interesting patients with a chronic neurological disorder.

THE NATIONAL CANADIAN MIGRAINE STRATEGY

The target population

Migraine is so common (there are almost 4,000,000 Canadians with migraine) that it would be a huge task to involve all individuals with migraine in the CMS. The task force felt, therefore, that there was a need to focus the CMS on a specific subpopulation of migraine sufferers defined in terms of headache-related disability. Although there are formal means to measure headache-related disability, headache frequency was felt to be the best way to define the target population for the CMS so that these individuals could be readily identified by health care providers in the community,

Population-based epidemiological research both in France⁹ and in the United States¹⁰ has identified that among those with migraine with intermittent headache attacks, approximately 13% experience one or more headache attacks a week. As each attack may last one to three days, this can impose a formidable burden on patients and their families, and makes it imperative that the

best treatment possible be available to these patients in order to reduce their disability. The CMS would work towards this goal.

Not included in the above figures are those with migraine who suffer from chronic daily headache, defined as headache on more than 14 days a month. This population consists of individuals with chronic migraine, including those with medication overuse headache. Epidemiological data shows that approximately 2% of the general population falls into this category^{9,11-13}.

Primary target population: This would include individuals with migraine who have headache on five days a month or more. Using conservative figures of an overall episodic migraine prevalence of 12% in the general population as determined by large American studies¹⁰ (Canadian migraine prevalence studies have shown somewhat higher rates); at least 1 % of the Canadian adult population, or at approximately 300,000 individuals would suffer from five days or more of migraine headache per month. This is the primary target population of the CMS. Most of these individuals suffer significant disability, and effective treatment (although not a cure) is potentially available for most of them. Also important, a high headache frequency is one of the main risk factors for patients to progress to a chronic daily headache pattern.

Table 3: Barriers to reducing disability from migraine in Canada identified at the Canadian Migraine Forum – 2006.

-
1. The perceived stigma of a migraine diagnosis in the minds of many in the public and in the migraine patient population. Migraine is often the subject of jokes, or thought by some to be primarily a psychological disorder.
 2. The lack of recognition of the disability caused by migraine by many in our society, including employers and co-workers.
 3. Underuse of migraine specific medications in Canada, and lack of recognition of the side effects of medication overuse, particularly overuse of non-prescription and prescription analgesics.
 4. Lack of clarity in the minds of both patients and many health professionals with regard to prophylactic medication use, resulting in the underuse of these medications.
 5. Poor availability and insufficient use of non-pharmacological approaches to migraine treatment.
-

Secondary target population: This population would include individuals with migraine and chronic daily headache. It is a secondary target of the CMS because currently available treatment is much less successful for this patient population. Therefore, even though these patients represent the most disabled end of the migraine disability spectrum, the treatment resources of the CMS would focus initially on the primary target population. At a later stage, if resources become available, the secondary target population would also become a major focus of the CMS.

THE GOALS OF THE NATIONAL CANADIAN MIGRAINE STRATEGY

The goals of the CMS would be to support an integrated approach to migraine including:

a) **Patient education for self management.** Improved patient education and training in specific skills related to migraine treatment will help patients partner more effectively with health care professionals to achieve more successful migraine management.

b) **Acute treatment of migraine attacks.** Greater use of effective evidence-based treatments for migraine attacks will reduce the disability produced by individual migraine attacks.

c) **Pharmacological and behavioural preventative treatment.** Greater use of preventative migraine medications and specific behavioural skills (stress management, trigger avoidance, self-monitoring, pacing, and relaxation techniques) will help to reduce attack frequency in those with frequent migraine attacks.

d) **Prevention of medication overuse headache.** Better awareness of the ability of medications for acute migraine attacks to cause chronic daily headache in migraine sufferers if they are used too frequently should reduce the prevalence of this unfortunate complication of migraine and its treatment.

The CMS proposes to have this integrated approach in place in every province and territory by 2013.

OBJECTIVES OF THE NATIONAL CANADIAN MIGRAINE STRATEGY

The national Canadian Migraine Strategy will:

1. Outline what constitutes optimal care for individuals with migraine in Canada.
2. Promote the development of care programs to provide this care.
3. Promote the development of educational programs for the public, for patients, and for health care professionals.
4. Promote migraine-related research.

THE CHRONIC DISEASE MANAGEMENT MODEL

The CMS is based on the concept that widespread implementation of the chronic disease management model is the best way to improve migraine care in Canada. The chronic disease management model is an integrated patient care model for providing long-term care for patients with chronic illnesses¹⁴ and usually takes the form of a multidisciplinary ambulatory care program. These programs are designed to improve the health of selected populations with chronic illnesses, and have been put forward as a way to close the gap between migraine treatment opportunities and actual practice¹⁴.

APPLICABILITY OF THE CHRONIC DISEASE MANAGEMENT MODEL TO MIGRAINE

The chronic disease management model has been applied successfully to a number of chronic conditions, most notably asthma, insulin dependent diabetes, and congestive heart failure.

These conditions have several features in common which seem to make them especially suitable for chronic disease management programs. Several of these are listed below:

1. They are complicated by acute exacerbations.
2. The exacerbations require therapy and involve expensive emergency room or inpatient management.
3. These exacerbations are largely preventable by proactive and well-coordinated ambulatory services.

Patients with migraine demonstrate, at least to some extent, all of the above. Migraine sufferers have acute migraine headache attacks, which can last anywhere from four hours to three days untreated, and which frequently require bed rest. In between attacks, most migraine sufferers are able to function quite normally, unless they also suffer from a major co-morbidity like depression. Although most individuals with migraine are able to treat their attacks at home, this treatment is not always successful. Expensive emergency room resources are required by some patients from time to time, especially if dehydration occurs because of nausea and vomiting. In fact, a five month study in an American Health Maintenance organization found the migraine sufferers accounted for a higher percentage of walk-in emergency room visits than asthmatics (1.9% versus 1.0%)¹⁵. In addition, migraine sufferers were found to more often have multiple emergency department visits during the study period.

Proactive well-coordinated ambulatory care services may have the potential to prevent migraine exacerbations to a significant degree. Both pharmacological and behavioural preventative therapies are considered to be generally underused in Canada. In a study of 606 patients with migraine referred to five headache specialty clinics in Canada, only 31% were on a preventative medication at the time of specialist consultation, whereas preventative medications were continued, prescribed, or recommended by the specialist in 70% after completion of the consultation¹⁶. Despite widespread evidence of efficacy¹⁷, behavioural interventions suitable for migraine are still either unavailable or available only at considerable cost to most Canadians. Symptomatic medication use by patients with migraine in Canada to treat their migraine headache attacks is also likely not optimal. In a 2005 population based Canadian survey, 14% of those with migraine were unsatisfied with their symptomatic migraine medication, with 5% being very unsatisfied². Given the high prevalence of migraine in the general population, this represents over 500,000 individuals with migraine who find their medication for acute migraine attacks unsatisfactory. Included in these are 200,000 Canadians with migraine who find their acute migraine medications very unsatisfactory. This is consistent with another finding in the same survey that 20% of individuals with migraine in Canada were not comfortable enough with their migraine medications to be able to effectively plan their daily activities. These findings are all the more remarkable in that only 8% of respondents with migraine in the survey listed a triptan as their principal migraine medication. Triptans are generally considered the most effective

of the migraine symptomatic medications, and one would surmise that they should be tried by most otherwise healthy patients with poor control of their migraine attacks.

Considerable evidence exists that an organized approach to migraine care can reduce morbidity. An American study examined whether patients cared for in a relatively simple coordinated headache management program would achieve reduced headache related disability compared to usual care. It was found that at six months the headache management program showed significantly improved headache related disability, quality of life, and satisfaction with treatment as compared to usual care controls¹⁸. A prospective randomized Canadian trial compared a relatively low-cost multidisciplinary treatment program for migraine with standard care from family physicians. It was found that the intervention group experienced significant improvement relative to the control group for a number of outcome measures, including pain related measures, disability experienced, and quality of life¹⁹. For patients with chronic migraine, another Canadian study found that an organized multidisciplinary program showed increased benefit compared to physician clinic based treatment on patient quality of life²⁰.

In summary, it would be expected, that patient care through a chronic disease management model could greatly reduce the need for migraine sufferers to attend emergency departments or be hospitalized for headache control. In addition, such care should reduce patient disability, improve quality of life, and improve patient satisfaction.

BASIC COMPONENTS OF A CHRONIC DISEASE MANAGEMENT PROGRAM FOR MIGRAINE

As for other chronic illness, optimal care for the patient with migraine would include the following:

1. Planned regular interaction with caregivers.
2. A care focus on prevention of exacerbations and complications.
3. Systematic assessments with attention to treatment guidelines.
4. Patient education with regard to the knowledge and skills required for effective headache self-management.
5. Links with relevant information systems.
6. Continued follow-up initiated by the program.

In the current Canadian Healthcare System where patients with migraine are cared for primarily by their family physician with occasional specialist consultation, many of the above components are not optimally available to the patient.

More specifically, for migraine, a disease management program should focus on:

1. Proper use of migraine symptomatic medications including education of the patient to use these early in the attack.
2. Preventative medications if appropriate for the patient.
3. The development of a “flare up” plan for home-use with appropriate rescue medications for times when the patient’s usual symptomatic medications fail.
4. Behavioural interventions including enhancement of patient skills in headache self-management (stress management skills, relaxation techniques, self-monitoring and pacing skills).

THE DEVELOPMENT OF A CHRONIC DISEASE MANAGEMENT PROGRAM FOR MIGRAINE

In the development of a chronic disease management program, the following three steps need to be completed:

1. Identification of the target population.
2. Development of the intervention, including an educational program for patients.
3. Development and implementation of a plan for the education of health care providers.

1. The target population:

The target population for a chronic disease management program for migraine would be the same as the target population for the CMS as discussed above. The primary target population would consist of that 1% of the general population that has migraine headaches on between 5 and 14 days a month, and suffers significant disability as a result of these. Such patients could be identified by their family physicians and referred to migraine treatment programs, or they could self-identify in response to public education programs. In either case, migraine treatment programs would work with family physicians to ensure that these patients receive optimal care.

It could be argued that many more migraine patients might benefit from a chronic disease management program for migraine, but the target population described above represents an optimal use of program resources. First of all, the more severely affected migraine sufferers account for most of the disability and reduced work performance related to migraine²¹. Secondly, good migraine management in this target migraine population may have a preventative effect in that it may reduce the number of patients who go on to develop migraine with chronic daily headache. A minority of migraine sufferers, perhaps 12%^{13,22} go on to develop a chronic daily headache syndrome over time. Our proposed target population would be at relatively high risk for migraine progression, as a high headache frequency is one of the risk factors for the development of chronic daily headache.

It could be argued that migraine patients who have already progressed to a chronic daily headache pattern (headache on more than 14 days-a-month) should also be included in the target population. While this might be desirable, inclusion of these patients would result in a very large target population (3.5% of the general population in total). As these patients are relatively more refractory to treatment than the patients with 5 to 14 days of headache, it would appear best to focus the efforts of the national CMS and its chronic disease management program, at least initially, on patients with 5 -14 days of headache per month. Patients with greater headache frequencies, for example those with headaches on 15 to 20 days a month, could also be included as resources permit. This would likely add another 0.5 to 1% of the general population to the target population.

2. The intervention:

For a chronic disease management program to be successful, it is necessary to intervene proactively with well-coordinated multidisciplinary services that will measurably improve important patient outcomes. These outcomes can include better clinical status, better functional status, better quality of life, better satisfaction with care, and lower aggregate costs. As

outlined in prior sections of this document, there seems little doubt, based upon the published literature, that a coordinated multidisciplinary treatment program could improve outcomes as measured by the first four of these outcome measures.

There also seems little doubt that overall costs related to migraine could be reduced, as migraine produces huge indirect costs related to missed work and other activities⁵. A reduction in migraine related disability should reduce these indirect costs. It remains to be shown whether direct migraine –related costs would be reduced, although less use of hospital emergency rooms and to some extent inpatient beds would contribute to this. There is sufficient evidence in the literature to design an appropriate coordinated migraine intervention, as has been done for other chronic disorders such as asthma. Three important features of a migraine intervention would be:

1. Pharmacological management, both symptomatic and prophylactic: This would be provided by physicians, although non-physician health professionals such as nurses could play a very significant role. Well designed and comprehensive clinical practice guidelines would need to be developed to provide evidence-based guidance for migraine management for health professionals and patients.
2. Patient education: This could be provided both by physicians and non-physician health professionals. This would include:
 - a) Recognition and avoidance of migraine attack triggers.
 - b) Avoidance of lifestyle factors which have the potential to increase migraine frequency.
 - c) Proper use of pharmacological agents.
 - d) Recognition and avoidance of medication overuse.
3. Acquisition of self management skills by patients: Although there are common features, each individual with migraine is unique and would need to develop an individual treatment plan with the assistance of health professionals. Most migraine attacks are precipitated and occur at home or in the workplace, and are treated there by the patient. It is therefore necessary for patients to have the necessary knowledge and skills to enable them to manage their migraine effectively. For acute attack management, these would include some behavioural skills in addition to the ability to use symptomatic migraine medications appropriately. For attack prevention, in addition to appropriate medication use, patients would learn behavioural skills such as self-monitoring, pacing, relaxation techniques, and cognitive-behavioural skills related to stress management.

3. Education plan for health care providers:

A major proportion of migraine patient care occurs in the offices of family physicians and specialists. If these physicians are to participate fully in the migraine strategy and provide the level of care which the strategy recommends, these health care providers must be educated more effectively as to what constitutes appropriate migraine care. This would include training in migraine diagnosis and in the effective use of migraine treatment guidelines. Ways will need to be found to ensure that this education occurs if effective care is to be delivered to the target population of the migraine strategy. Educational programs will also be needed for non-physician health professionals who are part of multidisciplinary migraine treatment programs, and for other non-physician health professionals who are involved in the care of patients with

migraine, for example pharmacists. These challenges have been faced before by chronic disease management programs, and the CMS will draw on the experience of other programs.

PREVENTATIVE ASPECTS OF THE NATIONAL CANADIAN MIGRAINE STRATEGY

In addition to reducing current migraine related disability in the patient population being treated, coordinated treatment programs for migraine have the potential for additional preventative benefits. A number of risk factors have been identified which increase the risk of migraine progression to a chronic daily headache syndrome, and many of these are modifiable. A coordinated disease management program for migraine should also address these risk factors. Obesity has been shown to result in an increased migraine headache frequency²³ and caffeine withdrawal and stressful life events are potent migraine attack triggers²⁴. Modifiable risk factors for migraine progression to a chronic daily headache syndrome include²⁵:

1. Symptomatic medication overuse (including analgesics and triptans).
2. Caffeine overuse.
3. Higher frequency of migraine attacks.
4. Obesity.
5. Excessive stressful life events.

Educational programs for physicians with regard to prescribing issues and patient education could help to prevent or reduce medication and caffeine overuse. Behavioural interventions and the appropriate use of prophylactic medications should be able to reduce attack frequency. Patient education programs and exercise programs may be able to reduce obesity. Stress management programs and patient mastery of relaxation techniques and pacing skills may be able to mitigate some of the negative effects of stressful life events and daily hassles on migraine frequency.

Prevention of the transformation of migraine to a chronic daily headache pattern is important, not only because it has the potential to reduce the increased pain and reduced quality of life that comes with migraine transformation, but also because it has the potential to reduce the increased costs that migraine transformation imposes both on the patient and on society. American studies have shown that patients with chronic (transformed) migraine have over three times the direct health care costs that patients with episodic migraine attacks do (\$2,357 annually versus \$777). The chronic migraine patients also have greatly increased indirect costs related to reduced productivity (lost work, etc.) as compared to episodic migraine patients (\$5,392 versus \$978). Thus for individuals with migraine, the mean total annual costs to the patient and society in this study were \$1,757 for episodic migraine as compared to \$7,750 for patients with migraine and chronic daily headache²⁶.

THE COMPONENTS OF THE NATIONAL CANADIAN MIGRAINE STRATEGY

The main components of the national CMS can be summarized as follows:

1. An outline of what constitutes appropriate migraine care for Canadians: This will be defined in guideline documents for migraine diagnosis and treatment. Other consensus documents will provide recommendations as to how this care can best be

implemented. The CMS will focus on a chronic disease management model as the most appropriate model to integrate care for migraine sufferers. The guideline documents would serve a number of functions. They would:

- a) Provide migraine management guidance for physicians and non-physician health professionals.
 - b) Serve as a focus for educational programs for health professionals.
 - c) By defining appropriate migraine care, would assist in obtaining the necessary resources for migraine treatment (medication coverage, treatment programs and facilities, etc).
 - d) Inform patients of the standard of care, and assist them in partnering with health professionals in their migraine management.
2. Educational program for health care professionals, individuals with migraine, and the general public to facilitate implementation of appropriate treatment programs. These would include programs for employers and for the workplace.
 3. A research program focused on increasing our understanding of migraine and its pathophysiology, the development and testing of new treatments for migraine, and on the evaluation of treatment programs and health care delivery systems for migraine.
 4. The development of the necessary organizations and partnerships so that the various components of the CMS can be implemented.

ORGANIZATIONAL STRUCTURES NEEDED TO DEVELOP A NATIONAL MIGRAINE STRATEGY

Fortunately, several headache-focused organizations exist in Canada to help move a national migraine strategy forward. These include the Canadian Headache Society, a physician-based non-profit organization with objectives to promote patient care, education, and research in the field of headache. A second organization, Headache Network Canada, is a charitable organization dedicated to education in headache for both patients and the public. These organizations could work with others active in headache in Canada to develop and implement the CMS.

Other stakeholders with an interest in migraine in Canada include pharmaceutical firms active in the migraine area. These "Industry Partners" are a potential source for some of the needed funding to develop a national migraine strategy. This funding could be very useful if provided in the form of unrestricted grants to the organizations developing and implementing the CMS. Once a clear national CMS has been defined, it is expected that regional health authorities and others responsible for the delivery of health care in Canada would support the development of appropriate treatment programs and facilities. The massive impact of migraine on Canadian Society would seem to mandate that this should occur.

It is proposed that centers of excellence in migraine care be created in Canada to assist in the development and implementation of the national migraine strategy. To some degree, migraine treatment centers already exist in many parts of the country, but much further development is needed. Linking these centers of excellence into a network to allow for more collaboration and coordination in migraine related activities at the national level would be an important component of the

national migraine strategy. These migraine-related activities would include patient care programs, educational programs, and research. Centers of excellence could facilitate the organized collection of data on migraine and its treatment. This in turn could greatly facilitate research and further our understanding of migraine and migraine treatment.

It is also proposed that a new entity, Headache Canada, be created as a not-for-profit organization which would link together all stakeholders in migraine who could contribute to the national migraine strategy and its implementation. These stakeholders would include the centers of excellence, the Canadian Headache Society, Headache Network Canada, other professional and lay groups with an interest in migraine, and industry partners. Industry partners would be invited to contribute to Headache Canada as non-voting members. Members of Headache Canada would include relevant societies, groups (e.g. migraine centers of excellence), institutions, corporations, and other organizations as opposed to individuals. Headache Canada would develop, promote and implement the national Canadian Migraine Strategy.

HEADACHE CANADA

The following vision, mission, goals and objectives would guide the activities of Headache Canada.

Vision: Better lives for Canadians living with migraine.

Mission: To reduce the burden imposed by migraine on individuals with migraine, their families, and Canadian Society.

Goals and objectives: To support an integrated approach to migraine management through promotion and implementation of the national Canadian Migraine Strategy.

The various component organizations of Headache Canada would contribute their special expertise to assist Headache Canada to meet its goals. For example, the Canadian Headache Society could play a leadership role in the development of the migraine treatment guidelines and physician education. Headache Network Canada could play a leadership role in patient education and public awareness programs.

Headache Canada would develop educational strategies for all its target groups. For physicians, these could focus on medical school curricula, national headache courses for neurology residents and residents from other programs, and continuing professional development programs for practicing physicians. Websites and educational newsletters for interested physicians could also be a part of this strategy. Programs would also need to be developed for pharmacists, and for other health professionals, both for those participating in organized migraine treatment programs (for example in the centers of excellence) and for those in independent practice. For patients with migraine, much of the relevant education could occur in individual treatment programs and centers of excellence, but more general education should also be available through websites, newsletters, public lectures, and through workplace programs. For the public, in addition to the foregoing, significant media activity will be necessary to develop a greater understanding of migraine in the general population.

Headache Canada would be in a strong position to encourage and develop increased research activity in migraine in Canada. Clinical research including multi-center clinical trials could be

promoted through the centres of excellence. In the same way, health outcomes research could be developed with a focus on the treatment outcomes and cost-effectiveness of specific headache treatment programs. Finally, Headache Canada could foster collaboration between clinicians and basic scientists, and encourage the development of Canadian centres of excellence in basic migraine research.

CONCLUSIONS

Migraine is a significant cause of suffering and disability in the Canadian population, and imposes a major cost on Canadian society. Much more could be done to provide better comprehensive medical care to the millions of individuals with migraine in Canada. In the same way that stroke care was revolutionized in Canada through the Canadian National Stroke Strategy, we propose that a national Canadian Migraine Strategy be developed and implemented to reduce migraine related disability in Canada. This strategy would be based on the chronic disease management model which has proved successful in several other chronic conditions with intermittent exacerbations of symptoms. The national Canadian Migraine Strategy would be a comprehensive disease management strategy which would initially target migraine sufferers with 5 to 14 days of headache per month, as these patients often suffer marked disability, and are at increased risk for the development of chronic daily headache. The core of the strategy would be to make available to patients in a coordinated manner evidence based pharmacological and behavioural treatment modalities known to be effective in migraine. It is expected that such a national migraine strategy would not only reduce migraine related disability and improve quality of life for those with migraine, but would also greatly reduce the indirect costs associated with migraine. It would have the potential to reduce direct migraine medical care costs as well.

The proposed national migraine strategy would represent a major paradigm shift in migraine care in Canada. It would include major educational and research components, and with its emphasis on a migraine self management, would empower patients to manage their migraine more effectively.

ACKNOWLEDGEMENTS

The Canadian Headache Society gratefully acknowledges support received for the Canadian Migraine Summit Meeting in the form of an unrestricted educational grant from Pfizer Canada Inc.

REFERENCES

1. Pryse-Phillips W, Findlay H, Tugwell P, Edmeads J, Murray TJ, Nelson RF. A Canadian population survey on the clinical, epidemiologic and societal impact of migraine and tension-type headache. *Can J Neurol Sci.* 1992 Aug;19(3):333-9.
2. Cooke L, Becker WJ. Migraine prevalence, disability, and treatment: Canadian women and migraine survey. Abstracts; *Can J Neurol Sci.* 2006; 33 Suppl 1:S27-8.
3. O'Brien B, Goeree R, Streiner D. Prevalence of migraine headache in Canada: a population-based survey. *Int J Epidemiol.* 1994; Oct;23(5):1020-6.
4. Leonardi M, Steiner T, Scher A, Lipton RB. The global burden of migraine: measuring disability in headache disorders with WHO's classification of functioning, disability and health (ICF). *J Headache Pain.* 2005; 6:429-40.
5. Andlin-Sobocki P, Jönsson B, Wittchen HU, Olesen J. Cost of disorders of the brain in Europe. *Eur J Neurol.* 2005 Jun;12 Suppl 1:1-27.
6. Becker WJ, Gladstone JB, Aube M. Migraine prevalence, diagnosis, and disability. *Can J Neurol Sci.* 2007; 34 Suppl 4: S3-9.
7. Becker WJ, Gawel M, Mackie G, South V, Christie SN. Migraine treatment. *Can J Neurol Sci.* 2007; 34 Suppl 4:S10-19.
8. Becker WJ, Giammarco R, Wiebe V. Moving forward to improve migraine management in Canada. *Can J Neurol Sci.* 2007; 34 Suppl 4:S20-6.
9. Radat F, Lantéri-Minet M, Nachit-Ouinekh F, Massiou H, Lucas C, Pradalier A, et al. A. The GRIM2005 study of migraine consultation in France. III: Psychological features of subjects with migraine. *Cephalalgia.* 2009; 29:338-50.
10. Lipton RB, Bigal ME, Diamond M, Freitag F, Reed ML, Stewart WF, et al. Migraine prevalence, disease burden, and the need for preventative therapy. *Neurology.* 2007 Jan 30;68(5):343-9.
11. Castillo J, Muñoz P, Guitera V, Pascual J. Kaplan Award. Epidemiology of chronic daily headache in the general population. *Headache.* 1999 Mar;39(3):190-6.
12. Scher AI, Stewart WF, Liberman J, Lipton RB. Prevalence of frequent headache in a population sample. *Headache.* 1998 Jul-Aug;38(7):497-506.
13. Lantéri-Minet M, Auray JP, El Hasnaoui A, Dartigues JF, Duru G, Henry P, et al. Prevalence and description of chronic daily headache in France. *Pain.* 2003 Mar;102(1-2):143-9.
14. Parham W. Taking a disease management approach to migraine. *Am J Manag Care.* 1999;5:S104-10.
15. Kaa KA, Carlson JA, Osterhaus JT. Emergency department resource use by patients with migraine and asthma in a health maintenance organization. *Ann Pharmacother.* 1995;29:251-6.
16. Jelinski SE, Becker WJ, Christie SN, Giammarco R, Mackie GF, Gawel MJ, et al. Clinical features and pharmacological treatment of migraine patients referred to headache specialists in Canada. *Cephalalgia.* 2006;26:578-88.
17. Rains JC, Penzien DB, McCrory DC, Gray RN. Behavioral headache treatment: history, review of the empirical literature, and methodological critique. *Headache.* 2005; 45 Suppl 2: S92-S109.
18. Matchar DB, Harpole L, Samsa GP, Jurgelski A, Lipton RB, Silberstein SD, et al. The headache management trial: a randomized study of coordinated care. *Headache.* 2008; 48: 1294-310.
19. Lemstra M, Stewart B, Olszynski WP. Effectiveness of multidisciplinary intervention in the treatment of migraine: a randomized clinical trial. *Headache.* 2002; 42:845-54.
20. Magnusson JE, Riess CM, Becker WJ. Effectiveness of a multidisciplinary program for chronic daily headache. *Can J Neurol Sci.* 2004; 31:72-9.
21. Von Korff M, Stewart WF, Simon DJ, Lipton RB. Migraine and reduced work performance: a population-based study. *Neurology.* 1998; 50:1741-5.
22. Henry P, Auray JP, Gaudin AF, Dartigues JF, Duru G, Lantéri-Minet M, et al. Prevalence and clinical characteristics of migraine in France. *Neurology.* 2002; 59:232-7.
23. Bigal ME, Lipton RB. Obesity is a risk factor for transformed migraine but not chronic tension-type headache. *Neurology.* 2006 Jul 25;67(2):252-7.
24. Scher AI, Stewart WF, Buse D, Krantz DS, Lipton RB. Major life changes before and after the onset of chronic daily headache: a population-based study. *Cephalalgia.* 2008 Aug;28(8):868-76.
25. Bigal ME, Lipton RB. Modifiable risk factors for migraine progression. *Headache* 2006; 46(9):1334-43.
26. Munakata J, Hazard E, Serrano D, Klingman D, Rupnow MF, Tierce J, et al. Economic burden of transformed migraine: results from the American Migraine Prevalence and Prevention (AMPP) Study. *Headache.* 2009 Apr;49(4):498-508.