

Brief Communication

Headache Education in Canadian Medical Schools

Meagan Guay^{1,2} , Ana Marissa Lagman-Bartolome^{2,3,4}  and Christine Lay²

¹Division of Neurology, St. Joseph's Hospital, McMaster University, Hamilton, Canada, ²Centre for Headache, Women's College Hospital, University of Toronto, Toronto, Canada, ³Division of Neurology, The Hospital for Sick Children, Toronto, Canada and ⁴Division of Neurology, London Health Sciences, Western University, London, Canada

ABSTRACT: This study aims to gain a better understanding of the current scope of headache education received in Canadian medical schools. The Women's College Hospital Centre for Headache at the University of Toronto, Canada, distributed a questionnaire to administrators and physicians involved in medical student education at Canadian medical schools and gathered information surrounding headache education. Overall, the degree of headache education varied between schools in regard to the hours of training that occurred and year the training took place. This survey provides an initial insight into the current standards of headache-specific education in Canadian medical schools.

RÉSUMÉ : L'enseignement lié aux céphalées dans les facultés de médecine canadiennes. Cette étude vise à mieux comprendre la portée actuelle de l'enseignement sur les céphalées dispensé dans les facultés de médecine canadiennes. Le *Women's College Hospital Centre for Headache* de l'Université de Toronto (Canada) a ainsi distribué un questionnaire aux administrateurs et aux médecins impliqués dans la formation des étudiants dans les facultés de médecine canadiennes, ce qui a permis de collecter des informations sur l'enseignement portant sur les céphalées. Dans l'ensemble, le niveau de formation sur les céphalées varie d'une faculté à l'autre en ce qui concerne le nombre d'heures de formation et l'année pendant laquelle cette formation est dispensée. En somme, cette enquête offre un premier aperçu des normes actuelles de formation portant sur les céphalées au sein des facultés de médecine canadiennes.

Keywords: Headache; postgrad medical education; neurology-education

(Received 5 December 2023; date of acceptance 8 December 2023)

Primary headache disorders remain one of the most common disabling disorders worldwide.¹ In 2016, almost 3 billion individuals were estimated to have a headache disorder, and of these over 1 billion were migraine.² In 2010/2011, Statistics Canada reported that an estimated 8.3% of Canadians had a diagnosis of migraine. This was highly comorbid with depression and had a significant impact on quality of life.³ In 2011, the World Health Organization completed a global inquiry of headache disorders and patient management. This review highlighted the widespread neglect and inadequate management of headache disorders worldwide.⁴ This inquiry found that only 4 hours of dedicated headache teaching was completed during undergraduate medical training. It highlighted that global inadequacies of treatment and management of headache disorders ultimately may be traced back to medical students' lack of early exposure and neglect of basic education in headache medicine.⁴

In the over 10 years since the publication of the inquiry, minimal steps have been taken in the acquisition of knowledge surrounding headache education in North American medical schools or development of a unified headache medicine curriculum. Because of this, there remains a high rate of delayed diagnosis, misdiagnosis, and under treatment of headache

disorders which places a significant burden on the healthcare system and leads to significant disability for those living with migraine and other headache disorders. This study aims to complete a survey of Canadian medical schools to gain a better understanding of the current level of headache education medical students receive during their training.

The Women's College Hospital Centre for Headache at the University of Toronto, Canada, distributed a voluntary email survey of 11 questions to administrators and physicians involved in medical student education at all 17 accredited Canadian medical schools. The survey was initially distributed to the Postgraduate Medical Education office at each university. Reminder emails were sent on a weekly basis. If no response was obtained, the surveys were sent directly to the neurology department. Contact details were acquired through each university's official website. Dependent on the information available on each website, the surveys were sent to neurology program administrators, program directors, or neurology physicians sitting on program education committees. To mitigate nonresponse bias, follow-up emails were again sent on a weekly basis over a period of 8 weeks. The survey results were obtained between October 2022 and January 2023. Questions that were

Corresponding author: M. Guay; Email: meagan.guay@medportal.ca

Cite this article: Guay M, Lagman-Bartolome AM, and Lay C. Headache Education in Canadian Medical Schools. *The Canadian Journal of Neurological Sciences*, <https://doi.org/10.1017/cjn.2023.327>

© The Author(s), 2023. Published by Cambridge University Press on behalf of Canadian Neurological Sciences Federation. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

unanswered by respondents were not included in the final analysis. Consent was obtained from all respondents.

The questionnaire distributed gathered information surrounding headache education medical students receive during their postgraduate training. This included the hours of teaching, year of training, the type of training received, and who provided the education sessions. The study also gathered information regarding the amount of exposure medical students received in other neurology subspecialties in order to compare and contrast education among the various neurology subspecialties.

Of the 17 accredited Canadian medical schools who received the questionnaire, seven responded, with a response rate of 41%. Of the respondents, four (57%) were from medical schools in Ontario, two (30%) were from medical schools in western Canada, and one respondent did not disclose which medical school they represented. All seven schools responded that medical students had exposure to general neurology teaching through lectures, all of which were led by attending neurologists.

All responding schools offered some form of exposure to or education in headache, the majority (57%) reporting that this was offered through didactic teaching or in a small group setting. Two schools stated this teaching was led by an accredited headache specialist. The majority (57%) offered headache teaching in 1 year of medical school, most commonly during second year. Three schools (43%) reported that medical students were exposed to headache education over 2 or more years of training. Four schools offered medical students exposure to outpatient neurology clinics, including headache, movement disorder, epilepsy, multiple sclerosis, stroke/neurovascular, cognitive, and general neurology clinics. Three of these included the option of ambulatory headache clinic exposure. This was offered either as a selective or through shadowing. The total combined hours of headache exposure received by medical students throughout their training ranged from less than 60 minutes (14%) to over 5 hours (14%). The majority (57%) offered 2–5 hours of dedicated headache teaching. Headache education was well received by students at 57% of the responding schools, and 43% of respondents reported being unsure of the medical students' opinion of headache education.

Overall, the degree of headache education varied significantly between schools regarding the year of training the education occurred, the number of hours of education, and the type of training that took place. Most medical schools who responded to the survey stated that headache education typically occurred during a single year of medical school, with the majority of schools offering only 2–5 hours of education. While three schools stated students had the option to attend headache-specific outpatient neurology clinics information on the total hours of headache clinic exposure and the proportion of medical students who attended these clinics was not gathered.

The data surrounding headache education in Canadian medical schools are limited. However, two studies on headache education in North America included Canadian medical schools and had similar findings. In 2021, a single systematic review of general pain education in North America independently evaluated results from the 13 Canadian medical schools that responded. Among the subtopics of pain education, headache education was a required subtopic in only three (23%) Canadian medical schools. However, this was higher than that of American medical schools, of the respondents only 12% taught headache as a subtopic.⁵ A survey conducted throughout North America in 2021 included six Canadian medical schools and found that 85% required only one mandatory headache education session, while less than 10%

offered four or more. Of the respondents, 30%–40% felt that their headache education did not adequately prepare their students for clinical work.⁶

An additional study completed in 2017, which included only American medical schools, found that headache education varied from none to greater than 5 hours, with the majority having 3–5 headache medicine teaching hours. This study also highlighted the disproportionate allocation of teaching compared to other topics. Of the family medicine and neurology program directors who completed the survey, 68% felt that headache training during medical school was inadequate. Despite this, most medical schools did not have any plans to improve their headache education.⁷

Our study was limited by the small sample size secondary to the lack of respondents completing the survey. The presence of this responder bias may have led to an overrepresentation of the hours of headache education conducted in Canadian medical schools. The schools which responded may have represented schools with increased dedicated headache medicine education. As well, the majority of responding schools were located in Ontario, with a smaller proportion located in western Canada. There were no respondents from schools in the eastern or central Canadian regions. One respondent opted not to disclose which university they represented. This response pattern may be influenced by the proportion of headache specialists located in these regions. The majority of Canadian headache specialists are located in Ontario, with a paucity in the eastern and central regions. This could indicate a need for the training and employment of headache specialists in these regions to aid with the development and implementation of regional headache programs.

In conclusion, data are limited on the current degree of headache medicine-specific education received by medical students in North America. This limitation is magnified in Canadian medical schools. However, considering the recent advances in targeted migraine treatment, as well as the resultant high burden of disability, the amount of headache education appears to be disproportionate and drastically inadequate. Many physicians remain unfamiliar with the recent advances in migraine management and may also lack the basic knowledge to adequately diagnose and treat these headache disorders. This survey provides initial insight into the current landscape of headache medicine education in Canadian medical schools and highlights the lack of concise and unified headache education throughout the country.

Future studies are needed to provide further insight into the current scope of medical student education in Canada with the ultimate goal of cultivating, improving, and standardizing headache medicine education in medical schools.

Funding. Dr Lay has received research support from Lundbeck, Teva, AbbVie, and Miravo and has been involved for consulting for AbbVie, Teva, Miravo, Pfizer, and Lundbeck. Dr Lagman has been involved in Advisory Boards for TEVA, Pfizer, Lundbeck, and Miravo/Searchlight Pharma. She has received Research/Unrestricted Educational Grant from Amgen, Lundbeck, TEVA, Abbvie, and royalties as author from the Canadian Pharmacists Association. Dr Guay has been involved in Advisory Boards for Abbvie and Miravo/Searchlight and received royalties as author from the Canadian Pharmacists Association.

Competing interests. None.

References

1. GBD 2019 Diseases and Injuries Collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the global burden of disease study 2019. *Lancet*. 2020;396:1204–22.

2. Stovner LJ, et al. Global, regional, and national burden of migraine and tension-type headache, 1990-2016: a systematic analysis for the global burden of disease study 2016. *Lancet Neurol.* 2018;17:954–76.
3. Ramage-Morin P, Glamour H. Prevalence of migraine in the Canadian household population. *Health Rep.* 2014;25:10–6.
4. World Health Organization. Atlas of headache disorders and resources in the world 2011. Geneva, Switzerland: World Health Organization; 2011.
5. Mezei L, Murinson B. Pain education in North American medical schools. *J Pain.* 2011;12:1199–208.
6. Pace A, Orr SL, et al. The current state of headache medicine education in the United States and Canada: an observational, survey-based study of neurology clerkship directors and curriculum deans. *Headache.* 2021;61:854–62.
7. Gallagher RM, Alam R, et al. Headache in medical education: medical schools, neurology and family practice residencies. *Headache.* 2005; 45:866–73.