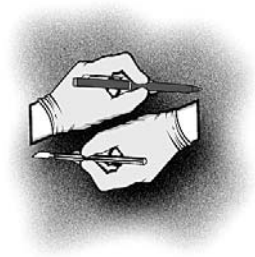



# A comparative analysis of the perceived continuing medical education needs of a cohort of rural and urban Canadian family physicians

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**Objective:** To assess the perceived continuing medical education (CME) needs of a cohort of Canadian family physicians.
**Methods:** We distributed a questionnaire survey to Canadian family physicians who became Certificant members of the College of Family Physicians in 2001 and practised outside the province of Quebec. Main outcome measures were self-reported CME needs, professional development needs and preferences for CME delivery methods.
**Results:** We distributed 482 surveys and 197 questionnaires were returned for a response rate of 40.9%. Significant differences between rural and urban respondents' self-reported CME needs were found in the clinical areas of dermatology, endocrinology, emergency medicine, musculoskeletal, ophthalmology, otolaryngology, psychiatry and urology. Generally, a greater proportion of rural respondents reported significantly higher CME needs in emergency medicine. Urban respondents reported a significant preference for consulting colleagues as a method of CME, while rural respondents reported a significant preference for videoconferencing.
**Conclusion:** Self-reported CME needs and preferences for CME delivery methods differ on the basis of region of practice and size of the community in which family physicians' practise.

**Objectif :** Évaluer les besoins perçus en éducation médicale continue (EMC) d'une cohorte de médecins de famille canadiens.
**Méthodes :** Nous avons distribué un questionnaire à des médecins de famille du Canada qui ont obtenu un certificat du Collège des médecins de famille en 2001 et pratiquaient en dehors du Québec. Les principales mesures de résultats étaient les besoins autodéclarés en EMC, les besoins en perfectionnement professionnel et les méthodes privilégiées de prestation de l'EMC.
**Résultats :** On a distribué 482 questionnaires dont 197 on été renvoyés, ce qui donne un taux de réponse de 40,9 %. On a constaté des différences importantes entre les besoins autodéclarés en EMC des répondants ruraux et urbains dans les domaines cliniques suivants : dermatologie, endocrinologie, médecine d'urgence, appareil musculosquelettique, ophtalmologie, otolaryngologie, psychiatrie et urologie. En général, un pourcentage plus élevé de répondants ruraux ont signalé des besoins beaucoup plus élevés d'EMC en médecine d'urgence. Les répondants urbains ont signalé une préférence importante pour la consultation de collègues comme méthode d'EMC, tandis que les répondants ruraux ont affirmé préférer de loin la vidéoconférence.
**Conclusion :** Les besoins autodéclarés en EMC et les préférences quant aux modes de prestation diffèrent en fonction de la région et de la taille de la communauté où pratiquent les médecins de famille.

## Introduction

It has been suggested that the continuing medical education (CME) needs of rural physicians are unique and varied.[1–3] Several studies have examined the differences between the rural and urban physician's CME needs and the findings indicate there are distinct differences, influenced in part by the nature of the medical practice and the distance from major urban areas.[2,4] A number of authors have suggested that the farther rural physicians are from large urban health care resources, the more knowledgeable and competent they must be in a greater number of clinical areas.[5–7] Research has indicated that rural family physicians generally practise in a greater number of procedural areas than their urban counterparts.[8–10] In rural areas with a small hospital, the rural physician's scope of practice can include office-based family practice, house calls and nursing home visits, and hospital-based medicine (e.g., anesthesia, obstetrics, emergency care and even surgery).[7]

Several authors have suggested that physicians entering rural practice do not feel prepared in relevant clinical skills and procedures for rural practice.[11–13] Graduates of Canadian family medicine programs have also reported low levels of confidence and competence in their procedural and technical skills.[14–16] Van der Goes and collagues[17] found that Canadian family practice residency programs have varying expectations of procedural skills for their residents. Norris and collagues[18] suggest that better attention to the type of training provided during medical school might help to offset the effects of professional isolation, reduce dissatisfaction reported by rural providers and, in turn, enhance both rural recruitment and retention. Norris and colleagues conducted a needs assessment of family physicians in the United States who had entered rural practice within 3 years of residency. Respondents reported inadequate preparation in areas related to allergy, rehabilitation medicine, many forms of counselling, advanced and operative obstetrics, pediatric trauma care, and nutrition.

Access to CME is believed to be an important issue for rural physicians because of the scope of practice and professional isolation of rural medicine. In one study, Blackwood and McNab[19] surveyed family physicians who were active members of the College of Family Physicians of Canada (CFPC) and who lived and practised in rural areas. About 36% of respondents felt that they were not adequately trained for rural practice and at least 20% felt that they were not adequately trained in obstetrics, emergency medicine, anesthesia and surgery. Of the respondents, 39.8% identified CME as an issue of concern and 32% felt that local CME initiatives were inadequate. Newbery[20] has suggested that newly graduating physicians are often choosing not to practise in rural communities because they do not have the confidence, the skills or the abilities to cover rural emergency departments and offer the required obstetric services.

Several studies have used questionnaire surveys to evaluate the effectiveness of, and inform the design of, postgraduate family medicine curricula.[21–25] The questionnaire survey has also been used as a common methodology for conducting needs assessment in medical education.[26] In the CME literature, a number of studies have reported using the questionnaire as an instrument for collecting needs assessment information. These studies include the use of the questionnaire to collect data related to discipline-specific learning needs such as the recognition and management of mental health problems, family physicians' perceptions of asthma management, palliative care and rural physician CME needs.[27–30]

The objective of our study described herein was to assess the perceived CME needs of a cohort of Canadian family physicians.

## Methods

In February 2005, we distributed a total of 482 questionnaires to Canadian family physicians who became Certificant members (CCFPs) of the CFPC in 2001 and were practising outside the province of Quebec. The questionnaire was distributed to respondents following the principles of the Dillman Total Design Method.[31,32] The questionnaire encompassed 3 sections:

- Section A (Continuing Medical Education) — a list of patient problems and associated competencies or skills relevant to family medicine;
- Section B (Professional Development) — a list of management skills and associated topic areas relevant to family medicine;
- Section C (Respondent Characteristics) — demographic, education and practice characteristics of respondents.

Sections A and B consisted of items that were adapted from the list of "Rural Family Medicine Problems and Associated Skills" from the Report of the Working Group on Postgraduate Education for Rural Family Practice — Appendix 2.[33] Using a checklist, respondents were asked to check those

items that represented areas of high CME or continuing professional development (CPD) need. The questionnaire was piloted before distribution and ethics approval for this study was received through the Human Investigations Committee of Memorial University of Newfoundland. Responses were analyzed using the Statistical Package for the Social Sciences (SPSS 11.0 for Windows, SPSS Inc., Chicago, Ill.).

## Results

Questionnaires were received from 197 respondents for a response rate of 40.9%. The majority of respondents (65.5%) graduated from medical school in 1999 and completed their family medicine residency at a Canadian university (85.5%). A summary of the respondents' scope of clinical practice as well as the areas of practice reported by Certificant members of the CFPC in the 2004 National Physician Survey (NPS)[34] are presented in Table 1. The majority (80.7%) of respondents reported that they practised family medicine, which was comparable to the CCFP population (81.8%) as reported by the 2004 NPS. However, a higher proportion of survey respondents reported practise in emergency medicine (44.2% v. 32.9%), whereas a lower proportion reported practise in geriatrics (38.6% v. 52.4%) and psychotherapy (19.3% v. 44.0%) when compared with the reported practice areas of CCFP respondents to the 2004 NPS.

Respondents' current practice location was categorized into 4 regions: Atlantic Canada (Newfoundland and Labrador, Nova Scotia, New Brunswick and Prince Edward Island), Ontario, Western Canada (Manitoba, Saskatchewan, Alberta and British Columbia) and the Territories (Yukon, Northwest Territories and Nunavut). Figure 1 summarizes the proportion of survey respondents by each region as well as the proportion of CCFP respondents by region as reported by the 2004 NPS.[34] A large proportion of survey respondents (44.9%) reported practising in Ontario, while 35.2% practised in Western Canada.

The majority of respondents (80.4%) reported practising in an urban area (population > 10 000). Of these respondents, 32.5% practised in communities with populations of more that 250 000, 30.9% practised in communities with populations between 50 000 and 250 000, and 17.0% practised in communities with populations between 10 000 and 49 999. Nineteen percent (19.6%) indicated practising in a rural area (population < 10 000). According to the 2004 NPS[34] results, about 12.7% of CCFP respondents reported that they served a primarily rural, geographically isolated or remote population.

Table 2 summarizes respondents' highest ranked CME needs based on the patient problems and associated topic or competency areas presented on

**Table 1. Respondents' scope of clinical practice**

| Type of practice | 2001 CCFP respondents, no. (and %) | Actual CCFP population,* % |
|---|---|---|
| Family medicine | 159 (80.7) | 81.8 |
| Emergency medicine | 87 (44.2) | 32.9 |
| Inpatient | 84 (42.6) | NA |
| Geriatrics | 76 (38.6) | 52.4 |
| Palliative care | 76 (36.5) | 41.0 |
| Walk-in clinic | 71 (36.0) | NA |
| Obstetrics and intrapartum | 43 (21.8) | 26.9† |
| Psychotherapy | 38 (19.3) | 44.0 |
| Aboriginal health care | 32 (16.2) | NA |
| Other | 24 (12.2) | NA |
| Surgery | 18 (9.1) | 8.6 |
| Inner-city medicine | 14 (7.1) | NA |
| Anaesthesia | 7 (3.6) | 4.0 |

CCFP = certificate, College of Family Physicians; NA = not applicable.
*2004 National Physician Survey.[34]
†Obstetrics only.

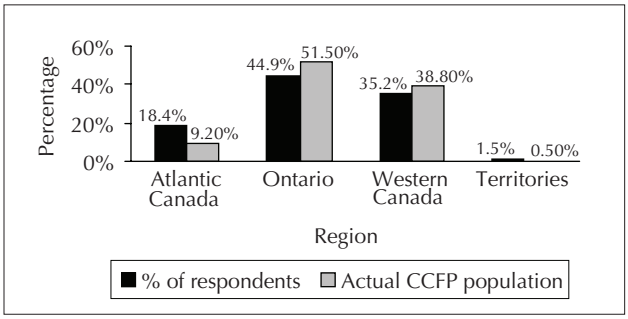


Fig. 1. Respondents' current region of practice compared with the actual CCFP (certificate, College of Family Physicians) population reported in the 2004 National Physician Survey.[34]

**Table 2. Respondents' self-reported CME needs***

| CME needs | No. (and %) of respondents |
|---|---|
| Common and serious skin conditions | 146 (74.1) |
| Congestive heart failure: basic and complex management | 134 (68.0) |
| Approach to proteinuria | 134 (68.0) |
| Management of headaches | 132 (67.0) |
| Thyroid disorders | 130 (66.0) |
| Modern-day care for TIA and stroke patients | 128 (65.0) |
| Travel medicine | 124 (62.9) |
| Renal failure: acute and chronic | 123 (62.4) |
| Investigation of hematuria | 122 (61.9) |
| Anemias: determining the cause | 122 (61.9) |
| The red eye | 121 (61.4) |
| Low back pain management | 119 (60.4) |

CME = continuing medical education; TIA = transient ischemic attack.
*Represents items selected by at least 60.0% of respondents.

the questionnaire. The highest ranked topic, "common and serious skin conditions," was selected by over 74% of respondents. High CME need was also reported for "congestive heart failure" (68.0%), "approach to proteinuria" (68.0%) and "management of headache" (67.0%).

A comparison of CME needs across regions using chi-squared analyses revealed significant differences at a $p < 0.05$ level for specific patient problems and associated topics or competencies in the clinical areas of dermatology, emergency medicine, gastroenterology, hematology, minor surgery and palliative care. A larger proportion of Atlantic Canadian respondents reported a high need for CME on "care of the diabetic foot" ($p = 0.044$), "disaster planning and management" ($p = 0.007$), "jaundice through the spectrum of life" ($p = 0.037$) and "family issues; advance directives" ($p = 0.023$). A larger proportion of Ontario respondents reported a high need for CME on "emergencies in sickle cell patients" ($p = 0.024$), while a larger proportion of western Canadian respondents reported a high need for "minor office procedures for family physicians" ($p = 0.010$).

Table 3 summarizes respondents' CME needs for each of the patient problems and associated topic or competency areas presented on the survey by the size of the community in which they practise (rural < 10 000 or urban > 10 000). A comparison of CME needs between rural and urban respondents using chi-squared analyses revealed significant differences at a $p < 0.05$ level in the clinical areas of dermatology, endocrinology, emergency medicine, musculoskeletal, ophthalmology, otolaryngology, psychiatry and urology. Emergency medicine was the clinical area that revealed the most profound differences. Generally, a larger proportion of rural respondents reported CME needs related to "the septic baby" (57.9% v. 41.0%; $p = 0.045$), "toxicology" (60.5% v. 34.0%; $p = 0.003$), "the blue baby" (52.6% v. 35.9%; $p = 0.045$), "the unconscious patient" (60.5% v. 29.5%; $p = 0.000$) and "shock recognition and stabilization" (44.7% v. 19.9%; $p = 0.002$). A larger proportion of rural respondents also reported CME needs pertaining to "reduction of common and critical joint dislocations" (57.9% v. 31.4%; $p = 0.002$), "ENT (ear, nose and throat) procedures" (65.8% v. 42.3%; $p = 0.008$), "the suicidal patient" (47.4% v. 30.8%; $p = 0.043$) and "the spectrum of prostate diseases" (52.6% v. 35.9%; $p = 0.45$).

Table 4 summarizes respondents' needs for each of the professional development topic areas by the size of the community in which they practise. There were no significant differences at a $p < 0.05$ level on the basis of the size of the community in which

**Table 3. Overall CME needs by community size***

| CME needs | Rural, < 10 000 people, no. (and %) of respondents | Urban, > 10 000 people, no. (and %) of respondents |
|---|---|---|
| Approach to proteinuria | 30 (78.9) | 102 (65.4) |
| Chronic ulcer care | 29 (76.3) | NA |
| Thyroid disorders | 29 (76.3) | 99 (63.5) |
| Common and serious skin conditions | 29 (76.3) | 115 (73.7) |
| Renal failure: acute and chronic | 28 (73.7) | NA |
| Investigation of hematuria | 27 (71.1) | NA |
| Low back pain management | 27 (71.1) | NA |
| Management of headaches | 26 (68.4) | 104 (66.7) |
| Anemias: determining the cause | 26 (68.4) | 95 (60.9) |
| The red eye | 25 (65.8) | 94 (60.3) |
| ENT procedures: nasal packing; removal of foreign bodies; ear syringing | 25 (65.8) | NA |
| Assessing limps and other gait problems | 25 (65.8) | NA |
| Congestive heart failure: basic and complex management | 24 (63.2) | 108 (69.2) |
| Modern day care of TIA and stroke patients | 24 (63.2) | 103 (63.2) |
| Post-MI care and long-term management | 23 (60.5) | NA |
| Toxicology | 23 (60.5) | NA |
| The unconscious patient | 23 (60.5) | NA |
| Hepatitis review and update | 23 (60.5) | NA |
| Drugs in pregnancy | 23 (60.5) | NA |
| Use of MRI, ultrasound, CT, nuclear medicine and interventional techniques | 23 (60.5) | NA |
| Travel medicine | NA | 102 (65.4) |
| The complex type 2 diabetes patient | NA | 96 (61.5) |

CME = continuing medical education; NA = not applicable; ENT = ear, nose and throat; TIA = transient ischemic attack; MI = myocardial infarction; MRI = magnetic resonance imaging.
*Represents items selected by at least 60.0% or respondents.

respondents practise and their self-reported professional development needs. Figure 2 summarizes respondents' preferred delivery methods for CME/CPD. Most rural and urban respondents indicated a preference for "reading journals and books," "one-day conferences" and "attending CME lectures and rounds." Chi-squared analyses revealed significant differences at a $p < 0.05$ level between rural and urban respondents with regard to preferred CME method. A larger proportion of urban respondents reported a preference for "consulting colleagues" (46.2% v. 28.9%; $p = 0.040$), whereas a larger proportion of rural respondents reported a preference for "videoconferencing" (18.4% v. 5.8%; $p = 0.019$).

## Discussion

Significant differences between regions were identified for patient problems and associated topics or competencies in the clinical areas of dermatology, emergency medicine, gastroenterology, hematology, minor surgery and palliative care. The greatest differences between rural and urban physicians' self-reported CME needs were in the emergency medicine area. These results may be reflective of different community and patient demographic characteristics, population health issues, variations in scopes of practice between physicians in these different regions and communities, and even differences between postgraduate family medicine curricula across the country. The literature certainly does suggest that the rural physician's scope of practice is generally broader than the urban physician's and as a result the rural physician must maintain competency in a wider array of knowledge and skill.

The results from the study suggest that there are differences between physicians in terms of their preferred method of CME and that this is also influenced by the region and community of practice. Urban respondents reported a preference for consulting colleagues, while rural respondents reported a preference for videoconferencing. Respondents from western Canada reported a greater preference for online CME and accessing or reviewing Internet resources, compared with their colleagues from other regions. The difference between rural and urban respondents in particular and in their preferred CME methods may be influenced by the characteristics of rural versus urban practice, the extent of geographic isolation or remoteness, and access to CME. Urban respondents are more likely to have greater opportunities for consulting with colleagues, whereas rural respondents are more likely to have access to CME through tele-education methods, such as videoconferencing.

The results of this study do raise the importance of identifying and validating the various contextual factors that may influence family medicine practice

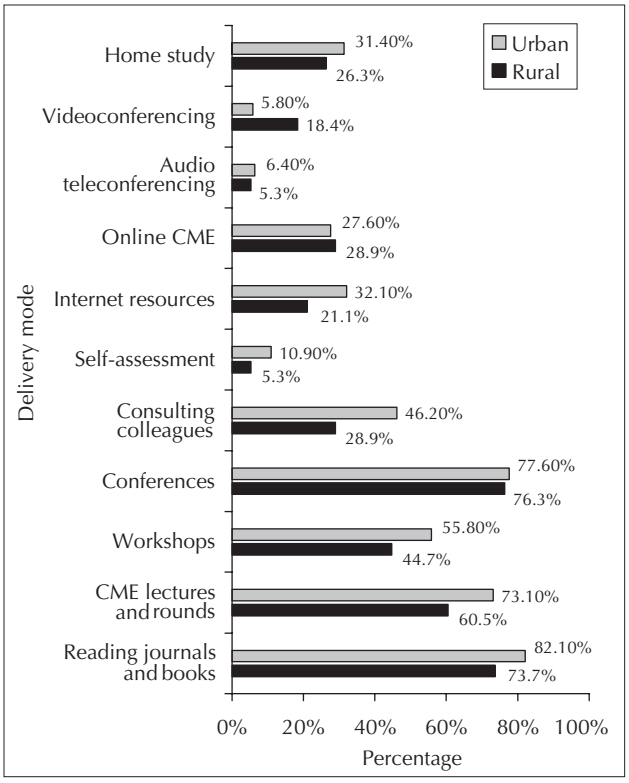


Fig. 2. Respondents' preferred delivery mode for continuing medical education (CME) and continuing professional development.

**Table 4. Professional development needs by community size**

| Professional development needs | Rural, < 10 000 people, no. (and %) of respondents | Urban, > 10 000 people, no. (and %) of respondents |
|---|---|---|
| Evidence-based therapeutic management decision making | 15 (39.5) | 43 (27.6) |
| Electronic health records | 14 (36.8) | 49 (31.4) |
| Accessing and using online medical resources | 14 (38.6) | 40 (25.6) |
| Improving office efficiency | 12 (31.6) | 63 (40.4) |
| Ensuring practice meets legal obligations | 11 (28.9) | 43 (27.6) |
| Teaching in an office or ambulatory setting | 11 (28.9) | NA |
| Personal and financial management | NA | 47 (30.1) |

NA = not applicable.

in different regions, communities and practice settings. The specification of these factors as well as due consideration of them in the design of CME programming and post-graduate family medicine training is critical to ensuring that medical education programming is responsive to the needs of practitioners and the practice settings in which they may find themselves.

The main limitation of the study is that the results represent the self-reported needs of a cohort of family physicians practising in Canada outside the province of Quebec. The over-representation of certain respondent groups, compared with the 2004 NPS results, may also limit generalizability of the findings. The proportion of 2001 CCFP survey respondents from Atlantic Canada and those reporting practice in rural areas may have been over-represented in the respondent sample when compared with the 2004 NPS results. Because the respondent population was limited to a single CCFP cohort, we were also unable to examine in greater detail the relation of such variables as practice experience to self-reported needs; we were not able to make broader level generalizations because of this. A key strength of the study was the questionnaire and the validity of the items that composed the survey instrument. The needs assessment questionnaire, which was developed for the study, was brief, easy to complete and could serve as a model instrument for conducting similar survey-based, needs assessment studies.

## Conclusion

The results of this study suggest that for this cohort of family physicians, CME needs and preferences for CME delivery methods differed on the basis of region of practice as well as the size of the community in which the family physician practices.

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**Competing interests:** None declared.

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