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CME needs of rural physicians: How do we compare to our urban colleagues?

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Abstract

Objective: A needs assessment questionnaire was developed and used to identify the perceived continuing medical education (CME) needs of physicians in Newfoundland and Labrador. The survey was conducted between March and June 1997. A total of 867 questionnaires were distributed to all licensed and practising physicians (specialists and family physicians). Three hundred and thirty-nine (339) questionnaires were returned, for a response rate of 39%.

Results: The respondent population was representative of the actual physician population in the province. There were marked differences between the perceived clinical learning needs of urban physicians and those of rural physicians. Rural physicians reported that they participated in a fewer number of formal CME programs, attended a smaller number of pharmaceutical company sponsored events and spent more time in informal self-directed study than urban physicians. They also reported a greater need for advanced clinical skills and emergency medicine training.

Conclusion: The results suggest that several differences between the CME needs of urban and rural physicians continue to exist. The majority of these differences are related to the geographic isolation of rural physicians and their distance from larger urban centres and from the only medical school in the province, which is located in St. John's.

Résumé

Objectif : On a produit un questionnaire d'évaluation des besoins qu'on a utilisé pour définir les besoins perçus en éducation médicale continue (EMC) des médecins de Terre-Neuve et du Labrador. Le sondage a été réalisé entre mars et juin 1997. On a distribué au total 827 questionnaires à tous les médecins autorisés et actifs (spécialistes et médecins de famille). Trois-cent-trente-neuf (339) questionnaires ont été retournés, ce qui donnait un taux de réponse de 39 %.

Résultats : La population des répondants était représentative de la population réelle des médecins de la province. On a constaté des différences marquées entre les besoins perçus en apprentissage clinique chez les médecins urbains par rapport à ceux des médecins ruraux. Les médecins ruraux ont signalé qu'ils avaient participé à un nombre plus restreint de programmes structurés d'EMC, assisté à un nombre plus limité d'activités commanditées par des sociétés pharmaceutiques et consacré plus de temps à des études autodirigées non structurées que les médecins urbains. Ils ont aussi déclaré avoir davantage besoin de formation en techniques cliniques avancées et en médecine d'urgence.

Conclusion : Les résultats indiquent qu'il continue d'exister plusieurs différences entre les besoins en EMC des médecins urbains et ceux des médecins ruraux. La majorité de ces différences sont liées à l'isolement géographique des médecins ruraux et à leur éloignement des grands centres urbains, ainsi que de la seule faculté de médecine de la province, qui se trouve à St. John's.

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Introduction

The practice of medicine is being updated and changed constantly as a result of new clinical findings or research. These changes have a direct impact on medical practitioners, who must be able to maintain their competencies in light of new developments and advances in medical knowledge. Physicians engage in a variety of informal and formal continuing medical education (CME) activities throughout their careers. Several meta review studies of the outcomes and impact of CME programs have suggested that well organized and planned learning activities, based on the collection of information regarding physicians' learning needs, can be effective in

developing and enhancing the knowledge and skills of practitioners. They can also be effective in influencing physicians' behaviour and, to a lesser extent, in having an impact on the health outcomes of patient populations.1-3

An important procedure medical educators use in the design, development, planning and evaluation of CME programs is the needs assessment. "Needs assessment" refers to a process by which the adult learners' opinions, feelings and educational needs are identified or diagnosed.4 The use of a needs assessment strategy has been advocated by several authors in the continuing professional education and adult education fields as a critical component of continuing education program planning and the instructional design process.5-9 According to Mann10 the questionnaire survey remains one of the most common methods for conducting needs assessment in medical education. In the CME literature, several studies have used the questionnaire as an instrument for collecting needs assessment information. For example, data related to CME program direction,10,11 discipline-specific learning needs (e.g., recognition and management of mental health problems),12 AIDS education,13 knowledge of environmental or occupational medicine,14 specialist anesthetists practices,15 physicians' knowledge of dermatology,16 and family physicians' perceptions regarding asthma management.17 A review of these studies suggests that a major element of effective program planning, development and evaluation in CME involves the identification and inclusion of the views of the learner.

The purpose of this paper is to provide an overview of the results of a needs assessment questionnaire that was distributed to all licensed and practising physicians in Newfoundland and Labrador. The questionnaire survey was conducted between March and June 1997. The results provide an interesting account of the experiences and opinions of these physicians and of their involvement in CME programming. Because of the diverse geographic distribution of these physicians and the attempts by Memorial University of Newfoundland's Office of Professional Development to address the CME needs of both urban and rural physicians in an equitable, effective and efficient manner, the results of the questionnaire were analyzed and reported based on the needs of rural and urban physicians. This method of reporting provides a unique perspective of the distinct learning needs that exist between these two physician populations. The findings have guided the Office of Professional Development in its operational and long-term (strategic) planning efforts.

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Methods

A questionnaire was developed and distributed to all licensed and practising physicians (specialists and family physicians) in Newfoundland and Labrador. The items on this survey tool were designed to collect information on the values, opinions, experiences and observations of physicians. Specifically, information was collected on demographics (area of specialty, location

of practice), learning patterns (time spent on learning activities, use of CME resources, use of the Maintenance of Competence Diary [MOCOMP] and use of practice audit), level of participation in formal CME activities, learning needs (clinical skills, professional development and technologic needs), perceptions of the availability of CME programs, and learning method preferences. The majority of questions were close ended, and respondents were required to use Likert- or ranking-type scales. There were several open-ended questions that did allow for elaboration.

A total of 867 questionnaires were distributed. Three hundred and thirty nine (339) were returned, for a response rate of 39%. A majority of the respondents (72.6%) were male and were based in practices with 2 or more practitioners (69.6%). Most of the respondents (42.9%) had graduated from medical school between 1980 and 1989 and were either graduates of Memorial University of Newfoundland's medical school (39.6%) or graduates of universities outside North America (40.5%). A small majority (51.2%) of respondents were family physicians (33.2% of these family physicians were non-College of Family Physicians of Canada [CFPC] certificants and 18.0% were CFPC certificants), and 48.8% were specialists.

The majority of respondents were urban-based physicians who resided in communities with a population greater than 10 000 (62.9%), and 37.1% of respondents were rural-based practitioners who practised in communities with populations of less than 10 000. The majority of urban-based respondents were specialists (66.3%), and the majority of rural-based respondents were non-CFPC certificants (54.2%). The overall demographic characteristics of the respondent sample were analyzed and compared with the actual demographic characteristics of the total physician population for Newfoundland and Labrador during the year 1997. The results of this analysis and comparison revealed that the survey sample was representative of the actual population.

The survey data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS 8.0). Methods of analysis included: a) a cumulative analysis to measure overall responses using basic frequencies and b) cross tabulations to compare responses between family physicians and specialists, physician types, different geographic locations and year of graduation. The cross-tabulation technique proved useful in comparing differences between responses according to various demographic and individual physician characteristics. The variables most commonly used for comparing differences between response groups included practice location and physician type.

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Results

The questionnaire was divided into several parts, which were designed to collect information on specific experiences, opinions and values of physicians as they related to CME. One part

included items regarding physicians' learning patterns. Table 1 presents time (hours per week) spent in informal learning activities (i.e., other than formal CME courses). A majority of CFPC certificants (78.6%) reported spending 0-5 h/wk on informal learning activities. A smaller percentage (55.3%) of non-CFPC certificants reported spending 0-5 h/wk on informal learning activities. These results suggest that a larger percentage of non-CFPC certificants reported spending more than 5 h/wk on informal learning activities.

Table 2 presents time spent in learning activities by practice location (rural v. urban). A larger percentage of rural physicians (64.7%) reported spending less time (0-5 h/wk) in informal learning activities than urban physicians (52.0%). In Table 3 the results of respondents' preferred CME resources are presented. Journal reading ranked as the most preferred CME resource by all physician groups. Medical/university conferences and advanced clinical skills courses were also rated highly by most physician groups. An interesting finding was the difference between urban and rural physicians' reported preference for pharmaceutical company sponsored programs. Rural physicians did not rank this educational resource as highly as did their urban colleagues. Another item in this section asked respondents (specialists) to report their use of MOCOMP. A large majority (78.1%) of respondents reported that they did not use this self-directed method of CME planning and reporting.

The survey also collected information on respondents' levels of participation in CME activities during the 12-month period prior to completion of the survey. Table 4 presents this data. Fifty percent of urban-based CFPC certificants reported participation in 10 or more CME programs. Only 9.7% of rural-based CFPC certificants reported participation in 10 or more programs. Overall, a larger percentage (26.8%) of urban physicians reported participation in 10 or more CME programs than their rural counterparts (15.1%). A large number of both rural CFPC and non-CFPC certificants had only participated in 1-3 CME programs during the specified 12-month period (41.9% and 34.4% respectively). Urban-based CFPC certificants reported a much higher level of participation in CME programs.

Respondents reported their involvement in pharmaceutical company sponsored CME programs during the 12-month period prior to completion of the survey. A greater number of urban-based family physicians attended pharmaceutical company sponsored CME programs than did their rural colleagues. The percentage of rural CFPC and non-CFPC certificants who reported no involvement in pharmaceutical company sponsored CME programs was 38.7% and 20.6% respectively. However, both urban-based CFPC and non-CFPC certificants reported higher levels of attendance at pharmaceutical company sponsored CME programs. These results suggest that pharmaceutical company sponsored programs play a larger role as a CME resource for urban-based family physicians.

Respondents were asked about their CME and professional development needs; they rated their level of need in a number of clinical skill areas, using a Likert-type scale of "no need - high need." They also rated their level of perceived need for education in a variety of management

areas (e.g., time, stress, financial) and their need for information technology CME. They were asked to provide information on their access to computer hardware and the Internet. This information is useful because the proliferation of Web-based education and computer-assisted instructional programs using interactive multimedia CD-ROM technologies continues to expand.

Table 5 presents the results of respondents' needs for CME in various clinical knowledge and skill areas. The results are presented as rankings, by practice location and physician type, and were calculated based on the percentage of respondents who reported "moderate to high need" for each clinical skill area. The rankings for specialists are not presented because of the nature and diversity of specialty practice. The results of the rankings revealed a noticeable difference between the perceived CME needs of urban and rural respondents. Rural physicians reported higher levels of CME need in the areas of advanced clinical skills and emergency medicine than their urban colleagues. Urban physicians reported a greater need for clinical skills training in geriatrics, pharmacology and therapeutics, and pediatrics. The professional development areas that ranked most highly across all physician groups (family physician and specialists) included clinical practice guidelines, professional liability, and management of time, finances and stress, as well as office management.

A large majority of urban and rural physicians reported having access to computers (92.6% and 85.6% respectively), and access to CD-ROM hardware capabilities (75.0% and 73.3% respectively). A smaller number of rural physicians reported access to the Internet (58.4%) and email (54.4%) than their urban colleagues, who reported higher Internet (73.5%) and email access (75.7%). CME needs related to information technology were highest in the areas of basic computer literacy skills, Internet searching, library searching skills, and the use of Internet news groups.

The results from the 1999 CMA's Physician Resource Questionnaire revealed that 63.2% of a sample of Canadian rural physicians use the Internet, and 66.3% of urban physicians reported personal Internet usage.18 The CMA survey also showed that 73.8% of the rural physician respondents personally use a computer, whereas 79.1% of urban physicians use a computer.

The terms "access" and "usage" may have resulted in different connotations among the respondents in both surveys; however, a comparison of Internet usage results does suggest an increase in the number of physicians who are going online. A future research focus could be to examine the Internet usage patterns of rural physicians, the type of information they are seeking, the value they place on the information sought from Internet sites and their perceptions of the Internet as a means for participating in CME. Ultimately, how can the Internet be used appropriately to provide optimal support to the rural practitioner?

Our survey also collected information on physicians' perceptions of the factors that influence participation in and access to CME. Results revealed that a large percentage of urban and rural physicians felt that "advertising" was a factor with a high degree of impact on access to CME.

Many respondents were simply not aware of the availability of CME programming. A large number of rural physicians reported that distance education and the availability of self-directed learning credit also had a high degree of impact on their access to CME. Respondents were also asked to specify any other factors that contributed to or affected their ability to participate in CME. This was an open-ended question; the most frequently reported factors included lack of time, lack of financial resources, perceived relevance of topic, and reputation of the provider. A majority of both urban and rural physicians reported that weekend (half-day) and evening (3-hour) times were the most convenient for participation in CME programs.

Respondents identified their instructional methods preferences. Conferences, structured courses and seminars rated highly by all physician groups. Rural CFPC certificants rated the CME method of problem-based learning groups highly. Audio teleconferencing, the Internet and computer-assisted instructional (CAI) methods also rated highly. However, results suggest that traditional methods of CME delivery, including face-to-face group instruction, are still favoured and were rated highly by physicians in Newfoundland and Labrador.

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Discussion

A majority of the findings from this study have strong implications for rural medicine and rural physicians' access to CME opportunities. Results suggest that rural physicians may not have the same access to a variety of CME opportunities nor do they participate in CME to the same extent as their urban counterparts. Rural family medicine is a demanding and challenging form of medical practice. Physicians frequently practise in an isolated environment with inadequate resources and limited or distant specialist backup. This isolation usually necessitates a level of clinical competence beyond that of urban family physicians. Rural physicians are often expected to perform a generalist role in every aspect of clinical practice. Because of this they must develop and maintain a special base of knowledge and technical skills in a variety of clinical areas (e.g., emergency medicine, obstetrics and anesthesia).19- 22

Many of the rural respondents were non-CFPC certificants, and a majority of these physicians identified informal learning activities as an important component of their CME repertoire. However, access to medical libraries, medical journals and other educational resources are limited when practising in a rural or remote area. Similarly, access to the Internet and the clinical databases of the World Wide Web, as evidenced by the results of the survey, is limited when one practises in a rural area. One of the main issues raised by this survey is the role of CME providers in assisting rural physicians in their self-directed learning activities through educational outreach and extension services.

The survey revealed that a majority of rural physicians perceive the amount of time they spend

on CME as inadequate. They spend less time participating in formal CME programs than their urban colleagues. Over one-fourth of the rural-based CFPC certificant respondents had not participated in any university-sponsored CME programs during the 12-month period prior to completing the survey. It is no coincidence that rural physicians experience greater difficulty accessing, and participating in, CME. The very factors that characterize rural medicine also present significant barriers for participating in CME activities. Geographic distance contributes to the cost of attending CME activities and increases the time away from family and practice. Arranging locum coverage for practice and hospital responsibilities is another difficulty. These obstacles are of great concern to rural physicians, who must maintain their skills.

Urban-based practitioners, more so than rural physicians, reported pharmaceutical company sponsored programs as a major resource for CME. This is an interesting finding and warrants future investigation. In particular, the instructional nature and effectiveness of pharmaceutical company sponsored CME programs and industry's role in meeting the CME needs of physicians should be studied. Rural physicians reported a greater need for CME in emergency medicine and advanced clinical skills training. Several studies have confirmed the existence of the unique and varied CME needs among rural physicians.19-22 Some have investigated the differences between the rural and urban physician's CME needs20,23,24 and suggest that they are significant.

Many of the studies suggest that the differences are influenced by the nature of medical practice and, in some instances, by the distance of a rural medical practice from major urban areas. The farther rural physicians are from an urban area and large urban health care resources, the more knowledgeable and competent they must be in a greater number of clinical areas. As an example, Hays and colleagues,25 working in Queensland, Australia, developed a "sampling framework" for rural and remote doctors and surveyed 311 of these doctors to compare their training and practice profiles with those of 142 urban doctors. They found that doctors who were more than 80 km (or 1 hour's travel time) from the nearest hospital and support services were more likely to practise a wide range of clinical and procedural skills. In a similar study, Bitt and coworkers26 surveyed 231 full-time Australian general practitioners and found that rural physicians were more likely to be sole practitioners whose access to medical specialists and other support services decreased, relative to population.

Several authors suggest that rural physicians perceive their opportunities for participation in traditional CME activity as inadequate. 20-24 Bhatara and colleagues27 suggested that rural physicians' sense of professional isolation, because of a lack of CME opportunities, influences feelings of job dissatisfaction. The result of this gap in access to, and participation in, CME is a lack of peer interaction and educational resources afforded by a large hospital staff and medical school, and an over dependency on journal review and reading as the main method for addressing many CME needs.19,20,22,23

Our results suggest that advertising and the availability of distance education programs appear to have the greatest impact on physicians' access to CME. Weekend (half-day) and evenings (3-

hour) were reported as the best times for offering CME. This suggests that a stronger emphasis needs to be placed on advertising strategies, the methods used for advertising to targeted CME markets, and the distance education methods used to bring CME to rural physicians. Several studies have examined alternative CME delivery methods and the rural physician's satisfaction with these forms of CME. Approaches such as regional workshops and distance education technologies have proven successful.19,22,24,28-30 Several studies focused on the use of telecommunications and information technology for rural and remote physicians. Of these technologies, several are well documented in the literature. Audio teleconferencing, video teleconferencing, slow scan imaging, and videotape programs have been used for many years.31-36

The main limitations of the results of this study relate to the low response rate and the use of a volunteer sample of respondents, the responses of the 339 physicians who returned their questionnaires. The greatest criticism of a volunteer sample is that it is not random and therefore may not be representative of the true responses of the actual population. It is possible that the respondents to this questionnaire were not representative of the actual population of physicians in Newfoundland and Labrador. However, one way to support representativeness is to compare the characteristics of the respondent sample to the actual characteristics of the population. The comparison of the characteristics of the physicians responding to the survey with the characteristics of the general population do not differ significantly on any of the major parameters that could be assessed. This finding lends greater support and confidence in the interpretation of the study findings. The problem of nonrespondents is always vexing and, unfortunately, the survey method may not always represent the attitudes and perceptions of nonrespondents accurately. Therefore, other methods such as focus groups and interviews may be better suited to obtaining the responses of individuals from this group. These qualitative needs assessment methods were used to compliment the results of this questionnaire and together have provided a wealth of information that has directed our program planning, development and evaluation efforts since the completion of this survey.

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