

Original Article

Identifying Educational Influentials for Formal and Informal Continuing Medical Education in the Province of British Columbia

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Abstract

Background: *The objective of this study was to identify physicians in the province of British Columbia (BC) who are perceived by their colleagues to be the most educationally influential.*

Methods: *A cross-sectional study using a previously validated survey tool was mailed to a randomly selected sample of 2300 BC registered primary care physicians. Follow-up mailings were sent to nonresponders.*

Results: *The survey response rate was 53%. A list of 375 educationally influential physicians (EIs) was proportionately determined and tabulated by region.*

Implications: *The top 5% of provincial EIs were identified to serve as a resource for formal and informal continuing medical education (CME). Their names will be brought forward in response to selected requests for CME speakers.*

Key Words: Continuing medical education, educational influential, opinion leaders, survey

The primary purpose of the survey was to identify, through a systematic process, potential trainers and informal opinion leaders for disseminating new research findings on the diagnosis and management of whiplash-associated disorders. However, the Division of Continuing Medical Education (CME), University of British Colum-

bia (UBC), the BC College of Family Physicians, and the Physical Medicine Research Foundation were also interested in identifying other potential instructors or educational influentials (EIs) for a range of future formal and informal CME programs.

Rationale

Disseminating new medical information and facilitating changes to practice routines within the physician community is a complex process.¹ Aside from economic incentives, there are few consistently effective strategies to change physician practice.² Lomas et al. suggest that one of the most promising noneconomic approaches that could be applied locally is educational strategies involving “face-to-face contact with a credible messenger.”³ Within the social sciences literature, it is well accepted that key individuals play an important part in the dissemination of information.

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Different labels have been attributed to these people: opinion leaders, gatekeepers, informal leaders, informal educators, and EIs.⁴

What Do We Know about Medical EIs?

The use of EIs/opinion leaders (men and women named by their peers as trusted sources of clinical information) in disseminating information has been shown to be an effective method of changing clinical practice. For instance, Stross et al. in a randomized controlled trial showed a significant difference in the inpatient management of chronic obstructive pulmonary disease in intervention hospitals.⁵ The EIs who participated in the comprehensive educational program were involved in only 5% of cases but logged formal and informal consultations affecting another 25% of cases. Lomas et al. found that clinical opinion leaders increased the proportion of vaginal births after previous cesarean section.³

Recent research has found that although clinicians use a wide range of resources that contribute to their knowledge base and to changes in clinical behavior, informal communication is consistently rated as a major source of information-seeking behavior of physicians.^{4,6} Gruppen et al.⁷ found unique patterns of information-seeking behavior of family physicians with their first choices of information resources being informal consultations with colleagues (33%), consultations with community specialists (32%), and textbooks (27%). Use of journals (4%) and consultation with outside specialists (2%) were minimally important.⁷ Kaufman et al. confirmed these findings in their recent survey of Nova Scotian family physicians who reported that formal and informal communication with colleagues and consultants were the most often used methods when seeking medical information and advice.⁸

In their extensive review entitled, "Evidence for the Effectiveness of CME," Davis et al.⁹ recommended that promising interventions such as the use of educational leaders deserved further testing and use.⁹

Methods

A random sample of 2300 British Columbia general practitioners/family physicians were surveyed stratified by location, gender, and year of graduation using a list provided by the College of Physicians and Surgeons of British Columbia. Physicians were chosen using a nonlinear additive feedback random number generator. The number of registered primary care physicians on the list in 1996 was 4366.

The survey tool used was adapted from the work of Hiss et al.¹⁰ and Stross et al.¹¹ and recently revalidated by Kaufman et al.⁸ It asked practitioners to identify physicians whom they respected as good communicators, humanists, and those having a strong knowledge base. Each section of the survey asked the respondent to describe up to three physicians who possessed the characteristics described. This previously validated portion of the survey was supplemented by a fourth section asking respondents to identify health professionals (physicians, specialists, therapists) from their community from whom they seek clinically relevant information about musculoskeletal problems (Appendix). A further series of questions asked respondents for their demographic information including gender, year of graduation, postgraduate training, type of practice, whether the respondent had hospital admitting privileges, and whether he/she was a member of the College of Family Physicians of Canada. There was also a space for comments and suggestions.

Surveys were coded and sent out to the sample of physicians in the summer of 1996 with a covering letter from the Division of CME at UBC. A reminder letter was sent in the fall to nonresponders. Second and third survey mailings to nonresponders were undertaken in the winter of 1996–1997 in order to increase the response rate to greater than 50%. Each survey mailing was color coded.

Survey responses were pooled for each of the 16 geographic districts in British Columbia and tabulated in each of the four categories. The results were first used to select 20 EIs for the BC Whiplash

Table 1 Specialist and Generalist Educational Influentials by Region in British Columbia¹³

REGIONS	Identified Educational Influentials		Practicing Physicians	
	Number of Generalists	Number of Specialists	Number of Generalists	Number of Specialists
Vancouver Island	9	69	850	576
Metro Vancouver (urban)	29	118	1922	1956
Fraser Valley	5	19	414	198
Surrey/White Rock	6	23	220	127
Okanagan	2	46	516	334
Kootenays	1	16	155	57
Northern BC (predominantly rural)	8	24	289	110
Totals	60	315	4366	3358

Initiative's Continuing Medical Education component, the initial purpose of the survey.

For the secondary purpose of identifying EIs across the province, responses to the fourth part of the survey on musculoskeletal expertise were excluded. The 16 districts were collapsed into seven larger areas as listed in Table 1 and results were tabulated for each area for each individual who had been nominated in one of the three categories. Each time an individual's name appeared under one of the three categories, they were accorded one vote. After adjusting for the different numbers of surveyed physicians in different areas, a proportional number of EIs was set for each area such that approximately the top 5% of nominated physicians would achieve EI status. Cross-area voting was allowed and occurred on average 9.6% with greater frequency in northern British Columbia (14.7%) and less frequently in urban centers (7.5%).

Analysis was done on Excel 5.0. Ethical approval was received for the survey from the UBC's Behavioral Research Ethics Board. Anonymity of respondents was protected throughout the study.

The individual physicians named by respondents and identified as EIs were unaware of being so named. A letter of congratulations was mailed to each of the identified EIs notifying them that they had been nominated by their peers as one of a group of excellent teachers, expert clinicians, and

"caring" physicians demonstrating a high degree of humanistic concern.

Results

The response rate to the survey was 52.9%, with 1166 completed and 94 of the original 2300 excluded as they had either retired, were deceased, or the mailing was returned, address unknown. The response rate by area varied from a low of 49.1% for both Vancouver Island and Metro Vancouver and a high of 57.8% for Northern BC.

The demographics of respondents are summarized in Table 2.

Of 7724 physicians registered in the province, 375 (5%) were identified as EIs. The number of votes for individual EIs varied from a high of 74 to a low of 4. The numbers and generalist/specialist breakdown of EIs by region is presented in Table 1. Table 3 organizes the EIs by specialty. Fourteen of 60 (23%) generalist physicians and 29 of 315 (9%) specialists were women. Forty-eight percent of respondents were members of the College of Family Physicians of Canada (CFPC). Thirty of the 60 generalist EIs nominated were members of the CFPC. Of the 4366 generalist physicians registered in British Columbia in 1996–1997, 1553 were members of the College.

The mailing of a notification letter to 375 physicians identified as EIs took place in early 1998. We

Identifying CME Influentials

Table 2 Demographic Characteristics of Responders (N = 1166)

Gender	68% male
Graduation from medical school (%)	
Pre 1965	13.2
1966–1975	21.5
1976–1985	33.7
After 1985	31.5
Postgraduate programs	
Rotating internships	858 (74%)
Family practice residency	321 (27.5%)
Partial Royal College program	268 (23%)
Type of practice: (N = 1166)	
Group	67% (N = 1042)
Metropolitan 47%, regional 28%, rural 25%	(N = 689)
Hospital admitting privileges	83%
Emergency department coverage	37%
Member of College of Family Physicians of Canada	48%

have received only 16 requests to remove individuals' names from the list. Some of these individuals had left the country, were retired, or deceased.

Discussion

This study has surveyed a broad cross-section of BC primary care physicians in order to identify those physicians whom they perceive to be important EIs. It is an honor to be so identified, and many of these individuals serve as an unrecognized important educational resource to the province. They are often informal educators guiding their colleagues by telephone, on the wards, or in one-to-one consultation. They are respected for their communication skills, humanism, and teaching ability.

Clearly, this list is not complete as the qualities identified exist on a continuum and are generally not categorical. The decision to cut off at four votes is somewhat arbitrary but does define a regionally based proportion of approximately 5% of the physicians practicing in BC. It provides a balance of specialists and primary care physicians. Many of these individuals are already often featured as plenary speakers at conferences. Oth-

ers are not, but their educational skills have not gone unnoticed.

The list of EIs will not be distributed. Names will be brought forward in response to requests from community-based non-profit CME organizations that request assistance in identifying speakers for a CME event.

The strength of this study is the large number of respondents and its provincial focus. The study tool is well validated but not previously applied in as general a manner.

There are a number of potential weaknesses. Choosing the top 5% of nominated individuals is arbitrary. In support of this decision is that it provides reasonable sensitivity to the local identification of EIs. Furthermore, 1 in 20 physicians, although a select group, seems reachable for it is likely that we all aspire to be respected for our communication skills, humanism, and teaching ability.

It seems that the survey tool has a bias toward certain specialty areas, perhaps those that involve more interactive shared care between generalists and specialists. No ophthalmologists were identified as EIs and only 0.6% of psychiatrists were so nominated. In contrast, 42% of gastroenterologists and 25% of obstetricians were identified as EIs.

The survey achieved only a 52% return in spite of three mailings. This is probably not a significant issue as more voters would only have shifted the cut-off point to five votes instead of four, which would have made little difference as 95% of EIs already had received five or more votes.

EIs can be identified across the province. They are respected for their communication skills, humanism, and clinical expertise. Perhaps by identifying them and their contributions we will promote increased opportunities for improving health care for the people of BC through more effective formal and informal CME for medical practitioners.

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Table 3 Number and Proportion of Educational Influentials Identified by Specialty

Discipline	Number of EIs	Total Number in Discipline	% EIs
Anesthesia	3	332	0.9
Internal medicine	65	583	11.1
Cardiology	19	57	33.3
Dermatology	6	62	9.7
Endocrinology and metabolism	5	14	35.7
Gastroenterology	13	31	41.9
Geriatrics	3	14	21.4
Hematology	5	23	21.7
Infectious diseases	3	7	42.9
Nephrology	5	12	41.7
Neurology	9	71	12.7
Respiratory medicine	15	46	32.6
Rheumatology	11	31	35.5
Pediatrics	21	257	8.2
Surgery: general, thoracic, and vascular	35	280	12.5
Neurosurgery	2	32	6.3
Obstetrics	43	175	24.6
Orthopedic surgery	22	150	14.7
Otolaryngology	1	70	1.4
Plastic surgery	2	55	3.6
Urology	14	68	21.0
Radiology: diagnostic, therapeutic, and radiation oncology	2	328	0.6
Pathology	1	155	0.7
Medical microbiology	1	26	3.8
Physical medicine and rehabilitation	3	38	7.9
Psychiatry	4	501	0.8
Family medicine/general practice	60	4366	1.4
Emergency medicine	2	74	2.7

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References

1. Stross JK, Harlan WR. Dissemination of relevant information on hypertension. *JAMA* 1981; 246:360–362.
2. Greco PJ. Changing physician's practice. *N Engl J Med* 1993; 329:1271–1274.
3. Lomas J, Enkin M, Anderson GM, Hannah WJ, Vayda E, Singer J. Opinion leaders vs. audit and feedback to implement practice guidelines: delivery after previous cesarean section. *JAMA* 1991; 265:2202–2207.
4. Stross JK. The educationally influential physician. *J Cont Educ Health Prof* 1996; 16:167–172.
5. Stross JK, Hiss RG, Watts CM, Davis WK, Macdonald R. Continuing education in pulmonary disease for primary care physicians. *Am Rev Respir Dis* 1983; 127:739–746.
6. Weinberg AD, Ullian L, Richards WD, Cooper P. Informal advice-and information-seeking between physicians. *J Med Educ* 1981; 56:174–180.
7. Gruppen LD, Wolf FM, VanVoorhees C, Stross JK. Information seeking strategies and differences among primary care physicians. *Mobius* 1987; 7(3):18–26.
8. Kaufman DM, Ryan K, Hodder I. A study of the educationally influential physician. *J Cont Educ Health Prof* 1999; 19:152–162.
9. Davis DA, Thomson MA, Oxman AD, Haynes RB. Evidence for the effectiveness of CME: a review of 50 randomized controlled trials. *JAMA* 1992; 268:1111–1117.
10. Davis DA, Thomson MA, Oxman AD, Haynes RB. Changing physician performance: a systematic review of the effect of continuing medical education strategies. *JAMA* 1995; 274:700–705.
11. Hiss RG, MacDonald R, David WR. Identification of physician educational influentials in small community hospitals. *Res Med Educ* 1978; 17:283–288.
12. Stross JK, Bole GG. Evaluation of a continuing education program in rheumatoid arthritis. *Arthritis Rheum* 1980; 23:846–849.
13. The College of Physicians and Surgeons of British Columbia. 1996–97 medical directory. Vancouver.

Identifying CME Influentials

Appendix

Survey - Identification of “Educational Influentials”

The first three paragraphs that follow are an attempt to describe the behavioral characteristics of physicians as they interact with their colleagues on an informal basis during the the course of a typical day in practice. These characteristics have been derived from a prior survey of over three hundred physicians. Most physicians demonstrate these characteristics throughout their careers. However, as with any human interaction, some physicians demonstrate such behaviour more often and more consistently than others. What we would like to learn from you is which physician(s) in your area best fit the descriptive paragraphs that follow.

Please read each paragraph carefully and indicate the name(s) of the physician(s) that best fit each description. You may write the names of up to three physicians for each paragraph. The same physician may be named in more than one paragraph. Remember all information on this survey is strictly confidential.

Paragraph A

They convey information in such a fashion as to provide a learning experience. They express themselves clearly and to the point—provide practical information first and then an explanation or rationale if time allows. They take the time to answer you completely and do not leave you with the feeling that they were too busy to answer your inquiry. They enjoy and are willing to share any knowledge they have.

NAME	DATE

Paragraph B

They are individuals who like to teach. They are current and up-to-date and demonstrate a command of medical knowledge. They demonstrate a high level of clinical expertise.

NAME	DATE

Paragraph C

They are “caring” physicians who demonstrate a high level of humanistic concern. They never talk down to you; they treat you as an equal even though it’s clear they are helping you.

NAME	DATE

This paragraph is specifically related to whom you seek clinically relevant musculoskeletal information.

Paragraph D

They are health professionals (physicians, specialists, therapists) in your community that you seek clinically relevant information about musculoskeletal problems.

NAME	DATE