

# Resource contribution by Canadian faculties of medicine to the discipline of emergency medicine

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## ABSTRACT

**Objective:** Undergraduate and postgraduate emergency medicine (EM) education has developed rapidly over the last 20 years. Our objective was to establish a national educational inventory, cataloguing the human and financial resources provided to EM programs by Canadian faculties of medicine.

**Methods:** A 17-question survey was distributed to all 27 Canadian EM program directors, representing 11 Royal College of Physicians and Surgeons of Canada (RCPSC) programs and 16 College of Family Physicians of Canada (CFPC-EM) programs. The questionnaire addressed teaching responsibilities, teaching support and academic support in each program.

**Results:** All 27 program directors returned valid questionnaires. Annually, an estimated 3,049 students and residents participate in EM learning. This includes 1,369 undergraduates (45%), 1,621 postgraduates (53%) and 59 others (2%). Of the postgraduates, 173 are EM residents — 92 (53%) in RCPSC programs and 81 (47%) in CFPC-EM programs. Overall, 587 EM faculty teach residents and students, but only 36 (6%) of these hold academic geographical full time positions. At the university level, all 16 CFPC-EM programs are administered by departments of family medicine. Of 11 RCPSC programs, 1 has full departmental status, 2 are free-standing divisions, 3 are administered through family medicine, 3 through medicine, 1 through surgery and 1 by other arrangements. Currently 8 programs (30%) have associate faculty, 14 (52%) have designated research directors and 10 (37%) describe other human resources. Sixteen (59%) programs receive direct financial and administrative support and 17 (63%) receive financial support for resident initiatives. Only 8 program directors (30%) perceive that they are receiving adequate support.

**Conclusions:** Despite major teaching and clinical responsibilities within the faculties of medicine, Canadian EM programs are poorly supported. Further investment of human and financial and human resources is required.

## RÉSUMÉ

**Objectif :** L'éducation universitaire et post-universitaire en médecine d'urgence a évolué rapidement au cours des 20 dernières années. Notre objectif était d'établir un inventaire des programmes d'enseignement à l'échelle nationale, en cataloguant les ressources humaines et financières attribuées aux programmes de médecine d'urgence par les facultés de médecine canadiennes.

**Méthodes :** Un sondage comprenant 17 questions fut distribué aux 27 directeurs de programmes de médecine d'urgence au Canada, soit 11 programmes du Collège royal des médecins et chirurgiens du Canada (CRMCC) et 16 programmes du Collège des médecins de famille du Canada

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(CMFC-MU). Le questionnaire s'informait des responsabilités d'enseignement, du soutien à l'enseignement et du soutien académique pour chaque programme.

**Résultats :** Les 27 directeurs de programme retournèrent des questionnaires valides. Chaque année, environ 3 049 étudiants et résidents participent aux programmes d'enseignement en MU. Ceux-ci comprennent 1 369 étudiants en médecine (45 %), 1 621 étudiants post-universitaires (53 %) et 59 autres (2 %). Cent-soixante-treize d'entre eux sont résidents en MU, soit 92 (53 %) dans des programmes du CRMCC et 81 (47 %) dans des programmes du CMFC-MU. Globalement, 587 professeurs en MU enseignent aux résidents et aux étudiants, mais seulement 36 (6 %) de ceux-ci sont des plein temps géographiques. Au niveau universitaire, les 16 programmes du CMFC-MU sont administrés par les départements de médecine de famille. Parmi 11 programmes du CRMCC, un d'entre eux jouit d'un statut de département en soi, 2 sont des services indépendants, 3 sont administrés par la médecine de famille, 3 par la médecine, 1 par la chirurgie et un selon d'autres arrangements. Présentement, 8 programmes (30 %) ont des professeurs associés, 14 (52 %) ont un directeur de recherche désigné et 10 (37 %) décrivent d'autres ressources humaines. Seize (59 %) programmes reçoivent un soutien financier et administratif direct et 17 (63 %) reçoivent un soutien financier pour des initiatives des résidents. Seulement 8 directeurs de programme (30 %) jugent recevoir un soutien adéquat.

**Conclusions :** Malgré les énormes responsabilités pédagogiques et cliniques au sein des facultés de médecine, les programmes canadiens de MU reçoivent peu de soutien. Il est essentiel d'y investir davantage de ressources financières et humaines.

**Key words:** postgraduate, education, emergency medicine, training programs, financial support

## Introduction

Canada has 2 distinct training paths that lead to national certification in emergency medicine (EM), making it unique among developed countries. The Royal College of Physicians and Surgeons of Canada (RCPSC), with objectives and guidelines similar to those of the American Medical Association,<sup>1</sup> educates EM specialists. The College of Family Physicians of Canada (CFPC) provides an additional year after family practice residency to train family physicians with special competence in EM. The CFPC's objectives are to increase the availability and improve the standards of emergency care provided by family physicians, to develop EM teachers, and to establish guidelines for the development and administration of family medicine EM training programs.<sup>2</sup>

Since the early 1980s, the number of Canadian EM residency programs has increased rapidly, paralleling US and international growth.<sup>3,4</sup> As a result, more clinical care and teaching is being provided by EM-trained physicians. At the undergraduate level, EM has become an accepted part of the medical school curriculum, but Canadian universities are at different stages of development and, across the country, EM teaching lacks uniformity. At the postgraduate level, EM rotations are mandatory in all family medicine programs<sup>2</sup> and are increasingly a part of other residencies. Although the US has a better-established research infrastructure,<sup>5-9</sup> Canadian EM research is developing rapidly.<sup>10</sup> However, while emergency EM has greatly increased its

clinical and academic presence, EM funding has not increased to the same extent.

In Canada, provincial governments fund universities, and universities govern medical education. Within each university, the faculty of medicine distributes human and material resources for the operation of all undergraduate and postgraduate training programs. Apart from being publicly funded, Canadian faculties are equivalent to US medical schools.

Faculties of medicine typically hire geographic full-time (GFT) academic staff to administer programs, teach, and conduct research. Funding comes from faculty global budgets allocated by the university, or from other salary arrangements. Funding formulae are complex and vary by university, but GFT status implies blended (clinical + academic) payment; therefore most of these staff supplement their academic income with clinical earnings, paid through provincial ministries of health. In contrast, clinical full- and part-time teaching faculty derive their income almost exclusively from ministry of health funded patient care billings.

RCPSC and CFPC accreditation standards stipulate that residency programs must have "adequate resources" for the effective administration of education.<sup>2,11</sup> The responsibility for providing these resources rests on the shoulders of the faculties of medicine. To date, there has been no documentation of resources allocated by Canadian faculties to any discipline, including EM. The objectives of the current study were to describe the status of Canadian EM educa-

tion, to identify and profile EM learners and teachers, and to determine the human and financial resources provided by faculties to meet EM accreditation standards.

## Methods

### Literature search

MEDLINE, ERIC (educational related database for literature search of educational articles) and bibliographic searches (1966–1999) were conducted to identify English and French language literature on this topic. Medical subject heading terms (MeSH) used included: emergency medicine (Major MeSH) AND training support (Major MeSH) OR financial support (Major MeSH) OR research support (MeSH). These approaches yielded only one relevant research article.<sup>12</sup> The Canadian Annual Post-MD Educational Registry (CAPER)<sup>13</sup> was used to verify some of the collected data, and the American Board of Emergency Medicine database was used to verify US training statistics.<sup>3</sup>

### Questionnaire

A 17-question survey was developed for this study. The survey included 3 main headings: program description (including administrative authority, inventory of learners and human resources); type of financial support provided by the faculty; and the program director's opinion regarding the adequacy of support.

### Distribution

The questionnaire was mailed, faxed or emailed to all 27 RCPSC and CFPC EM program directors in Canada, based on each director's preference. Non-responders were contacted up to 3 more times during the 10-week study period (March to May of 1999).

This study was approved by the University of Alberta's Health Research Ethics Committee.

## Results

Sixteen (57%) of 27 program directors responded to the first mailing, 8 (30%) to the second, 2 (7%) to the third, and 1 (3%) to the fourth, for a 100% response rate. Table 1 shows that EM programs taught 1,369 (45%) undergraduates, 1,621 (53%) postgraduates, and 59 (2%) others, including dental residents and CME learners (total  $n = 3,049$ ). In the postgraduate group, there were 1,448 (89%) "off-service" residents and 173 (11%) EM residents — 92 from RCPSC and 81 from CFPC EM programs. During the 1998–1999 academic year there were 20 RCPSC and 81 CFPC EM entry positions.

### Academic appointments

Table 2 shows that there are 551 (94%) part- or full-time clinical teaching faculty and 36 (6%) GFT academic faculty members. Of these, 5 (1%) have become full professors, 12 (2%) associate professors, and 19 (3%) assistant profes-

**Table 1. Catalogue of Canadian emergency medicine learners (1998–1999)**

Learner type	No.
Undergraduate (student)	1,369
Postgraduate (resident)	
Off service	1,448
RCPSC programs	92*
CFPC programs	81*
Other	59
<b>Total</b>	<b>3,049</b>

\*There are currently 20 RCPSC and 81 CFPC-EM entry positions into the emergency residency program. Source: CAPER<sup>13</sup>

**Table 2. Human resources provided to Canadian emergency medicine programs**

Type of human resource	Type of program						Total human resources
	RCPSC ( $n = 11$ )			CFPC-EM ( $n = 16$ )			
	No. of faculty	Programs with	Programs without	No. of faculty	Programs with	Programs without	
Physician faculty							
Clinical	381	11	0	510	16	0	551*
GFT†	27	7	4	9	4	12	36
Associate faculty	7	5	6	4	3	13	8*
Research director	7	7	4	6	7	9	11*
Other‡	N/A	4	7	N/A	6	10	N/A

GFT = geographic full-time

\* Total does not equal RCPSC + CFPC-EM because some faculty members teach in both programs.

† 5 Canadian GFT faculty have tenure.

‡ Administrative and secretarial staff

sors. These academic appointments are limited to 10 of the 27 programs, and only 3 programs expect new GFT positions to become available within the next 3 years. There are only 5 tenured EM GFT positions in Canada, and 4 of the 5 have been created within the last 3 years.

### Human resources

All 27 EM programs have an appointed program director (this is a national accreditation requirement), but only 22 directors (81%) receive a faculty of medicine salary for their work. Table 2 shows that 7 of 11 RCPSC programs and 7 of 16 CFPC EM programs have designated research directors. In several instances, the same individual oversees research in both programs, so there are only 11 Canadian EM research directors. Because research directors are not an accreditation requirement, they are not generally remunerated by the faculty and most have been appointed by their colleagues without input or support from the university. Table 2 also shows that 8 programs employ a total of 8 associate faculty members (MSc or PhD epidemiologists and medical educators) to support research and teaching. Four of 11 RCPSC programs and 6 of 16 CFPC programs have other human resources in the form of administrators and secretarial staff.

### Financial resources

Table 3 shows that 5 of 11 RCPSC and 11 of 16 CFPC EM programs receive direct financial support, usually in the form of an annual budget or intermittent expense reimbursement. Seven of 11 RCPSC and 10 of 16 CFPC EM programs receive administrative assistance in the form of office space, stationery, computers and furniture. Funding

for resident initiatives, such as travel, CME, office and computers is provided to 8 of 11 RCPSC programs and 9 of 16 CFPC EM programs. Overall, 19 of 27 program directors (70%) described the level of support received from the faculty of medicine as inadequate.

### Administrative reporting

Table 4 shows that all 16 CFPC EM programs are under the administrative authority of the department of family medicine, while the 11 RCPSC programs have diverse reporting structures. One has full departmental status, 2 are free-standing divisions, 3 are administered through family medicine, 3 through the department of internal medicine, 1 through the department of surgery, and 1 reports directly to the dean of the faculty of medicine (without specific status). Four RCPSC programs expect to gain autonomy, either as freestanding divisions or full departments within the next 3 years.

### Discussion

The survey demonstrates that Canadian EM programs provide considerable undergraduate and postgraduate medical education, that faculties of medicine have disparate funding methods and resource allocations for their EM programs, and that there is significant underfunding of EM training. Although there are no national data comparing EM to other disciplines, the University of Alberta experience is that EM provides a similar amount of clinical teaching to the high volume disciplines of internal medicine and surgery, but receives substantially fewer resources to do so. The authors suspect that the situation is similar for many other Canadian EM programs.

**Table 3. Financial resources provided to emergency medicine programs in Canada**

	Type of program			
	RCPSC (n = 11)		CFPC-EM (n = 16)	
	Support	No support	Support	No support
<b>Type of financial support</b>				
Program director remuneration	7	4	15	1
Direct financial contribution	5	6	11	5
Administrative assistance	7	4	10	6
Resident initiative funding	8	3	9	7
<b>Adequacy of support (director's perception)</b>				
Adequate	2		6	
Inadequate	9		10	

**Table 4. Administrative authority for Canadian emergency medicine programs**

Administrative authority	Program		
	RCPSC (n = 11)	CRPC-EM (n = 16)	Total
<b>Current</b>			
Department of family medicine	3	16	19
Department of internal medicine	3	0	3
Department of surgery	1	0	1
Under Dean (no official status)	1	0	1
Freestanding division	2	0	2
<b>Future</b>			
Developing freestanding division or department within 3 years	4	0	4

A standard Canadian undergraduate EM curriculum is currently being developed, and this parallels work being done in other parts of the world.<sup>14–16</sup> When the new undergraduate curriculum is completed and implemented, Canada will be in a similar position as the US, where standards already exist.<sup>17–20</sup> Curriculum standardization will be a positive development, but it will further increase our undergraduate EM teaching load.

A large teaching load requires a large faculty, but academic positions are a rare and recent development in Canada: a large majority of EM teaching is provided by unpaid physicians. We found only 36 individuals with protected academic time — a stark contrast to the US situation, where appropriate academic portfolios have been developed and 36% of EM staff are on an academic track.<sup>21–24</sup>

Canadian centres already have difficulty attracting and retaining EM-trained physicians. While EM is attractive to students, and EM residency spots are in great demand,<sup>25</sup> it is not clear that our current residency output will meet national requirements for clinical care and academics.<sup>26</sup> Every year, 81 CCFP-EM certificants and 20 RCPSC EM specialists (with 1 and 5 years of EM training respectively) graduate and enter the work force. This reflects a national training investment of 181 resident-years. At the same time, the US graduates 1039 EM specialists, each with 3 or 4 years of EM training, reflecting an annual training investment of 3273 resident-years. On a per capita basis, this means the US EM training investment is proportionally twice as great.<sup>3,26</sup> With our limited training investment and a dearth of academic positions, it is difficult to see how Canada will be able to keep up.

Our data show that half of Canadian EM programs have no designated research director, 70% have no associate faculty members and 63% have no administrative support staff. Worse, 19% of program directors receive no salary support from their university, 41% of programs receive no direct financial assistance and 37% do not support resident initiatives. Some receive no support at all and, in these cases, program viability often depends on financial contributions from staff physicians. Worst of all, the statistics above paint an optimistic picture because, in cases where program directors responded that the specified form of support is present, the support varies from very good to virtually nothing. As Table 3 indicates, only 30% of program directors felt that they were receiving adequate support from their faculties of medicine.

Canadian accreditation standards call for “adequate funding and support” by faculties of medicine; however, there is no measurement of “adequacy,” nor any penalties if this support is not forthcoming. In contrast, US residency pro-

grams demand properly trained and certified physician teachers and require approval from a national body that has the power to mandate change.<sup>1</sup>

Currently, 3 faculties in Canada have administratively autonomous EM divisions or departments. It seems likely that this situation would limit the advancement of the EM agenda at a faculty level. Unfortunately, the present situation, with limited administrative autonomy of RCPSC programs, does not show signs of changing. Only 4 programs feel that advancement of their status within the faculty is likely to occur within the next 3 years. Again, this is at odds with US trends in EM.<sup>27–29</sup>

### *Limitations and future questions*

This study has several limitations. First, the methodology relied on director reporting, which may not be entirely accurate. For example, the data on EM positions in Canada differs slightly from CAPER data.<sup>13</sup> The difference may, however, be explained by year-to-year variability and by the fact that some residents begin their training in the middle of the standard academic year. Second, the inventory of clinical faculty did not capture rural family medicine preceptors or others who provide EM education outside EM residencies. Third, the precision of some estimates is unclear, since some program directors provided approximate numbers of learners and clinical faculty. Finally, because we did not clearly define “geographic full-time (GFT)” status, and did not elicit specifics of the different funding models, there may have been significant response variability. However, our intention was to gather general information about academic funding and support in Canada. It is likely that a more intensive survey would have reduced compliance and compromised survey validity. Therefore, while the weaknesses suggest a need for future research, they do not invalidate the results presented.

### **Conclusion**

EM provides a large amount of teaching — comparable to the traditional specialties of internal medicine and surgery. Despite this, Canadian faculties of medicine provide limited human and financial resources to EM programs. There are surprisingly few remunerated academic emergency physicians; therefore, most EM teaching is performed by “volunteer” clinicians. This general lack of support is contrary to accreditation standards, contrasts sharply with the US situation and threatens Canada’s ability to meet present and future clinical and academic needs.<sup>26</sup> If EM is to maintain its current teaching and clinical commitment, and develop as an academic discipline, an urgent investment of resources from Canadian faculties of medicine is required.

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**Competing interests:** Drs. Steiner, Yoon and Rowe are emergency physicians. Drs. Steiner and Yoon are CFPC Program Administrators affiliated with Department of Family Medicine, University of Alberta, Edmonton, Alta.

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