Education

Residents-as-teachers: a survey of Canadian specialty programs

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ABSTRACT

Introduction: The ability to teach is a critical component of residency and future practice. This is recognized by the Royal College of Physicians and Surgeons of Canada, which incorporates teaching functions into the CanMEDS competencies. The aim of our study was to identify how emergency medicine specialty programs across Canada prepare their residents for roles as teachers and to compare these results to those of other Royal College specialty programs.

Methods: A 40-item English questionnaire was developed and translated into French. It was e-mailed to the program directors of all Royal College Emergency Medicine (EM), Anesthesia, Diagnostic Radiology, General Surgery, Internal Medicine, Obstetrics and Gynecology, Pediatrics, and Psychiatry residency programs. The survey asked what modalities were in use to teach residents how to teach and allowed respondents to comment on recent changes.

Results: Twelve of 13 (92%) EM programs and 78 of 113 (69%) other specialty programs responded. All responding programs incorporated some kind of mandatory teaching responsibilities. Four of 12 (33%) EM programs reserved formal teaching functions for postgraduate year 3 and above, whereas only 7 of 78 (9%) other specialty programs did so. The remaining 71 of 78 (91%) non-EM specialty programs incorporated formal teaching functions in all years of residency. Six of 12 (50%) EM programs offered rotations in clinical medical education compared to only 11 of 78 (14%) other specialty programs.

Conclusions: Canadian EM programs appear to differ from other specialty programs in the way that they develop residents-as-teachers. Half of EM programs offer rotations in clinical medical education, and many introduce formal teaching functions later in residency.

Keywords: education, residents, teaching

RÉSUMÉ

Introduction : La capacité à enseigner est un élément essentiel de la résidence et de la pratique future. Ce fait est reconnu par le Collège royal des médecins et chirurgiens du Canada, qui intègre les fonctions d'enseignement aux compétences CanMEDS. L'objectif de notre étude était de déterminer de quelle façon les programmes de spécialité en médecine d'urgence à travers le Canada préparent leurs résidents pour leur rôle d'enseignants, et de comparer ces résultats à ceux des autres programmes de spécialité du Collège royal.

Méthodes : Un questionnaire de 40 questions a été développé en anglais et traduit en français. Il a été envoyé par courriel aux directeurs de programme de tous les programmes de résidence du Collège royal : médecine d'urgence (MU), anesthésie, radiologie diagnostique, chirurgie générale, médecine interne, gynécologie-obstétrique, pédiatrie et psychiatrie. L'enquête demandait quelles modalités étaient utilisées pour enseigner aux résidents comment enseigner, et permettait aux répondants d'inscrire leurs commentaires sur de récents changements.

Résultats : Douze des 13 (92%) programmes de MU et 78 des 113 (69%) autres programmes de spécialité ont répondu. Tous les programmes ayant répondu comportaient des responsabilités d'enseignement d'une nature ou d'une autre. Quatre des 12 (33%) programmes de MU réservaient le rôle d'enseignement formel à la 3e année et plus après la graduation, alors que seulement 7 sur 78 (9%) des autres programmes de spécialité le faisaient. Les autres programmes de spécialité non MU (71 sur 78 ou 91%) intégraient des tâches d'enseignement formel dans toutes les années de résidence. Six des 12 (50%) programmes de MU offraient des rotations en formation clinique médicale, comparativement à seulement 11 sur 78 (14%) des autres programmes de spécialité.

Conclusions : Les programmes de MU canadiens semblent différer des autres programmes de spécialité dans la façon dont ils forment les résidents à enseigner. La moitié des programmes de MU offrent des rotations en formation

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clinique médicale, et plusieurs introduisent le rôle d'enseignement formel plus tard au cours de la résidence.

Residents have long been considered important teachers of junior trainees and medical students,[1–3] but only within the last 10 years has this role been supported and defined by the literature.[4,5] Residents provide substantial teaching, which can tangibly benefit both them and their learners.[6,7] Furthermore, the teacher role does not end with training. Physicians are expected to be lifelong learners and to teach other health care professionals, learners, and patients.

The ability to teach is a critical component of residency and future practice. This skill has been recognized by the Royal College of Physicians and Surgeons of Canada (RCPSC), which incorporates teaching functions within the Scholar role of the CanMEDs competency framework.[8] Although the importance of the Scholar role is well recognized, there is little information describing how educators prepare residents for their roles as teachers. Several methods of instructing residents to teach have been described, including 1-hour workshops, full-day retreats, and month-long electives. However, there has been no overall description of what Canadian residency programs are concretely doing across specialties.

Two previous studies limited to the core specialty programs in US graduate schools have been performed.[9,10] These studies predated important changes in curricula, in particular the CanMEDS competencies, which were adopted by the RCPSC in 1996. The objective of our study was to describe the characteristics of residents-as-teachers curricula in Canadian postgraduate medical education by surveying directors of Royal College residency programs.

METHODS

A 40-item questionnaire was developed through literature review and consultation with experts at the McGill Centre for Medical Education. A draft version of the survey was piloted by five residency program directors in specialties different from those surveyed. The survey was revised based on feedback and translated into French. French-speaking residents piloted the French version to ensure appropriate translation.

The survey included sections addressing the demographics of the responding program director; questions regarding the various modalities of teaching residents to teach, including workshops, incorporation of teaching responsibilities, clinical medical education rotations, and university courses related to education and medical education projects; and free-text comment boxes regarding recent changes to their training program. A *rotation in clinical medical education* was defined as a rotation in which the primary educational objective was for the resident to learn pedagogical skills through formal instruction on how to teach in a clinical setting, with opportunities to practice teaching and receive feedback. This definition was intended to distinguish it from simply a clinical rotation in which residents take on some teaching responsibilities as one part of their duties on the unit. The survey was reviewed and approved by the McGill Faculty of Medicine Institutional Review Board.

The questionnaire was sent out via e-mail using a modified Dillman approach.[11] Consent was implied by completion of the questionnaire.

We were particularly interested in comparing responses among Royal College specialties most closely aligned with emergency medicine (EM). Consequently, we surveyed the core specialties as well as selected subspecialties where the teaching environment resembled that of EM and, in particular, was not structured as a clinical teaching unit. We chose not to survey family medicine training programs for two reasons. First, there was a large diversity within family medicine programs, namely rural based versus university affiliated versus community teaching hospital based. Second, we were concerned about the difference in program duration (2 years for family medicine versus 5 years for most Royal College specialty programs).

All program directors of the following training programs were surveyed: Anesthesiology, Diagnostic Radiology, Emergency Medicine, General Surgery, Internal Medicine, Obstetrics and Gynecology, Pediatrics, and Psychiatry. The list of program directors was compiled from the Canadian Residency Matching Service (CaRMS) web page, a public website where e-mails are freely listed. The questionnaire was sent to each recipient a maximum of three times.

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Responses were compiled and entered into an *Excel* 2008 for Mac spreadsheet (Microsoft, Inc., Redmond, WA) and analyzed manually. Data are categorical and are presented as proportions.

RESULTS

The survey was sent to 126 residency program directors in Canada. The overall response rate was 90 (71%). The response rate for EM programs was 12 of 13 (92%) programs, and that of other specialty programs was 78 of 113 (69%).

The modalities used to teach residents to teach varied between EM and the other specialty programs (Figure 1). Most training programs (EM 92%, other specialties 88%) reported using either optional or mandatory workshops to develop residents as teachers. Other teaching modalities used include direct supervision of teaching (in the absence of a rotation in clinical medical education), core rounds teaching in medical education, and having senior residents help teach junior residents how to teach (Table 1). Most programs (79 of 90 overall, 88%) offered some formal instruction of teaching skills, and such formal instruction was mandatory in 61 of these 79 programs (77%).

All programs reported some type of mandatory teaching responsibilities for their residents. Some responsibilities were common and similar between specialties, including individual case review (95% EM, 91% other specialties) and providing feedback (90% EM, 80% other specialties). Residents in non-EM specialties, however, were more likely to be involved in

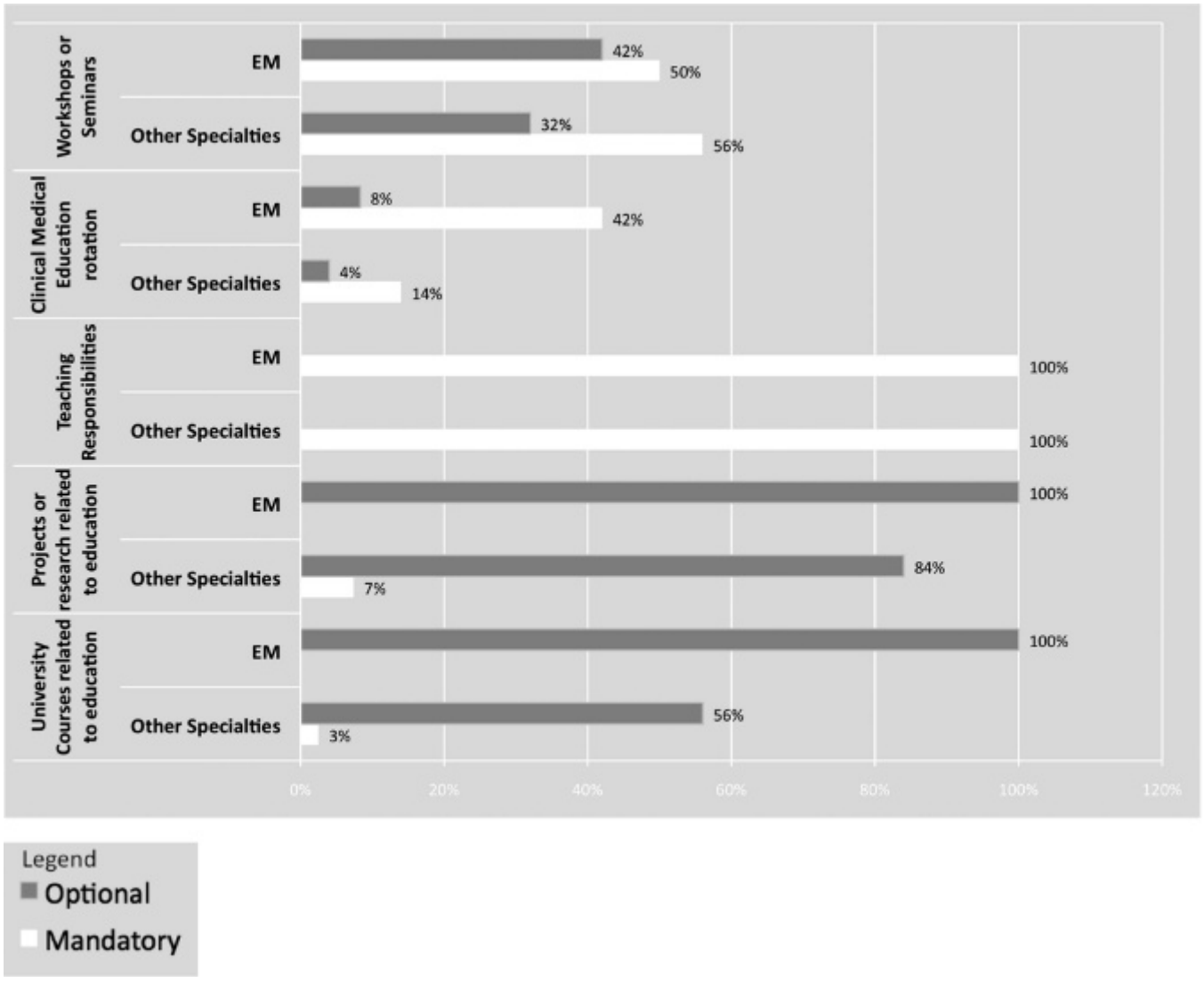

Figure 1. Teaching modalities used to develop residents-as-teachers. EM = emergency medicine.

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Table 1. Alternative teaching modalities used by residency programs

Emergency medicine programs
Direct supervision of teaching
Core rounds teaching in medical education
CanMEDs mentor-observer program
Learning portfolio
Teaching problem-based learning to preclerkship medical students
Other specialty programs
Residents are ''teaching fellows'' responsible for once- to twice-weekly teaching sessions with clerkship students
Senior residents help teach junior residents how to teach
Education chief whose role is to coordinate the overall teaching
Simulation
Attending residents-as-teachers conference
Attendance at a retreat
Modeling

formally evaluating trainees, organizing daily teaching, and supervising the treating team (Figure 2). In addition, 4 of 12 (33%) EM programs reserved formal teaching functions for senior residents beginning at the third year of postgraduate training, whereas only 7 of 78 (9%) other specialty programs did so. The remaining 71 of 78 (91%) non-EM specialty programs incorporated formal teaching functions throughout all years of residency training.

Half (6 of 12) of EM programs offered rotations in clinical medical education, compared to 14% (11 of 78) of other specialty programs. None of the non-EM specialties taken individually reported as high a rate as EM.

University courses in education were offered by 63% (57 of 90) of responding programs. Thirty-five respondents described the university courses taken by residents, of which 57% (20 of 35) were related to coursework for a master's degree in education.

DISCUSSION

Canadian specialty training programs use a variety of teaching modalities to develop residents-as-teachers. Teaching skills seminars or workshops are the most commonly used teaching modalities. In contrast, university courses and research projects related to education are often available but optional. Those residents who do take university courses are usually pursuing a master's degree in education.

In a 2001 survey looking at family medicine, internal medicine, pediatrics, psychiatry, general surgery, and obstetrics and gynecology residency programs, 35% of respondents reported using formal instruction of teaching skills, where formal instruction was self-defined by the respondents.[9] In our study, we explicitly specified that formal instruction included workshops, seminars, rotations in clinical medical education, educational projects, research, and university courses and found rates that were much higher. It appears that programs are recognizing the need to provide residents with teaching skills. Workshops may be offered to residents from all specialties, suggesting that there has been a sensitization across academic institutions. Pressure from accreditation bodies, which are now including teaching skills as part of required competencies, may also account for this observation.

Every program reported mandatory teaching responsibilities for their residents. This in itself is not surprising as studies show that residents are important teachers of junior learners.[1–3] Outcome studies of resident teacher training have shown that residents who do not receive formal instruction and reinforcement of teaching skills do not improve these skills as their level of training and clinical competence advance.[12] Many training programs incorporate teaching responsibilities from the very beginning of residency. An interesting follow-up study would be to look at the impact of formal teaching skills sessions on the teaching efficacy of residents.

At the outset of this project, our impression was that very few specialty programs were offering rotations in clinical medical education. We were surprised to find that several programs in Canada offer such a rotation. The impact of a rotation in clinical medical education on the resident-teacher has not been formally studied, yet we believe that it can have a very positive effect on confidence and ability. EM programs lead the other specialties in offering rotations in clinical medical education. The emergency department (ED) is a rich environment for teaching and learning: it offers a diverse undifferentiated patient population, variable illness severity, and constant staff supervision.[13] Conversely, the pace, patient acuity, frequent interruptions, and time constraints can challenge the clinical teacher.[13,14] Within the ED environment, one quickly realizes the need for guidance, education, and practice of effective teaching methods. The rotation in clinical medical education has

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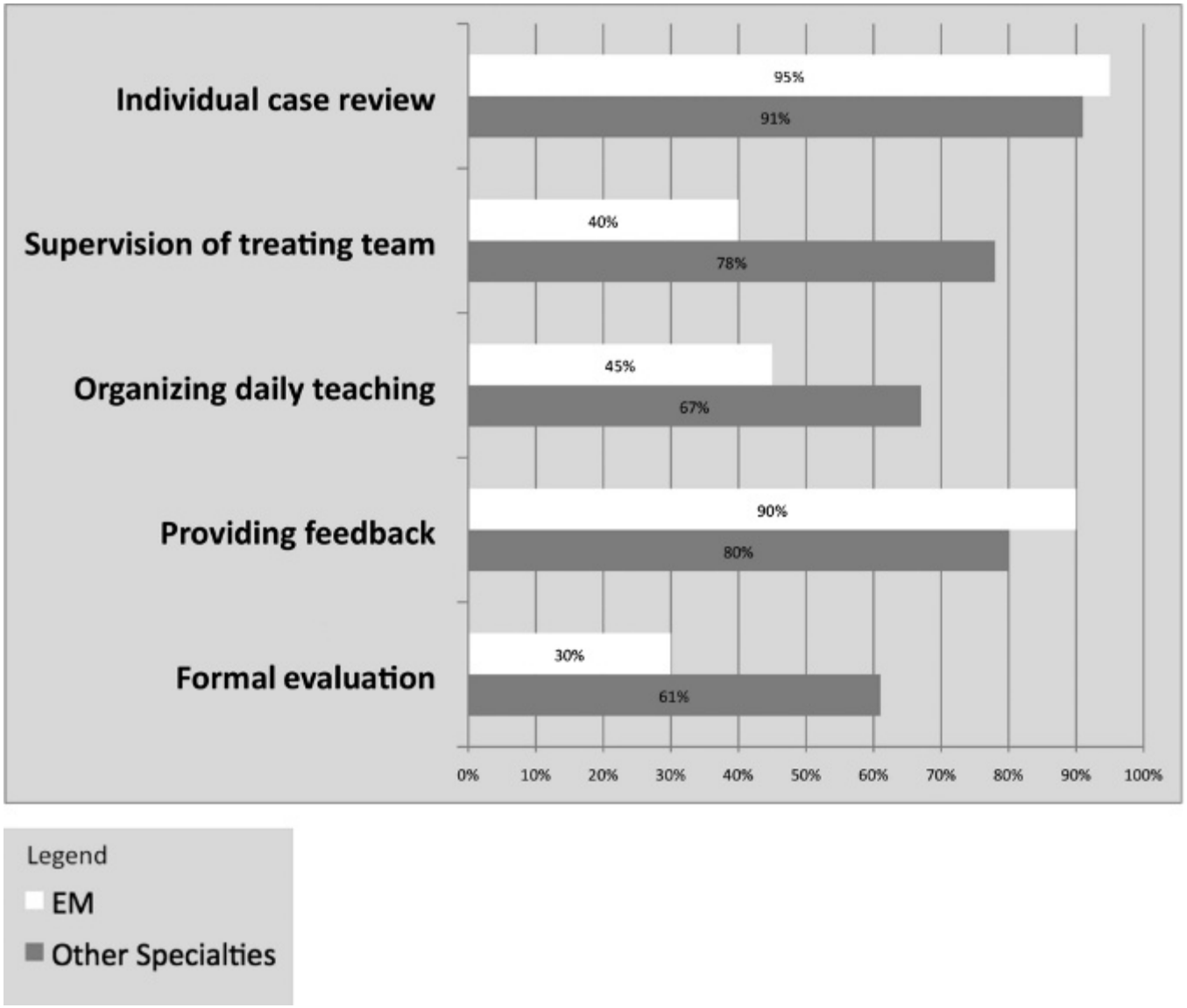

Figure 2. Resident-teaching responsibilities of emergency medicine (EM) residents compared to other specialties.

likely arisen from the perceived need for such instruction by training programs and their trainees.

We also found that some EM programs only introduce formal teaching functions later in residency. This may reflect the need for an ED attending physician to have minute-to-minute knowledge of the patients within the department. This pace is not conducive to the usual model of teaching that occurs on most clinical teaching units (i.e., junior resident supervises student, senior resident supervises junior and ultimately reports back to the staff at discrete intervals during the day). The rotation in clinical medical education has likely evolved from the need to develop different teaching skills and strategies for the EM environment, some of which are highlighted in the literature.[13] It remains to be determined whether residents who are exposed to the clinical rotation in medical education are more effective, confident, or motivated teachers and whether they remain involved in teaching later in their careers.

Several limitations must be mentioned. As with all surveys, the results depend on response rates. Family medicine training programs, which enroll approximately 40% of trainees in Canada, were not surveyed, and our findings should not be extrapolated to these training programs. Although every effort was made to ensure that questions were clear, there is still the possibility of question misinterpretation or that

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program directors' self-reports differ from actual practice.

CONCLUSION

Canadian specialty programs use a variety of teaching modalities to develop residents as teachers. Formal instruction of teaching skills is offered in a majority of programs. There are still many programs that institute resident teaching responsibilities without offering formal instruction in teaching skills. Canadian EM specialty programs appear to differ from other Canadian specialty programs in the way that they develop residents-as-teachers. A significant proportion of Canadian EM programs have instituted a rotation in clinical medical education where the primary goal is to teach and reinforce pedagogical skills, and many EM programs reserve teaching responsibilities for more senior residents.

Competing interests: None declared.

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