Coaching in Postgraduate Competency-Based Medical Education: a Qualitative Exploration of Three Models

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Abstract

Objective As postgraduate medical education increasingly transitions to competency-based models, there is a growing need for faculty to help residents process increasing amounts of assessment data. It has been recommended that a designated resident advisor or coach take on this faculty role, but the literature surrounding coaching in medical education is sparse. The authors evaluated the implementation of different coaching models in a postgraduate psychiatry program to identify drivers and barriers to effective coaching.

Methods The authors conducted semi-structured interviews in September 2019 with focus groups of residents and faculty to understand their experiences of coaching under different models. They identified major themes through a qualitative analysis of the transcribed focus groups, which took place from September to December 2020.

Results The authors identified four key themes associated with the implementation of coaching within a competency-based framework, namely role ambiguity, educational alliance, the “idealized coach,” and burden.

Conclusions While these findings highlight the barriers that can interfere with effective coaching, particularly in the context of widespread curriculum change, they also illuminate opportunities for the coaching role moving forward. Thus, they offer valuable guidance for present and upcoming competency-based programs as they implement coaching and seek to optimize the learning experience for residents.

Keywords Coaching · Competency-based medical education · Curriculum development · Postgraduate medical education

Since the publication of the Flexner report in 1910, and subsequent reorganization of medical school training to focus on science and education [1], the North American model of medical education has been unvarying. In contrast, expectations for physicians have evolved. In response, medical regulatory bodies in North America have moved towards a framework of competency-based medical education (CBME) [2]. The basic tenets of the CBME framework are a de-emphasis on time-based training; increased focus on curricular outcomes; emphasis on clinician abilities rather than knowledge; and the promotion of learner-centeredness, with clear milestones marking the roadmap to tangible goals (competencies) [3].

Canada’s Royal College of Physicians and Surgeons (RCPSC) has disseminated a competency-based model for residency training entitled Competence by Design (CBD), with the target of all specialties transitioning by 2022 [4].

In a CBME approach, Canadian residents receive more frequent formative assessments and feedback within a flexible time frame. These assessments are termed entrustable professional activities (EPAs), which are in-the-moment, workplace-based, and focused on discrete competencies. Residents also have end-of-rotation summative feedback termed In-Training Evaluation of Residents (ITERs).

Decisions about progression to the next stage of training are moved from the individual supervisor’s purview to that of a Competence Committee, allowing for “an informed group decision-making process where patterns of performance can be collated to reveal a broad picture of a resident’s progression toward competence” [5]. The committee is removed from the teacher-learner interaction, reviews all assessment data, and offers a developmental approach. With guidance from the Competence Committee, residents create a personalized learning plan while progressing through their training.

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The amount of assessment data collected about each resident, and hence the amount each resident needs to review, is increasing. Platforms have been developed to help manage and metabolize this data so it can be used by learners and faculty to guide progress. In addition, the RCPSC has suggested the use of a “coach,” or resident advisor, to create a longitudinal, educational partnership between a clinical faculty member and resident, termed “Coaching Over Time” [6]. This relationship requires regular face-to-face discussions about the resident’s progression toward competence [6].

“Coaching” discourse in medical education is novel. Coaching denotes a collaboration that works toward a common goal of performance improvement, which may be personal, longitudinal, linked politically and socially, and separated from formal assessment responsibilities [7, 8]. Coaching effectiveness has emphasized the consistent application of integrated knowledge to improve abilities, confidence, connection, and character [8]. Within medical education, there has been concern about the conflict that arises when a coach is also acting as a supervisor, [9], which we would define as a faculty member who completes assessment data by observing a resident’s progression within a specific rotation during their training.

The University of Toronto Postgraduate Training Program in Psychiatry began transitioning to CBME in July 2016. During this transition, we had the opportunity to pilot various methods of longitudinal coaching, to assess their feasibility and acceptability. Doing so helped guide the creation of a coaching model that fit within our educational landscape. Lessons learned from qualitative review of feedback related to these models can heighten understanding of what encompasses a medical education coach—a new role for faculty. We wanted to answer the question: What themes arise when we compare coaching models that separate or combine the roles of coach and supervisor?

Methods

The University of Toronto psychiatry residency program has almost 200 residents in total, and around 50 residents participated in the early implementation phase of the coaching models. We set up three different coaching models. Residents were assigned to one of the three coaching models based on their hospital site. Model 1: At two hospitals, the coach also supervised residents during their longitudinal clinic day, and completed both EPAs and ITERS for their coachees. Model 2: At a third hospital, the coach did not directly supervise their coachee but was a member of the Competence Committee, which met twice per year to decide about resident progression within the program. Model 3: At a fourth hospital, the coach was neither the resident’s supervisor nor member of the Competence Committee; thus, the coach did not hold any assessor role.

Coaches were expected to meet with their coachee for 30 min every 2 months, to review the coachee’s completed EPAs and construct a learning plan with them based on areas of strength, areas for improvement, and areas needing exposure. Training for coaches was made accessible via several avenues. Faculty development sessions were held on multiple dates. The sessions were recorded and made available online, with about 3 h of content related to coaching, broken down into smaller sessions. “Coach’s Corner” office hours were held where coaches could clarify questions about coaching with the associate program director and faculty development lead.

We held 7 focus groups in September 2019, after the coaching program had been in place for 14 months, to assess the feasibility and acceptability of these various models using a semi-structured interview with relevant stakeholders. The corresponding author can be contacted for a copy of the semi-structured interview tool. Participants were second and third year psychiatry residents and faculty coaches at the University of Toronto. The number of attendees per focus group ranged from 2 to 23 (average 10), and residents and faculty were interviewed in separate groups.

Focus groups were audio-recorded and transcribed, then anonymized by an independent reviewer prior to data analysis, which took place from September to December 2020. The data analysis below was completed by a team of 3 investigators. Using NVIVO software and predominantly inductive thematic coding, they analyzed the transcripts separately to derive codes; then, they met to review the data and develop a codebook. Once a codebook was finalized, they reviewed all transcriptions and met to resolve discrepancies by consensus, allowing for the emergence of generative themes. The investigators again reviewed the data and reapplied themes from the finalized code structure independently. The team again met to review discrepancies, which were resolved through discussion and negotiation until full consensus was reached.

Ethics approval for this study was obtained from the Research Ethics Board of the University of Toronto, and written consent was obtained from each participant.

Results

Our qualitative review revealed four broad themes: role ambiguity, educational alliance, the “idealized coach,” and burden associated with implementing a new role in a time of change.

Role Ambiguity

Given the novelty of the coaching role and CBME in general, uncertainty and confusion around the nature of the coaching
relationship was commonly voiced by coachees and coaches, both in supervisor and non-supervisor roles:

“Often I find we come to the coaching session and the coach isn’t super sure what we’re doing either. So we’ll sit down and they’ll be like ‘Do you have any questions?’ and I’ll be like ‘I was hoping you had questions.’ And then it’s dead silence for a while.”

“I only realized that [my coach was my coach] because her name shows up every time I fill out an EPA.”

Several coachees hypothesized that this uncertainty stemmed from insufficient education for the coaches:

“I think the education for the clinicians either hasn’t happened, or the role is ambiguous, but if you’re evaluating coaching and its quality, it’s just not happening, at least from my experience.”

For those who did recognize that the role of a coach involved reviewing assessment data, many expressed that this data review was not occurring:

[Coach as supervisor] “We go over things but we don’t do anything formal, we just kind of check in every week, how are things going, and I can bring up any issues.”

[Coach as non-supervisor] “I’ve only had two meetings with the coach … We on both occasions didn’t discuss any of the EPAs I had done [or] review any of the ITERs either.”

While this issue appeared to be a global one, when the coach was also the supervisor, participants noted particular difficulty distinguishing the two roles, leading to the purpose of coaching getting lost. Coaches noted it felt artificial to switch between coaching and supervising:

“I think even if it’s super clear that one is this and the other is this, it’s really strange to sit in the room with the resident and look at them this way, and then change the other way like, ‘now I’m your coach, now I’m your supervisor.’ It’s really confusing and it’s confusing for the resident and feels quite artificial.”

**Educational Alliance**

Staff and residents highlighted the benefit of an educational alliance, akin to a therapeutic alliance, to ensure a good coaching experience. Within that framework, there were concerns that having the dual role of supervisor and coach could lead to a conflict of interest:

“It’s too awkward because they are the ones giving you the most EPAs, and also if you have a conflict and it’s not a good dynamic … and they’re also your coach and you’re with them for a year, it’s very difficult to address.”

Interestingly, some coaches who were not supervisors worried more than those who were about a possible conflict with a dual role:

[Coach as non-supervisor] “If I was in a supervisory role or if they felt that somehow indirectly I could influence their evaluations, they would not be as forthcoming about some of the things that they’re struggling with.”

[Coach as supervisor] “I don’t think there were any ethical dilemmas where we felt … compromised.”

One supervisor/coach felt that the dual role actually facilitated the educational alliance:

“You have a longitudinal relationship so … you can identify areas where they’re struggling and … you don’t just give feedback, you’re also committed, because you’re a supervisor, so working [with them on] whatever the skill is.”

On the other hand, residents commented that having clearly delineated roles led to more openness:

“My coach is not involved in evaluating me in any way … I feel like I can be more open with her without having any … consequences.”

Conversely, having a coach with no other relationship with the resident risked superficiality:

“If you’re trying to achieve some sort of learning objective and then this coach that has never seen you operate … he basically sees you as an EPA.”

Another educational alliance concern was that coaches felt residents were not prioritizing the coaching relationship:

“Maybe for some residents, they might see this … not being as important of an experience within the residency. It’s … semi-optional when it’s not really optional, but it’s perceived that way because you don’t have any evaluative component.”
“I have been stood up before by a coachee and I do wonder like if this was their supervisor that probably would not have happened.”

The Idealized Coach

Throughout the focus groups, a theme emerged around the concept of an “idealized coach.” Many participants voiced ideas about how they envisioned that a coach should behave or that the coaching system should be structured. They shared a desire for the coach to act as a longitudinal mentor, who had common interests and career goals. We have adapted a definition of a mentor from the literature [10] and define it as “a more experienced faculty member who provides a more junior clinician with career counseling and psychosocial support.” Several participants mentioned that their coaching experience fell short of their ideal:

“Around the table we all had pictures of what the coach could be and then we didn’t have that experience.”
“There’s so much more that can be done with this role and I don’t actually think it should be just going over ITERs and EPAs.”

Numerous residents made it clear that they hoped a coach would take on a mentorship role:

“There’s a type of overlap when we talk about mentorship in coaching, and … most of us expected more mentorship and not less.”
“I envisioned a process where you would have mentoring about your career choices and what … interest you had in psychiatry [and] give you connections.”

Coaches also appeared to value the mentorship role above simply reviewing academic progress:

“I … expanded the role of coach to talk to people about their move to Toronto because both my residents came from abroad and I was … asking what’s their acclimatization to the program, sort of a mentorship role because I thought that was more useful.”

In keeping with the desire for mentorship, residents also expressed interest in maintaining a longer-term relationship with the same coach:

“I do like the idea of staying with the same person for more than one year, so that you do get … a closer relationship, they get to know your strengths and weaknesses, things like that over time, so that they can be … more of a mentor.”

“If the person actually knows who you are and has met you over time then they can defend and … if you’re struggling, try to coach you along the way.”

There was a wide breadth of experience regarding goodness of fit. Residents valued faculty who had shared similar life experiences over coaches with whom they did not personally identify:

“She is also a mother and had kids in residency and I’m also a mother and had a kid in residency so coaching from that standpoint has been the most useful for me, about how to find balance and managing being away from your kids on call and when you’re nursing and all these very practical things.”
“At least you can get tips for the future, [my coach and I] have nothing in common interest-wise, personality-wise.”

Residents advocated for matching pairs based on shared interests, or for switching coaches if the fit was not right:

“Rather than it being random, maybe a quick survey about what you’re interested in or match you up with someone who’s similar.”
“For people who are not enjoying their coaching experience, maybe an avenue for them to change.”

Residents and staff additionally described situations in which coaches acted as teachers, therapists, and advocates. Coaches indicated that sessions could start to include clinical teaching:

“I’m mindful of not going into full on teacher mode all the time, like sometimes I want them to think how they’re going to get their learning from their rotation not from me.”

Other participants observed the emergence of a therapist role:

“They’re just more listening to me vent about how incompetent I am.”
“There’s been a lot more frustration that has been expressed by the resident about the program, so I feel that our sessions have taken a different turn where probably 50% of the session is venting … resisting becoming their therapist.”

A coach also questioned the appropriateness of advocating around a resident’s concerns:

“This year I’ve been much more like an advocate for the resident, rather than just a coach, and I’m not sure if
that’s supposedly a part of my role, but I’ve definitely ended up doing that.”

**Burden**

A final common theme was that of being burdened by this new aspect of the training program. Concerns were related to travel, redundancy, finding time, administrative burden, and burnout. These were highlighted by coaches and coachees alike, in all three models. Coachees expressed concerns around travel requirements associated with attending coaching sessions, impacting time available for other residency priorities:

“Traveling is annoying because this is technically not … protected time so it’s sometimes awkward to ask ‘Can I take two hours off to travel to a different site?’”

Coaches who were also supervisors reported challenges finding dedicated time for coaching while juggling responsibilities such as teaching, supervision, and patient care:

“When it gets quite busy, and if you’re actually doing active teaching or supervision, there’s not a lot of time to actually play the role of coach which can take up to 20 minutes or half an hour ideally. Nobody really wants to be staying after 6 o’clock to tack on something every two months.”

“To add in coaching is something we’re all aware … we should be doing, but it’s easy to move it to the next week, it’s not time-sensitive, it’s not patient-care-sensitive.”

Coachees similarly noted competing priorities:

“There’s yet another hour on top of psychotherapy hours and/or supervision hours. And I never end up doing my rotation which is frustrating and so I often do things after hours because I choose not to miss my clinical time. Or just juggling it becomes a logistic nightmare.”

In the model where coaches were not clinical supervisors, participants also expressed concerns about time:

“Trying to set up meetings with more than four residents, even if it’s a 6 week to 2 month frequency, any more residents than that would be challenging, particularly if you have a resident that has some needs. The challenge going forward is what our capacity is going to be for coaching when it applies to all years.”

“We always did our coaching after hours, like after work was done which was fine but it does go into our personal time.”

Especially when the role of supervisor and coach was a shared one, some participants felt it did not add anything to existing structures or relationships:

“It seemed a little redundant, because she was already my supervisor and was already getting this information.”

Some coaches wondered if having a coach provided enough benefit to justify the additional burden placed on residents:

“This is more from the resident’s perspective, how many different people do they need to be meeting with? And although there may be benefits to having someone who’s a separate person, it’s an additional thing to put on their plate … and given how frazzled they’re experiencing their early years in the residency [program to be], is that one more thing of extra benefit or not?”

As a result, some faculty discussed whether coaching should be a targeted intervention for struggling students:

“It would raise the question whether you wanted to develop a cadre of coaches that were specifically to coach the residents that were identified as having difficulties, versus how coaching is done for residents that are progressing reasonably well.”

Participants also articulated frustration about the administrative burden associated with coaching:

“Paperwork, logging into different systems, it’s a lot of things that don’t feel necessarily like mentorship or teaching.”

Given the burdens above, burnout was a concern:

“I think one of the challenges with all the changes that are happenings is risk of burnout for supervisors … more and more roles, or even like if the coaching model is different and you’re trying to recruit people that are not just supervisors but also coaches that don’t necessarily know the residents in other ways, I just think there’s a lot that’s being asked of people who are doing educational work. There’s just a concern that, there’s a lot of … subdividing and lots of extra responsibilities.”
Discussion

The first theme that emerged in our study was one of role ambiguity. There was a general experience of uncertainty regarding what this new role could or should entail. Some residents hypothesized that staff were not receiving enough education around the role. While numerous communications and faculty development sessions had been provided, these may have been insufficient. Training faculty is important to ensure that they have a proper understanding of the concept and skillset to be an effective coach [11]. Participants also hypothesized that due to many competing demands, it might be difficult for them to prioritize the coaching experience. The transition to CBD necessitated the adoption of a number of new practices, all of which require time to learn and implement. Pre-CBD, curriculum changes were comparatively smaller and more gradual. It is possible that a sense of burnout in adjusting to multiple changes made it difficult to take advantage of the intended benefits of a coaching model.

Additionally, coaches holding dual roles as supervisors identified frustration with the perceived overlap of the roles. They and their residents often did not feel that formalized coaching sessions were providing much additional value. These challenges differentiating the roles suggest that it may be beneficial for a coach to be separate from the supervisory role, to allow for a more objective, “big-picture” perspective of the resident’s progress and learning goals.

Research on feedback has shown that the quality of the relationship with the feedback source is critical in recipients’ interpretation and use of external information [12]. Alignment of the teacher’s and learner’s personal and professional values impacts feedback credibility [13]. Telio et al. point to the construct of an educational alliance: “Just as a patient forms a therapeutic alliance with a therapist, a trainee could be conceptualized to form an “educational alliance” with a supervisor” [14]. This concept appears to hold true for the coaching role as well, where instead of just assessment data, goodness of fit and a focus on the humanity of participants are essential components of an effective coaching relationship.

Having a dual role of assessor and coach, while allowing for a deeper understanding of the resident, seemed to threaten this alliance. Residents found it uncomfortable, and worried that the interpersonal dynamic would be unduly influenced given they were also being assessed by the coach. Coaches in other models also expressed concerns regarding conflict of interest; they noted that residents consistently voiced preference for a non-dual role coach, and may not be forthcoming with their concerns otherwise. The literature has identified that trust between the coach and learner plays a key role in effective coaching, and perceived conflict of interest can undermine this trust, consciously or subconsciously [15]. A qualitative study on mentorship by Strauss et al. also supports the idea that a supervisor-supervisee relationship can be a barrier to effective mentoring [16].

However, concerns were also raised when coaches were not supervisors. In these models, the coaching relationship could be superficial. Participants felt having dual roles facilitated a deeper understanding of the coachee and more personalized coaching. Previous research also suggests that relationship building is key to providing a safe environment whereby residents feel respected and comfortable sharing their viewpoints [15, 17].

Based on our findings, we would recommend that if coaches are in assessor roles, programs should provide faculty development that incorporates skills in minimizing bias and conflicts of interest. Conversely, if coaches are not in assessor roles, systems should be in place to ensure that coaches receive adequate data so that effective and relevant coaching can be provided.

Coaches observed that residents may not be prioritizing coaching sessions, which was reflected in actions such as missing sessions or canceling last minute. The lack of an evaluative component was seen as a potential contributor to resident lack of investment. Coaches also felt that the responsibility for scheduling coaching sessions largely fell within their purview. Armson et al. identified that one factor in successful coaching is when coaches facilitate resident commitment [16]. To foster commitment, open-ended, bilateral dialogue could be used to ask residents to reflect and participate in analyzing their own growth. Furthermore, rather than unilaterally providing feedback, clarifying residents’ understanding of what was discussed can foster interconnectedness, self-efficacy, and self-confidence, which increases resident engagement. Organizationally, highlighting the empirical evidence supporting coaching, its relevance for resident growth, and efforts being put forth to refine coaching may help residents feel more invested.

Given the ambiguity associated with this new role, and the importance of the educational alliance, the coaching role often evolved to fulfill various functions outside of the prescribed goal of reviewing EPAs and learning plans. It expanded to encompass functions such as mentorship, emotional support, advocacy, and teaching. This evolution of the role may reveal both a lack of buy-in and lack of clarity around the existing purpose of the coach role, and also suggests a paucity of other types of support residents desire.

The theme of the idealized coach further emphasizes the discrepancy between what participants expected and experienced a coach to be. Participants identified an ideal coach as one who provides mentorship, is not assessing them, is paired with residents in a personalized manner, and with whom a relationship can develop over time. The importance of interpersonal chemistry in mentoring relationships, and the resulting challenges that can arise with arbitrarily assigned mentors, has been emphasized elsewhere in the literature [18].

The main areas identified as burdens of coaching were travel, redundancy, difficulty finding time, administrative
load, and burnout. The impact of burden was felt by all stakeholders.

Redundancy was identified as burdensome especially when coaches were also supervisors. Coaches had difficulty separating the boundary between being a coach and a supervisor, and would often combine feedback and clinical issues within the same session. At times, it was not clear whether any coaching had occurred, as coaching sessions were not scheduled separately from clinical supervision. Armson et al. discussed the importance of adequately preparing coaches for their role to foster a robust coaching system, and identified coaching skills that could enhance relevance of the sessions for coachees [16], including “engaging the resident in discussion, ensuring the discussion was collaborative and focused and self-assessment” [16].

Other “process” skills included preparation, relationship development, supervisor flexibility, and promoting reflection and self-assessment [16].

Finding time was the most common burden reported by both coaches and residents. Most coaches have ample academic and clinical obligations. When supervisors additionally act as coaches, scheduling becomes complex given direct competing priorities. Coachees similarly have many training requirements and attending coaching sessions presented a challenge, especially if travel was required. Ensuring coaches and learners have buy-in to prioritize coaching amongst competing demands will be important for a sustainable coaching program.

Burnout was a final sub-theme noted. Requiring faculty to be coaches on top of their existing academic duties increased the risk of burnout. Coachees too expressed concern that faculty were not given the choice regarding changes in education delivery. However, it is possible that burnout can be mitigated by providing adequate faculty training, resolving role ambiguity and redundancy, directly compensating coaching time, and fostering cultural acceptance of coaching at an organizational level. Schultz and Griffiths discuss the implementation of a similar coaching model in Family Medicine at Queens University, where they found that protected time and stipends for coaches seemed to maximize buy-in and minimize burnout [19].

Though our study design was able to provide rich qualitative feedback around participants’ subjective experiences of coaching, it did not capture objective outcome measures. It is not clear whether different coaching models led to different results for residents in terms of meeting learning goals, addressing areas for improvement, or other performance measures. It will be helpful for future studies to evaluate whether coaching leads to improved outcomes in resident competence, resident wellness, and patient outcomes. It will also be important to evaluate coaching in an ongoing fashion as faculty and residents move through this transition and adapt to curricular changes. Early findings from Schultz and Griffiths do suggest that the addition of a coach role has led to earlier identification of struggling and excelling residents [18].

Additionally, the focus groups for this study took place prior to the COVID-19 pandemic, and with the resulting disruptions in healthcare and education delivery, there is new-found opportunity to address some of the challenges with coaching. For example, a move to virtual coaching sessions is likely to decrease the sense of burden associated with travel time and schedule fragmentation, allowing for a more integrative experience.

Based on the feedback from these focus groups, our program has moved to a single coaching model in which coaches are not in an assessor role but are members of the Competence Committee. By keeping the coaching role separate from the supervisor role, we have attempted to address concerns regarding conflict of interest and time needed for coaching sessions. Furthermore, by using coaches who are members of the Competence Committee, coaches are more likely to have interest in postgraduate education, familiarity around expected resident competencies, and an understanding of the coaching role. Although coaches are present on the Committee and can advocate for their coachees, they do not make progression decisions about their own coachees. Being part of a committee, coaches have the opportunity to share and engage in faculty development in a group environment via regular meetings. Since this study, the program also created a coaching checklist that coaches can use in each session to guide them through the content.

Based on the findings from our study, we would propose the following best practices in medical education coaching. First, we recommend that, where possible, coaches should not be direct supervisors of their coachees to minimize conflict of interest and maximize open communication. We recommend mandatory training for the coaching role that is accessible and minimally time-consuming. We also recommend that programs implement selection and evaluation criteria for coaches. We recommend that materials such as a job description for coaches and a coaching checklist/template be created to support coaches in their role. Finally, we recommend that coaches be remunerated for their time to increase buy-in and mitigate burnout for this non-clinical work that can add value to CBME.

As eloquently framed by Atkinson, coaching is “an educational philosophy dedicated to supporting learners’ personal and professional development and growth and supporting them to reach their potential” [15]. With more programs transitioning to CBME, the need to understand and integrate this philosophy into medical education is paramount, requiring strategic input from all stakeholders involved, including the educational institution, technology developers, faculty, and learners. Thus, research in this area continues to be needed.
To our knowledge, this study is the first to evaluate the implementation of a new coaching role within a CBD psychiatry residency program, as well as the first to compare different models of coaching. While our findings highlight the growing pains inherent in curriculum change, they also highlight opportunities. Development of more streamlined approaches to education around the CBD curriculum can minimize burnout and maximize impact and buy-in. Development of a unique coaching role can at the least help residents consolidate their learning, and at its fullest potential allow for a breadth of functions based on each resident’s individual needs. We hope our findings will offer valuable guidance for the implementation of the “coaching-over-time” model for both present and upcoming CBME programs, and, in doing so, help to optimize the learning experience for residents.

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Declarations

Ethics approval Ethics approval for this study was obtained from the Research Ethics Board of the University of Toronto in August 2019, protocol number 00037166.

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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