

EPAs for the Ambulatory Internist in Translation: Findings from a Canadian Multi-Center Survey

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ABSTRACT

Background

Increased demand for outpatient care has made defining the role of ambulatory general internists an educational priority. Canadian residency programs are transitioning towards competency-based education, where learning goals are articulated as entrustable professional activities (EPAs). Engaging frontline internists in the validation of context-specific EPAs is important for implementation.

Objective

This study describes a consensus approach for developing EPAs for ambulatory general internal medicine (GIM) training and results of a Canada-wide survey seeking feedback from academic internists.

Methods

In 2016, we reviewed Royal College of Physicians and Surgeons of Canada GIM accreditation documents, and systematic literature search results for internal medicine ambulatory training objectives, to draft EPAs. EPAs were revised via expert consensus at the University of Toronto. A survey was distributed to Canadian academic internists to determine level of agreement on proposed EPAs. Consensus was defined as greater than 80% inter-rater agreement. Open-ended questions explored reasons for disagreements, which were reviewed independently by authors and iteratively organized into categories.

Results

Eight EPAs were generated. The survey response rate was 24.9% (63/253). Consensus was achieved on all EPAs except obstetrical medicine (49/63, 77.8%). Reasons for disagreements reflected a variable understanding of EPA concepts by respondents. Where understood well, disagreements fell into 3 main categories: (1) further training required, (2) not within internal medicine scope, and (3) implementation barriers.

Conclusions

Frontline academic physicians are pivotal in validating proposed EPAs. Disagreements were either content or concept related and recognizing these diverse perspectives can help clinician-educators predict and prepare for challenges with EPA implementation.

RESUME

Contexte général

L'augmentation de la demande de soins ambulatoires a fait de la définition du rôle des internistes généralistes ambulatoires une priorité éducative. Les programmes de résidence canadiens sont en transition vers une éducation axée sur les compétences, où les objectifs d'apprentissage sont définis comme des activités professionnelles confiées (AEP). Il est important, pour la mise en œuvre, de faire participer les intervenants de première ligne à la validation des APE spécifiques au contexte.

Objectif

Cette étude décrit une approche consensuelle pour l'élaboration d'APE pour la formation en médecine interne générale ambulatoire (GIM) et les résultats d'un sondage pancanadien visant à recueillir les commentaires des internistes universitaires.

Méthodes

En 2016, nous avons examiné les documents d'agrément du Collège royal des médecins et chirurgiens du Canada en matière de GIM et les résultats d'une recherche documentaire systématique pour les objectifs de formation ambulatoire en médecine interne, afin de rédiger les ADP. Les APE ont été révisés par consensus d'experts à l'Université de Toronto. Un sondage a été distribué aux internistes universitaires canadiens afin de déterminer le niveau d'accord sur les APE proposés. Le consensus a été défini comme étant un accord supérieur à 80 % entre les évaluateurs. Les questions ouvertes portaient sur les raisons des désaccords, qui ont été examinées indépendamment par les auteurs et classées par catégories de façon itérative.

Résultats

Huit APE ont été générés. Le taux de réponse au sondage a été de 24,9 % (63/253). Un consensus a été atteint sur tous les APE sauf la médecine obstétricale (49/63, 77,8 %). Les raisons des désaccords reflétaient une compréhension variable des concepts de l'APE par les répondants. Lorsqu'ils étaient bien compris, les désaccords se répartissaient en trois grandes catégories : (1) formation complémentaire requise, (2) ne relève pas de la médecine interne et (3) obstacles à la mise en œuvre.

Conclusions

Les médecins universitaires de première ligne jouent un rôle essentiel dans la validation des APE proposées. Les désaccords étaient liés au contenu ou au concept et la reconnaissance de ces diverses perspectives peut aider les cliniciens-éducateurs à prévoir et à se préparer aux défis de la mise en œuvre de l'AEP.

Graduating general internists are expected to manage patients with multi-system disease and undifferentiated symptoms, in both inpatient and outpatient settings.¹ In 2010, the Royal College of Physicians and Surgeons of Canada (RCPSC) recognized General Internal Medicine (GIM) as a distinct subspecialty of internal medicine, dedicated to care for an increasingly complex patient population.² Two-year subspecialty GIM training programs in Canada follow three years of residency in Core Internal Medicine, totaling five years of training. Once in independent practice, general internists provide subspecialty care for inpatients and ambulatory patients on a referral basis. This differentiates Canada from the United State (US) where GIM physicians provide both primary care and hospitalist services after completing three years of training. Additionally, most Canadian internists predominantly work in inpatient settings, while ambulatory care represents only a small fraction of overall clinical practice. In both countries, ambulatory GIM clinics are needed to help offload busy inpatient wards and reduce hospital admissions and lengths-of-stay.³ Accordingly, the RCPSC and the Accreditation Council of Graduate Medical Education (ACGME) have mandated that internal medicine residency programs adequately prepare trainees for ambulatory practice.^{4,5} Despite such mandates, internal medicine residency programs vary in their approach and some face challenges in fulfilling ambulatory training requirements.^{6,7} This variability, in combination with differences between scopes of practice across nations, has created a need to standardize educational approaches to internal medicine training in ambulatory settings.^{8,9}

The RCPSC CanMEDS framework highlights 7 competencies required of all practicing physicians, underpinning national accreditation standards.¹⁰ Resident-run clinics provide valuable learning opportunities for developing such competencies specific to ambulatory contexts.¹¹ However, clinics face obstacles in achieving educational goals, including acquiring a breadth of clinical cases, maintaining continuity, and teaching within tight time constraints.^{12–14} Important gaps in ambulatory competencies amongst internal medicine residents include lack of communication skills specific to ambulatory patients¹⁵ and limited triage skills.¹⁶ A Canadian study found that ambulatory care represented one of the largest gaps in GIM residency programs, with prominent needs to improve training in the manager, health advocate, and professional CanMEDS roles.¹⁷ Given these requirements for improvement and emerging societal needs, ambulatory training for internal medicine constitutes a key educational priority.¹⁸

Existing literature has focused on needs assessments, with few studies attempting to articulate roles and competencies for general internists in the outpatient setting.^{19,20} Additionally, differences between ambulatory internal medicine practice in

the US and Canada preclude extrapolating results from studies focused on primary care^{19,20} to Canadian training. Wong²¹ attempted to bridge these gaps using a modified Delphi-technique to identify a core competency-based curriculum in ambulatory GIM within the CanMEDS 2005 framework. However, training paradigms have recently evolved to define educational goals by integrating competencies into activities more closely aligned with the provision of day-to-day patient care, articulated using the “entrustable professional activities” (EPAs) framework.^{22–24}

EPAs explicitly describe activities performed by a medical specialty that can be entrusted upon a learner in a given context.²⁵ EPAs integrate several CanMEDS roles and are observable and measurable.^{26,27} Entrustment to perform an EPA is achieved by reaching a set of milestones: observable indicators of a learner’s ability to perform certain tasks along a continuum.²⁸ Within the RCPSC Competence by Design (CBD) framework, EPAs have been developed for each stage of training within the *Competence Continuum*.²⁹ Articulating resident learning goals as concrete observable tasks (i.e., EPAs) may potentially bridge current gaps in ambulatory internal medicine training as residency programs transition to CBD.

Numerous approaches for developing EPAs are described in the literature.^{28,30–32} However, context-specific EPA development is important to optimize uptake by frontline clinicians. Specifically, it is important to determine if proposed EPAs adequately reflect real-life practice, and to assess whether academic physicians are able to effectively implement EPA-based assessments.³³ The purpose of our study was two-fold. First, we aimed to undertake a consensus approach for developing EPAs for Canadian GIM residency ambulatory training. Second, we sought to explore whether these EPAs resonated with the community of practicing academic general internists using survey-based validation and to understand reasons for disagreements with proposed EPAs.

Methods

Design

Step 1: Developing EPAs with expert consultation. We drafted EPAs to reflect current objectives of training defined by the RCPSC. We started by reviewing the RCPSC Core Internal Medicine³⁴ and subspecialty GIM³⁵ residency training documents, and performing a literature search on MEDLINE using the terms ‘ambulatory’ or ‘outpatient’, ‘skills’ or ‘objectives’ or ‘competencies’, and ‘internal medicine’. Based on these, we developed a set of activities that general internists should perform in the ambulatory setting, organized as EPAs. Six faculty content experts in ambulatory GIM and medical education reviewed and amended these EPAs in an iterative fashion through two cycles until consensus was

achieved. This process yielded eight proposed EPAs for ambulatory training: six for core internal medicine and two additional EPAs for subspecialty GIM (Table 1).

Step 2: Stakeholder consultation through a multi-center survey. To evaluate our EPAs using a Canada-wide sample of medical educators in GIM, we administered an online multi-center survey to practicing internists to determine if practitioners understood our proposed EPAs, and whether they endorsed their use. We included open-ended questions to explore reasons for disagreement and suggestions for modifying EPAs. The survey was administered using SurveyGizmo 4.0 (SurveyGizmo, Boulder, CO, USA).

Sample

Sampling for the electronic survey was purposeful and used a maximal variation approach by selecting internists practicing in academic centers in both ambulatory or inpatient settings with varying time-in-practice and experience. Participating faculty all hold university appointments in the Department of Medicine and teach in the internal medicine training programs

Table 1. EPAs for Ambulatory General Internal Medicine

EPA 1
Triage, diagnose and manage patients referred with common general medical conditions including urgent referrals from the emergency department.
EPA 2
Manage the longitudinal care of patients with chronic multisystem disease.
EPA 3
Minimize risk factors for disease progression and complications utilizing pharmacologic and non-pharmacologic preventative measures.
EPA 4
Assess, counsel and manage patients with medically unexplained symptoms or asymptomatic patients with incidental laboratory and radiological findings.
EPA 5
Co-manage patients with multiple internal medicine co-morbidities in the perioperative period including risk stratification and management.
EPA 6
Diagnose, investigate and manage internal medicine conditions before, during and after pregnancy.
EPA 7
Manage a typical ambulatory GIM practice including patient referrals, flow, and follow-up.
EPA 8
Coordinate the longitudinal care of medically complex patients with multiple co-morbidities over the evolution of their disease alongside family practitioners and other subspecialists.

at their respective academic institutions from across Canada including: University of Toronto (UofT), McMaster University, Queen's University, Western University, University of Ottawa (UofO), University of Calgary (UofC) and Northern Ontario School of Medicine (NOSM). Informed consent was obtained electronically prior to survey initiation.

Survey

Demographic data included gender, years in practice, predominant practice setting (inpatient versus outpatient), and academic institution affiliation. Respondents also rated their level of expertise in ambulatory GIM, and in medical education, on a 5-point Likert scale (1=very low to 5=very high). Participants were asked to agree or disagree with each proposed EPA for training in ambulatory GIM. Open-ended questions gathered explanations for disagreements. Participants were asked to suggest and justify additional important EPAs felt to be missing and were provided with a final textbox for further comments.

Data Analysis and Outcomes

Agreements were calculated as a percentage of survey responders endorsing a proposed EPA. Consensus was defined as greater than 80.0% agreement. Statistics were calculated using Microsoft® Excel for Mac 15.4 (Microsoft®, Redmond, WA, USA). Each study investigator independently reviewed open-ended responses and grouped these under categories. As a group, we reviewed and sorted answers into emerging categories to provide an organized description of survey responses.³⁶

Ethics

This study was approved by the University of Toronto Research Ethics Board.

Results

A total of 253 academic internists across Canada were invited to participate in the study of which 63 (24.9%) responded: UofT ($n = 26$, 41.3%), UofO ($n = 12$, 19.0%), UofC ($n = 12$, 19.0%), McMaster University ($n = 5$, 7.9%), Queen's University ($n = 4$, 6.3%), Western University ($n = 3$, 4.8%) and NOSM ($n = 1$, 1.6%). Similar numbers of women ($n = 35$, 55.5%) and men ($n = 28$, 44.4%) participated.

Most respondents identified as predominantly inpatient (versus outpatient) internists (58 (92.1%) vs. 5 (7.9%)). Median (IQR) GIM practice experience was 8 (5 – 18) years. Expertise in ambulatory care ranged from very high ($n = 2$, 3.2%), to high ($n = 27$, 42.9%), to neither low nor high ($n = 28$, 44.4%) to low ($n = 4$, 6.3%) to very low ($n = 2$, 3.2%). In contrast, self-rated expertise in medical education was mostly very high ($n = 9$, 14.3%) or high ($n = 30$, 47.6%), compared to neither low nor high ($n = 20$, 31.7%), low ($n = 3$, 4.8%) or very low ($n = 1$, 1.6%).

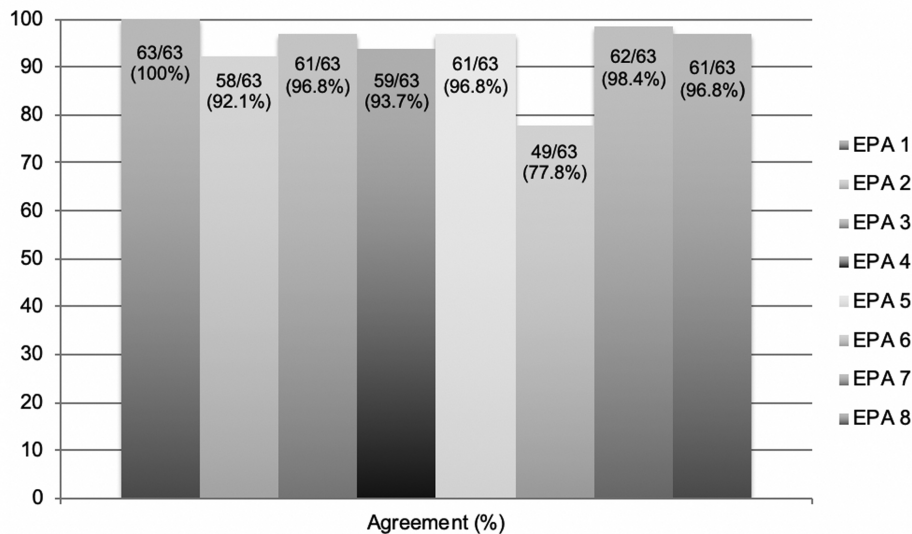


Figure 1. Agreement (proportion of respondents and percentages) on proposed EPAs for ambulatory general internal medicine.

Agreement with proposed EPAs reached 90.0% for all except one (EPA 6, agreement 77.8%) (Figure 1). Disagreements regarding EPA 6 were similar across the type of practice (13/58, 22.4% of predominantly inpatient internists; 1/5, 20.0% of predominantly outpatient internists). Twenty-two percent (14/63) of respondents felt important EPAs were missing.

Responses to open-ended survey questions provided insights into participants' conceptual understanding of EPAs. Disagreements with EPAs differed depending on inherent understanding of EPA concepts. When EPAs were understood, disagreements encompassed three main themes: (1) current training insufficient to achieve this EPA, (2) EPA does not (or should not) reflect the scope of practice of a general internist, and (3) perceived barriers to EPA implementation. In contrast, many comments on missing EPAs suggested an incomplete understanding of the EPA concept. Some delved into excessive detail, while others reflected a focus on specific skills rather than professional activities. Below are illustrative examples reflecting these themes.

Rationales for Disagreement Suggesting Good Understanding of EPAs

1. Current Training Insufficient to Achieve this EPA

Many responses called for more extensive training to achieve EPA 6, which focuses on the provision of peripartum medical care:

“General internists with specialized training in this area would be preferable for this role.” (P64 – EPA6).

While some felt that training in obstetrical medicine should occur after residency, others felt this additional training should be reserved for senior residents. For example:

“I don't think the pregnancy EPA belongs in core PGY 1-3 but should be in the PGY 4-5 category.” (P63 – EPA6).

2. EPA Does Not (or should not) Reflect Scope of Practice of a General Internist

Some respondents expressed that EPAs would be better managed by either primary care or another subspecialty. For example, with respect to EPA 2:

“Many chronic multisystem diseases are more easily followed . . . by family physicians or . . . specialists with expertise in the area (i.e. diabetes) and the resources (to) provide the patient with the best care . . .” (P74).

Others felt strongly that a subspecialty role for general internists should be protected:

“A fine balance needs to be taken to ensure that internists remain specialists and not primary care providers.” (P82 – Additional Comments).

3. Perceived Barriers to EPA Implementation

Some participants' responses reflected practical limitations to achieving EPAs within current training environments:

“It is a worthy aim but unless a large number of longitudinal clinics are provided (residents) will not be able to do this satisfactorily. A 4 or 8-week block is not sufficient.” (P49 – EPA8).

“In the absence of longitudinal clinics for residents, it would be hard to gauge their competency in some of these EPAs. The IM and GIM training . . . is overwhelmingly inpatient based . . . this is unfortunate as outpatient medicine takes on a much more prominent role in most physicians’ careers once they finish residency. It is a very different ball game that you get thrown into.” (P46 – Additional comments).

Rationales for Disagreement Suggesting Limited Understanding of EPAs

When asked to justify disagreements or identify missing EPAs, some respondents provided suggestions focused on individual roles or competencies (e.g. communication skills), rather than representing clearly defined activities:

“Knowledge of community health services and process for referral and proper use . . .” (P37 – Missing EPAs).

“Appropriate communication with referral doctor . . .” (P30 – Missing EPAs).

Discussion

This article describes a consensus approach to developing ambulatory internal medicine EPAs and provides an example of survey-based validation of proposed EPAs by practicing academic internists in a Canadian context. We found high levels of agreement for all proposed ambulatory internal medicine EPAs, except for one focused on obstetrical medicine. Responses to survey questions informed the validation of EPAs, identified potential barriers to implementation and highlighted important developmental needs among faculty in understanding and applying the EPA framework.

Our study adds to the literature on EPA development^{28,30–32} by demonstrating the utility of feedback from frontline academic physicians. Since clinician-teachers and educators will be responsible for entrustment decisions,³⁷ this methodology facilitates validation and deployment of EPA-based models of assessment by helping to build consensus. Issues regarding content and conceptualization of EPAs highlight challenges likely to be faced in implementing competency-based education.

EPA frameworks may facilitate the process of curriculum mapping since EPAs articulate clinical, observable tasks that encompass a variety of roles.²⁵ However, EPA implementation

requires a shared understanding of applicability and relevance. Exploring disagreements on proposed EPAs helped identify curricular content areas in need of attention. For example, obstetrical medicine is a current RCPSC accreditation requirement for internal medicine.⁴ However, our results demonstrated that a notable proportion of academic internists surveyed disagree with the inclusion of an obstetrical medicine ambulatory EPA. Reasons for disagreement emphasized the need for longer training to achieve competence, but opinions differed on whether extra training should occur in PGY 4-5 years or beyond. Further work will be required to clarify this for training programs.

Content-related disagreements with proposed EPAs offer opportunities to re-evaluate congruence between residency programs and accreditation standards.³⁸ Discordances allow exploration of how standards and training opportunities meet societal needs. If current training opportunities do not match accreditation standards (e.g., obstetrical medicine), residency programs need to expand training opportunities to ensure competence in such areas is achieved. The development and mapping of EPAs to current curricula can aid program directors and medical educators in identifying and addressing potential discrepancies.

Similarly, survey results suggested disagreements with proposed EPAs that could help define clinical responsibilities of general internists. For example, some respondents felt strongly that EPAs regarding chronic care of complex medical illnesses fell under the purview of family physicians or other subspecialties. This contrasts with RCPSC accreditation requirements for GIM to address the care of patients with chronic diseases and multi-morbidity.⁴ These tensions emphasize a need for graduates to adapt to diverse practice settings, where GIM may play a larger role in managing co-morbidities in smaller centers where subspecialists are not easily accessible. In our study, we purposefully surveyed academic internists involved in residency education. However, future studies may consider seeking perspectives from community internists and referring physicians to explore whether EPAs accurately reflect healthcare needs and expectations of general internists across settings.

The shift towards competency-based education requires academic physicians to be comfortable with concepts such as EPAs.³⁹ Responses to our survey unveiled several misconceptions regarding the definition of EPAs. Suggestions often focused on specific knowledge (i.e., knowledge of community resources) or broad skills (i.e., communication), reflecting traditional learning objectives rather than concrete tasks.²⁵ Faculty development is essential to promote and facilitate understanding of EPA-based assessments³⁹, and future studies should explore strategies on effectively translating EPAs to frontline academic supervisors.

Our study strengths include the use of an iterative approach with expert consultation to develop EPAs, and the use of a

multi-center survey to obtain broad, systematic feedback from frontline academic internists. The limitations of our study include the response rate of 24.9%, with the majority of respondents from Ontario. Resultantly, this sample may not adequately represent the perspectives and experiences of academic internists across Canada, including Quebec and the Maritime provinces, limiting the generalizability of specific survey results. However, similar methods for EPA development and validation can be generalized to residency programs within and outside of Canada. Further, the feedback was limited to open-ended responses, where focus group discussions may yield more informative perspectives on disagreements with proposed EPAs and associated misconceptions. Other limitations include that a majority of survey respondents predominantly practice inpatient medicine in comparison to ambulatory activities. However, this disproportion accurately reflects the scope of practice of most academic internists as well as residency training across Canada. Despite the limitations of survey-based data, our results serve as a springboard for developing standards of training for outpatient GIM.

Conclusion

Our study aimed to develop EPAs for ambulatory internal medicine and validate them through a national survey. This consensus approach to EPA development and validation uncovered content and concept related challenges for the frontline implementation of EPAs. Such challenges highlight a need for consultative implementation strategies as residency training programs transition towards competency-based education. We hope our study functions as an example of EPA development that may be applicable to other specialties and contexts.

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