

## Implementation of Entrustable Professional Activities assessments in a Canadian obstetrics and gynecology residency program: a mixed methods study

### L'implantation d'évaluations des activités professionnelles fiables dans un programme canadien de résidence en obstétrique et gynécologie : une étude par méthodes mixtes

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#### Abstract

**Background:** Since the implementation of competency-based medical education (CBME) across residency training programs in Canada, there has been limited research understanding how entrustable professional activity (EPA) assessments are used by faculty supervisors and residents.

**Objective:** This study examines how EPA assessments are used in an Obstetrics and Gynecology residency program and the impact of implementation on both groups.

**Methods:** A mixed methods study design was used. Part one involved the aggregation of descriptive data of EPA assessment completion for postgraduate year 1 and 2 residents from July 2019 to May 2020. Part two involved a thematic analysis of semi-structured interviews of residents and faculty.

**Results:** There was significant uptake of EPA assessments across community and teaching hospitals with widespread contribution of assessment data from faculty. However, both residents and faculty reported that the intended design of EPA assessments as low-stakes assessments to provide formative feedback is not how EPA assessments are experienced. Residents and faculty noted the increased level of administrative burden and related perceived stress amongst the resident group.

**Conclusions:** The implementation of EPA assessments is feasible across a variety of sites. However, previous measurement challenges remain. Neither residents nor faculty perceive the value of EPAs to improve feedback, despite their intended nature.

#### Résumé

**Contexte :** Depuis l'implantation de l'éducation médicale fondée sur les compétences (EMFC) dans les programmes de résidence au Canada, peu de recherches ont été menées pour comprendre comment les évaluations des activités professionnelles fiables (APC) sont utilisées par les superviseurs et les résidents.

**Objectif :** Cette étude examine l'utilisation des évaluations des APC dans un programme de résidence en obstétrique et gynécologie et les impacts de son implantation sur ces deux groupes.

**Méthodes :** La première partie de cette étude à méthode mixte a consisté en l'agrégation des données descriptives sur les évaluations d'APC pour les résidents de première et deuxième année effectuées entre juillet 2019 et mai 2020. Dans un second temps, nous avons analysé thématiquement les entrevues semi-structurées de résidents et de membres du corps professoral.

**Résultats :** Il y a eu une importante participation aux évaluations des APC dans les hôpitaux communautaires et universitaires, avec une contribution considérable de données d'évaluation de la part des professeurs. Toutefois, alors que les évaluations des APC sont considérées à faibles enjeux et visent à fournir une rétroaction formative, ce n'est pas de cette façon qu'elles sont vécues. Les résidents et le corps professoral ont tous les deux rapporté une augmentation de la charge administrative et du niveau de stress perçu chez les résidents.

**Conclusion :** L'implantation des APC est réaliste dans plusieurs sites. Malgré l'intention qui a motivé la mise en place des APC, ni les résidents ni le corps professoral ne perçoivent leur valeur comme moyen d'améliorer la rétroaction.

## Introduction

Competency-based medical education (CBME) was championed more than 40 years ago.<sup>1</sup> The Royal College of Physicians and Surgeons of Canada launched a version of CBME, Competence by Design (CBD), across Canadian Obstetrics & Gynecology (OB/GYN) programs in July 2019, and Surgical Foundations programs (in which all OB/GYN residents participate) in July 2018. A notable element of CBD is work-based assessment via Entrustable Professional Activity (EPA) assessments. Englander et al. defined EPAs as “an essential task of a discipline that an individual can be trusted to perform without direct supervision, once sufficient competence has been demonstrated.”<sup>2</sup> Norm based descriptors such as “good” or “average” have been and are used for assessment. These generic descriptors were replaced with behaviour-based anchors. These anchors allowed the comparison between the learner’s observed behaviours and specific descriptions of optimal behaviour. Such an approach provided an anchor for each level of performance. However, as reported by ten Cate and Scheele,<sup>3</sup> faculty educators make assessments of learner performance based on competency progression or entrustment. Thus, EPAs have been designed to use anchors based on the trust of a supervisor to allow a learner to complete a task independently. EPAs are organized by stage of training, requiring residents to demonstrate competence in all EPAs associated with a stage for progression. EPA assessments are intended to provide low stakes assessment of performance and facilitate feedback.<sup>2</sup>

Based on the construct of progression of ability, EPA assessments may represent the optimal assessment tool since they do not require assessors to translate their assessment onto a normative scale, where the resident is compared to other residents or the assessor’s internalized standards. Rather, EPAs are intended to capture the degree to which a resident can be trusted with a task, a process that should be less ambiguous in assessing.<sup>4,5</sup>

Previous studies examining the use of EPAs raised concerns regarding added administrative burden and demand on faculty, performance pressure on residents, and lack of recognition of the concept of life-long learning.<sup>6,7</sup> Learners have stressed the need for timely feedback from credible sources that provides specific instruction.<sup>8</sup>

The purpose of this study was to determine how EPAs are being used for learning and assessment by residents and faculty in the obstetrics and gynecology residency training program at McMaster University in Hamilton, Canada and

to determine the opinions of both residents and faculty of the implementation of this assessment tool.

## Methods

A concurrent mixed methods study design involving a postpositivist review of EPA completion data to descriptively analyze aggregate data to determine how EPAs were being used (Part One) and an inductive epistemology<sup>9</sup> that allowed us to perform a thematic analysis of interview data to determine the opinions of residents and faculty (Part Two). This study involved a single obstetrics and gynecology residency training program at McMaster University with multiple teaching and community hospital sites and which accepts seven new residents into the five-year program annually. This Department of OB/GYN serves a region of over two million people.

Part one involved collection of data from both Surgical Foundations and OB/GYN EPA assessments, between July 1, 2019, and May 31, 2020. This data set included two cohorts of residents, postgraduate year (PGY) 1 and 2, as they both began the OB/GYN CBD process in July 2019.

There are 16 Surgical Foundations and 13 OB/GYN EPAs expected to be completed within the first two years. Each EPA is scored on a 5-point scale with the following anchors: “I had to do,” “I had to talk them through,” “I had to prompt,” “I had to provide minor direction” and “I did not need to provide direction for safe and independent care.”

Part Two involved semi-structured interviews of residents and faculty about their experiences with EPAs. Recruitment of participants used a purposive sampling technique to recruit residents from both PGY1 and PGY2, as well as faculty from both teaching and community sites. Ethics exemption was granted by the Hamilton Integrated Research Ethics Board as an education quality improvement project.

## Results

### Part 1: Descriptive Statistics

A total of 1780 EPA assessments were completed for the 14 residents (seven PGY1, seven PGY2). The mean number of EPA assessments completed per resident was 89 for PGY1 residents and 165 for PGY2 residents (who had an additional year to collect EPA assessments). The distribution of EPA assessment scores ranged from “I had to do” to “I did not need to provide direction for safe and independent care” with the mode score being “I did not need to provide direction.” (See Table 1)

Table 1. Distribution of EPA assessment scores

Resident ID Arranged by Cohort	EPA Score Distribution					Total EPA Completed in training	Mean EPA Score
	"I had to do"	"I had to talk them through"	"I had to prompt"	"I had to provide minor direction"	"I did not need to provide direction for safe and independent care"		
2018	1	11	101	520	523*	1156	4.34
1			11	64	72*	147	4.41
2		1	13	67*	58	139	4.31
3		2	21	119*	98	240	4.30
4		1	12	64	78*	155	4.41
5		1	9	44	50*	104	4.38
6			5	63	89*	157	4.54
7	1	6	30	99*	78	214	4.15
2019		9	55	276	284*	624	4.34
8			2	18	32*	52	4.58
9		2	13	75*	75*	165	4.35
10		3	6	49	58*	116	4.40
11		1	14	38*	28	81	4.15
12		2	7	33*	32	74	4.28
13			3	6	10*	19	4.37
14		1	10	57*	49	117	4.32
Total	1	20	156	796	807*	1780	4.34

\*Mode score

A total of 187 faculty members, across seven sites (three community, four teaching hospitals) completed assessments. The majority of faculty ( $n = 125$ ) completed fewer than five assessments.

At teaching hospitals, 80% of EPAs were completed when requested, versus 75% at community sites suggesting that both teaching and community site faculty were equally engaged in completion of assessments and that EPA implementation was feasible across sites.

## Part 2: Thematic analysis of interviews

Seven OB/GYN faculty members representing both academic and community sites, and four junior residents (PGY1 and PGY2) were recruited to participate in semi-structured interviews. Two central themes were identified with minimal diversity of opinion:

**1. EPAs do not provide formative feedback: they are perceived as an administrative task:** Resident participants suggest that EPA assessments are regarded as a task to complete rather than providing any formative educational information.

*I have a list of the ones that I need...and then I'm like "OK what EPA can I vaguely say I did today so that I can just get these done" ... you're not getting any useful feedback. I would have gotten the feedback about the vacuum delivery and the shoulder dystocia in the moment, which is great, but the EPA is just a logistical task that I have to get done at the end of the shift." (R04)*

Resident participants also suggested that tracking down faculty to complete EPA assessments added to the administrative responsibilities required of them without decreasing existing educational responsibilities.

*Part of the pitch was...it's supposed to reduce the evaluation fatigue, it's supposed to lead to really meaningful evaluations on small tasks, but I feel that all it's done for me is increase evaluation fatigue. I feel like we're constantly supposed to be thinking about these. (R06)*

Faculty participants also questioned the educational utility of EPAs suggesting that many residents game the assessment system without consideration to the potential formative educational value.

*I think the idea that they do have a list of things that they're trying to tick off and ...any little involvement in a case if they can tick that off, they will, which is kind of like the motivation is not that genuine. (F10)*

**2. EPAs increase resident stress:** Resident participants also questioned whether EPAs were an effective platform for the delivery of feedback. Respondents highlighted EPAs as a high-stakes assessment to be attempted only when mastery of the task was assured.

*...in residency there's this huge issue with feelings like imposter syndrome and EPAs really prey on that because you don't always want to seek feedback when you're not really sure what it's going to be so that's already a barrier to doing them. And then when you finally get a gust of confidence about a skill that you*

*did, you're like, OK I should start thinking about getting EPAs...I've never [requested an EPA assessment] when it's my first time doing something...I feel like most of us probably....do it when we're a little more confident. (R06)*

Faculty members also noticed the level of stress within the residents related to EPA completion.

*...that has been a very stressful point for her too because my resident is someone who feels that she has been not as eager as she should be in soliciting EPAs ...she has felt that she hasn't gotten enough" and "I agree, it causes them stress. I think they're just really concerned about getting all of these EPAs. (F12)*

## Discussion

There was substantial uptake of EPA assessments across community and teaching hospitals, with widespread contribution of assessment data from faculty. This study therefore demonstrates the feasibility of adoption of an EPA assessment system over a multi-site residency training program. In addition, there was a significant increase in the number of assessments completed when using EPAs. With our previous model of assessment each resident would have a total of approximately 30 assessments completed over two years, however with EPAs this number increased by approximately 450%. However, in keeping with previously identified dilemmas,<sup>10</sup> both residents and faculty reported that the intended design of EPA assessments as low-stakes assessments to provide formative feedback<sup>4</sup> is not how EPA assessments are experienced.

In contrast to previous work<sup>10</sup> our data suggests that the use of an entrustment scale, a novel element of an EPA assessment that is different from other work-based assessment tools that use behaviourally anchored scales, has the same issues of range restriction.<sup>12</sup> The mean and mode of EPA assessments were skewed to the right for all residents. Thus, an entrustment scale, a natural and historical framing for work-based assessment,<sup>4</sup> suffers from the previous measurement issues it was designed to address. This finding in the data analysis was supported in the interview feedback suggesting that assessments are only triggered once a resident is confident in their skills, rather than using the assessment as feedback to guide further skill development.

Finally, EPA assessments are not perceived by faculty and residents to provide formative feedback. They are

perceived as additional administrative tasks that increase resident stress. This is consistent with the findings of Hall et al,<sup>5</sup> who described an increase in workload and stress associated with triggering an adequate volume of EPA assessments.

## Limitations

This case study included only one OB/GYN residency training program limiting the transferability of the findings. However, as an early report on EPA implementation, the results may be of value to other residency training programs transitioning to this new assessment system.

## Conclusion

In this evaluation of the early implementation of EPA assessments in an OB/GYN residency program, we identified broad and significant completion of EPA assessments across both community and teaching sites. This new work-based assessment system increased the number of assessments per resident in comparison to a previous traditional rotation-based assessment model. Despite the adoption of a new entrustment scale, previous measurement challenges seen with assessment scales remain. Neither residents nor faculty perceive the value of EPAs to improve feedback, despite their intended nature. Future research should further explore: (1) how to engage faculty and residents to use EPAs as part of a formative, educational strategy, and (2) strategies to reduce the administrative burden on residents. Faculty development efforts and change management systems should consider the disconnect between the purpose and the experience of EPA assessments in order to reframe their purpose and use.

**Conflicts of Interest:** None to declare.

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