

End-of-Rotation Examinations in Canadian Obstetrics and Gynaecology Residency Programs: The Perspectives of Faculty Members and Residents



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Abstract

The Royal College Competence by Design curriculum in obstetrics and gynaecology will launch in 2019, and it will depend heavily on multiple tools for accurate resident assessment. Several Canadian obstetrics and gynaecology residency programs use rotation-specific examinations at the end of various rotations for formative feedback. The obstetrics and gynaecology residency program at the University of Toronto adopted end-of-rotation examinations (EOREs) in 2014. We conducted a national survey to assess the current use of EOREs across Canada and to examine the attitudes and beliefs of residents and program directors regarding their use. We discuss faculty and resident experiences with EOREs and their perceptions of them. We also consider the role and benefit of these examinations in the context of the educational literature, and how they may integrate with future competency-based medical education frameworks.

Résumé

Le programme de la compétence par conception (CPC) en obstétrique et gynécologie du Collège royal sera lancé en 2019. Il dépendra largement de plusieurs outils pour évaluer de façon adéquate les résidents. De nombreux programmes canadiens de résidence en obstétrique et gynécologie ont recours à des examens ciblés à la fin de chaque stage afin d'offrir une rétroaction formative. Le programme de résidence en obstétrique et gynécologie de l'Université de Toronto a d'ailleurs adopté cette façon de faire en 2014. Nous avons mené une étude à l'échelle du pays dans le but d'évaluer l'utilisation de ces examens au Canada et d'examiner les

croyances et l'attitude des résidents et des directeurs de programmes à l'égard de ces examens et de leur emploi. Nous parlons ici de la perception qu'ont les résidents et les enseignants de ces examens ainsi que de leur expérience avec ces derniers. Nous examinons également les avantages de ces examens et la place qu'ils occupent dans la littérature universitaire, et étudions leur intégration potentielle dans d'éventuels programmes de formation fondés sur les compétences.

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INTRODUCTION

The assessment of knowledge is crucial to physician training, and the new Royal College Competence by Design curriculum in obstetrics and gynaecology will depend heavily on multiple tools for accurate resident assessment.¹ In educational theory, Miller's pyramid of clinical assessment places knowledge as the foundation for all other competencies.² A poor knowledge foundation impedes the development of higher-level clinical skills, including competence in daily practice.³ In recognition of the fundamental importance of clinical knowledge in training, the CanMEDS framework of essential physician competencies places "Medical Expert" as the central role.⁴

Inadequate assessment of knowledge carries several consequences. Residency programs have a public responsibility to meet accreditation standards, and residents are thus required to meet specific learning objectives for each rotation.

Key Words: Assessment, evaluation, obstetrics, gynaecology, residency, exams

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Many Canadian obstetrics and gynaecology training programs rely heavily on in-training evaluation reports to determine rotation outcomes. These consist of supervisors' assessments of a resident's clinical performance, often in a rubric-based subdivision of CanMEDS roles using a 5-point Likert-type scale of defined behaviours.

Despite widespread use, ITERs have considerable limitations in assessing the medical expert role.⁵ Ratings are subjective, creating concerns about inter-rater and intra-rater consistency.^{6,7} Raters may consistently mark high or low or be influenced by character judgements. Awareness of the identity of a rater may lead to falsely inflated scores.⁸ Assessments may be based on a limited range of encounter types,⁸ and detailed feedback on knowledge deficits may not be provided if there is a time lapse between the encounter and completion of the ITER.⁹

Another approach to knowledge assessment is the use of annual written in-training examinations (e.g., the Canadian Association of Academic Professionals in Obstetrics and Gynaecology and the American Council in Resident Education in Obstetrics and Gynaecology examinations). These examinations have well-established metrics including excellent criterion validity,^{10,11} construct validity,¹² and face validity.¹³ However, these examinations broadly cover all topics in obstetrics and gynaecology and therefore are not aligned with a resident's current clinical learning environment. In addition, they do not provide specific correct-answer feedback of knowledge deficits, and they provide limited indication of residents who are at risk of failure. Whereas higher CREOG scores are predictive of candidates likely to pass the American Board of Obstetrics and Gynecology licensing examination,^{10,11,14} lower scores are poor predictors of examination failure.¹⁴ Additional assessment tools may be important for predicting residents at risk of failing licensure examinations.

Testing in medical education is predominantly considered an assessment tool, but it can also be a beneficial educational tool.¹⁵ Cognitive psychology research shows that repeated testing of information produces retention that is superior to repeated study, a phenomenon known as test-enhanced learning.^{16,17} Testing also provides many indirect

benefits, such as formative feedback, improved motivation, better study strategies, and efficient use of study time.^{17,18} Early identification and remediation of residents with inadequate knowledge are essential to prevent failure in summative examinations.¹⁹ It is well-established in evaluation research that individuals are poor at self-assessment,²⁰ and the lowest performers are most likely to have inaccurate self-assessments.²¹ This highlights the importance of introducing formative objective examinations throughout training.

End-of-rotation examinations in Canadian obstetrics and gynaecology residency training

Several Canadian obstetrics and gynaecology residency programs have introduced EOREs for various general or subspecialty rotations, using them for evaluation or to provide formative feedback for determining readiness for summative examinations. The use of EOREs as both assessment and educational tools in obstetrics and gynaecology residency programs has not been reported. To allow for repeated use, the questions used in EOREs have not been published and likely vary across programs in format, frequency, type of feedback provided, and purpose.

The obstetrics and gynaecology residency program at the University of Toronto introduced EOREs in 2014 in the subspecialty rotations (gynaecologic oncology, maternal-fetal medicine, reproductive endocrinology and infertility/pediatric adolescent gynaecology, and urogynaecology) for both feedback and evaluative purposes. Faculty members at nine clinical sites readily engaged and accepted the use of EOREs.

We conducted surveys in July 2015 to obtain feedback about EOREs from residents and to better understand the current usage and formats in Canadian obstetrics and gynaecology residency programs. We aimed to evaluate the perspectives and experiences of residents and program directors among the 13 English-language obstetrics and gynaecology residency programs regarding use of EOREs.

Three different online surveys were distributed to Canadian obstetrics and gynaecology residency program directors, current residents ("pre-Royal College Examination"), and residents or graduates who had completed the RCE within the previous two years ("post-RCE"). Survey questions and results are provided in eTables 1, 2, and 3. Survey questions focused on current EORE practices and experiences and on the perceptions of residents and faculty members, inquired about barriers to using EOREs, and asked for open-ended comments. The survey was sent to 560 residents and 13 program directors. Residents from all invited programs responded.

ABBREVIATIONS

CBME	competency-based medical education
CREOG	Council in Resident Education in Obstetrics and Gynecology
EORE	end-of-rotation examination
ITER	in-training evaluation report
RCE	Royal College Examination

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