Canadian Medical Education Journal
Revue canadienne de l'éducation médicale

Objective Structured Clinical Examinations practices across Canadian medical schools: A national overview

Pratiques des examens cliniques objectifs structurés dans les facultés de médecine canadiennes : un aperçu à l'échelle nationale

Chris Gilchrist and Zia Bismilla

Volume 16, Number 2, 2025

URI: https://id.erudit.org/iderudit/1118234ar
DOI: https://doi.org/10.36834/cmej.80144

See table of contents

Publisher(s)

Canadian Medical Education Journal

ISSN

1923-1202 (digital)

Explore this journal

Cite this article

Gilchrist, C. & Bismilla, Z. (2025). Objective Structured Clinical Examinations practices across Canadian medical schools: A national overview. *Canadian Medical Education Journal / Revue canadienne de l'éducation médicale*, *16*(2), 99–104. https://doi.org/10.36834/cmej.80144

Article abstract

Introduction: Objective Structured Clinical Examinations (OSCEs) are crucial in assessing clinical competencies, but their implementation varies widely across medical schools. This work examines OSCE practices across Canadian medical schools, focusing on frequency, type, and timing.

Methods: A survey was conducted among all 17 Canadian medical schools through the AFMC Clinical Skills Working Group. Data were collected during the 2023-2024 academic year. Details on OSCEs implementation during pre-clerkship and clerkship phases, categorized as formative or summative, and on the timing of final OSCEs was collected. Descriptive statistics were used to analyze the data.

Results: The median number of OSCEs per school was four, with one-third formative and two-thirds summative. Pre-clerkship assessments were split between formative and summative OSCEs, while 78% of clerkship OSCEs were summative. Timing of a program's final OSCE varied: 35% occurred before the last year, while 65% took place in the final year, predominantly in the second half. All final OSCEs were summative.

Discussion and Conclusion: Variability in OSCE implementation likely reflects differing curricular approaches and institutional constraints. This work demonstrated a more balanced proportion of formative and summative assessments during pre-clerkship, indicating a desire to provide students with opportunities learn from feedback during their early training years. During clerkship, the focus shifted towards summative assessments. The later emphasis on summative OSCEs may highlight a focus on certifying competence at the cost of reduced opportunities for formative feedback. Medical schools may use these findings as guidance when building their programs of assessment.

Canadian Medical Education Journal

Scientific Reports

Objective Structured Clinical Examinations practices across Canadian medical schools: a national overview

Pratiques des examens cliniques objectifs structurés dans les facultés de médecine canadiennes : un aperçu à l'échelle nationale

Chris Gilchrist,[1] *Zia Bismilla*[1]

[1]University of Toronto, Ontario, Canada

Correspondence to: Chris Gilchrist; email: Christopher.Gilchrist@THP.ca

Published ahead of issue: Feb 25, 2025; published: May 1, 2025. CMEJ 2025, 16(2) Available at https://doi.org/10.36834/cmej.80144

Abstract

Introduction: Objective Structured Clinical Examinations (OSCEs) are crucial in assessing clinical competencies, but their implementation varies widely across medical schools. This work examines OSCE practices across Canadian medical schools, focusing on frequency, type, and timing.

Methods: A survey was conducted among all 17 Canadian medical schools through the AFMC Clinical Skills Working Group. Data were collected during the 2023-2024 academic year. Details on OSCEs implementation during pre-clerkship and clerkship phases, categorized as formative or summative, and on the timing of final OSCEs was collected. Descriptive statistics were used to analyze the data.

Results: The median number of OSCEs per school was four, with one-third formative and two-thirds summative. Pre-clerkship assessments were split between formative and summative OSCEs, while 78% of clerkship OSCEs were summative. Timing of a program's final OSCE varied: 35% occurred before the last year, while 65% took place in the final year, predominantly in the second half. All final OSCEs were summative.

Discussion and Conclusion: Variability in OSCE implementation likely reflects differing curricular approaches and institutional constraints. This work demonstrated a more balanced proportion of formative and summative assessments during pre-clerkship, indicating a desire to provide students with opportunities learn from feedback during their early training years. During clerkship, the focus shifted towards summative assessments. The later emphasis on summative OSCEs may highlight a focus on certifying competence at the cost of reduced opportunities for formative feedback. Medical schools may use these findings as guidance when building their programs of assessment.

Résumé

Introduction : Les examens cliniques objectifs structurés (ECOS) sont essentiels à l'évaluation des compétences cliniques, mais leur mise en œuvre varie considérablement d'une faculté de médecine à l'autre. Cette étude examine les pratiques des ECOS dans les facultés de médecine canadiennes, en se concentrant sur la fréquence, le type et le calendrier.

Méthodes : Une enquête a été menée auprès des 17 facultés de médecine canadiennes par l'entremise du Groupe de travail de l'AFMC sur les compétences cliniques. Les données ont été recueillies au cours de l'année universitaire 2023-2024. Des détails sur la mise en œuvre des ECOS pendant les phases de préclinique et d'externat, catégorisés comme formatifs ou sommatifs, et sur le calendrier des ECOS finaux ont été recueillis. Des statistiques descriptives ont été utilisées pour analyser les données.

Résultats : Le nombre médian d'ECOS par faculté était de quatre, dont un tiers formatif et deux tiers sommatifs. Les évaluations pré-cliniques étaient réparties entre des ECOS formatifs et sommatifs, tandis que 78 % des ECOS d'externat étaient sommatifs. La date de l'ECOS final varie d'un programme à l'autre : 35 % ont eu lieu avant la dernière année, tandis que 65 % ont eu lieu au cours de la dernière année, principalement au cours du deuxième semestre. Tous les ECOS finaux étaient sommatifs.

Discussion et conclusion : La variabilité de la mise en œuvre des ECOS reflète probablement des approches curriculaires différentes et des contraintes institutionnelles. Ce travail a démontré une proportion plus équilibrée d'évaluations formatives et sommatives au cours de l'externat, ce qui indique un désir de fournir aux étudiants des occasions d'apprendre à partir des commentaires au cours de leurs premières années de formation. Au cours de l'externat, l'accent a été mis sur les évaluations sommatives. L'accent mis par la suite sur les ECOS sommatifs peut mettre en évidence l'importance accordée à la certification des compétences au prix d'une réduction des possibilités de retour d'information formatif. Les facultés de médecine peuvent s'inspirer de ces résultats pour élaborer leurs programmes d'évaluation.

Introduction

Objective Structured Clinical Examinations (OSCEs) have become a cornerstone in the assessment of clinical competencies in medical education. Developed in the 1970s by Dr. Ronald Harden and his colleagues, OSCEs were designed to provide a structured and objective way to evaluate the clinical skills of medical trainees through a series of timed stations, each assessing a specific skill or competency.[1] Over the decades, OSCEs have been validated as a reliable and effective tool for assessing a wide range of clinical skills, from history-taking and physical examination to procedural skills and patient communication.[2]

Despite these benefits, OSCEs are resource-intensive, requiring significant investment in terms of both finances and human resources.[3] The need for standardized patients, trained examiners, and appropriate facilities can make OSCEs challenging to implement.[4]

Once the choice of OSCE as an assessment modality has been selected, the decision to set the assessment as formative or summative must be considered. Formative assessments are designed to provide ongoing feedback to students, helping them identify strengths and areas for improvement throughout their learning process.[5] Summative assessments, on the other hand, evaluate students' competencies at the end of an instructional period, determining whether they have achieved the necessary standards to progress or graduate.[5,6] The balance between formative and summative assessments is important to consider as it influences both student learning and program outcomes.

Given the pivotal role of OSCEs in medical education and the challenges associated with their implementation, understanding how these examinations are utilized across different programs is essential. Through the Association of Faculties of Medicine of Canada (AFMC), the national Clinical Skills Network collected data from all medical schools in Canada during the 2023-2024 academic year. This survey aimed to understand how OSCEs are implemented across the different MD programs, focusing on the timing and nature (formative or summative) of these assessments.

Our analysis of the OSCE practices in Canadian medical schools explores the current state of these examinations and can guide implementation of future OSCE assessment programs.

Methods

Design

This project employed a population-based cross-sectional survey design to gather data on the implementation of OSCEs across Canadian medical schools. The initial survey was sent out in 2022 and updated over the 2023-2024 academic year (Appendix A).

Participants

Participants were members of the Association of Faculties of Medicine of Canada (AFMC) Clinical Skills Network which, includes representatives from each Canadian Faculty of Medicine. The project included all 17 medical schools in Canada at the time, ensuring a comprehensive overview of OSCE practices nationwide. Each school's designated representative in the Clinical Skills Network was responsible for providing detailed information about their institution's OSCE practices. All schools participated.

Survey instrument

The structured questionnaire captured detailed information on OSCE implementation across Canadian medical schools. Each school was allowed to define "OSCE" as they would for its local context. It included questions on the frequency and number of OSCEs conducted during pre-clerkship and clerkship phases, classifying these assessments as either formative or summative. Participants were also able to provide open-ended information about unique features of their OSCE structures. Survey requests were distributed by e-mail.

Data analysis

Collected data was grouped from all medical schools and analyzed through descriptive statistics.

Results

Our analysis of OSCE implementation across Canadian medical schools revealed substantial variability in the use of OSCEs (Figure 1). The median total number of OSCEs conducted per institution was 4, with a range of 3-13. Notably, six schools reported the use of "mini-OSCEs" within their assessment portfolio (for a total of 18 mini-OSCEs across all programs). These were identified as being small in scope or smaller in station number than a full-scope OSCE, but were treated as discrete OSCE events in this analysis.

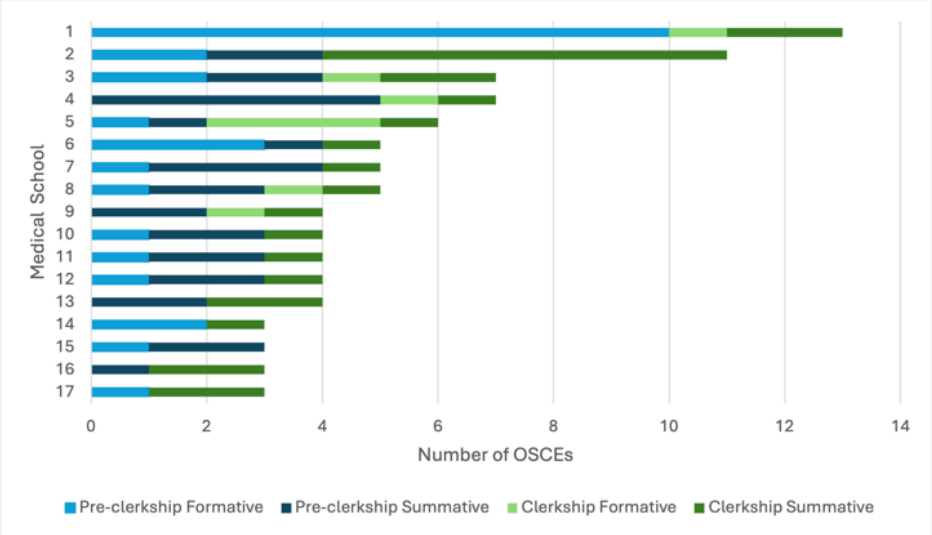

Figure 1. Distribution of OSCE assessments at individual Canadian Medical Schools

Formative vs summative OSCEs

Approximately one third of all OSCEs reported were formative, with the remaining two thirds representing summative OSCE assessments. Within pre-clerkship there was almost an even split between the proportion of formative and summative assessments. However, due to the variability in how each institution implemented their OSCEs, the median number of pre-clerkship OSCEs was actually one formative and two summative (Table 1).

In clerkship, the proportion of summative OSCE assessments increased to approximately 78%, with the remaining 22% being formative OSCEs. Again, due to variability in institutional practices, the median number of clerkship OSCEs was only one summative and no formative assessments.

The proportion of formative assessments in pre-clerkship was over three-fold higher than in clerkship, indicating that the pre-clerkship phase more heavily utilized formative assessments. Interestingly, the proportion of summative assessments between these two phases of training was approximately even, indicating a similar emphasis on summative OSCEs in both phases of training.

Table 1. Distribution of Formative vs Summative OSCE assessments across all Canadian Medical Schools

		Formative	Summative
Pre-clerkship	Total number of OSCEs	27	29
	Proportion of OSCEs (%)	48	52
	Median number of OSCEs per school	1	2
Clerkship	Total number of OSCEs	8	27
	Proportion of OSCEs (%)	22	78
	Median number of OSCEs per school	0	1

The final OSCE of an MD program

The timing of the final OSCE within an MD program varied. 35% of programs administered their final OSCE before the last year of training, often noting the rationale to allow additional time for remediation prior to graduation. Among the two-thirds of schools that conducted the final OSCE in the last year of training, 27% scheduled the OSCE in the first half of the final year, while 73% administered it in the second half. Additionally, across all schools the final instance of an OSCE was a summative assessment.

Discussion

There is variability in OSCE implementation across Canadian medical schools. The findings suggest a trend towards a moderate number of OSCEs throughout the medical education continuum. This is inclusive of the mini-OSCEs that were each treated as discrete OSCE events in this analysis. The inclusion of mini-OSCEs may overestimate the number of "full-scope" OSCEs accounted for by this project and make the median (compared with mean) a more accurate statistic. While mini-OSCEs may not represent the same breadth or depth of assessment as traditional full-scope OSCEs, their use may suggest an interest in more frequent, lower-stakes assessments that could provide ongoing feedback and opportunities for skill development.[5]

The higher number of OSCEs conducted during the pre-clerkship phase compared to the clerkship phase is consistent with the pedagogical emphasis on early clinical skill acquisition and feedback before students begin their clerkship rotations.[5] Early experiences with OSCEs can help students develop foundational clinical skills in a controlled environment, reducing anxiety and improving performance

in subsequent high-stakes assessments.[6] The reduction in the number of OSCEs during clerkship may reflect a shift towards more diverse forms of clinical assessment, such as workplace-based assessments, which can better capture students' competencies in real-world settings.[7]

The overall predominance of summative assessments reflects the traditional emphasis on high-stakes testing in medical education. The majority of formative OSCEs occurs during the pre-clerkship years, although summative assessment remains the predominant approach. This suggests a balanced approach and a desire to provide students with opportunities to improve through feedback before transitioning to their clinical years. In contrast, the clerkship phase overwhelmingly makes use of summative OSCEs. This may indicate a higher reliance on summative assessments during the final years of training.

The increased emphasis on summative assessments during clerkship likely represents the need to certify competence at this stage of training.[6] This is a pedagogically sound approach for OSCE structure. However, this approach may minimize the role of the OSCE as a feedback tool for medical trainees. In an ideal world, offering more formative OSCEs within clerkship would provide trainees with additional opportunity for feedback to improve their knowledge and skills at a critical time in their medical training. Acknowledging that financial and logistical resources are always limited, focusing efforts on formative feedback during pre-clerkship is an appropriate compromise.

The overall emphasis on summative OSCEs may be reflective of the significant institutional investment they require.[3] Summative assessments are typically viewed as higher stakes by students and assessors alike. Therefore, the high financial and logistical resource investment may be considered more appropriate when there will be a clear decision made about the performance and progress of a student. It is notable that the final OSCE in every institution was a summative one, highlighting the desire for a final assessment to confirm clinical competence prior to graduation. This is like practices in Australia, a similarly resourced country, where 16/18 Australian schools had summative exit-level OSCEs.[9]

The timing of the final OSCE is another area of variability among Canadian medical schools, with 35% of programs conducting the final OSCE before the last year of training. This early timing may allow for remediation, giving students who underperform an opportunity to address deficiencies before graduation.[4] In contrast, the majority of programs (65%) conduct the final OSCE within the last year, with a preference for the second half of the last year. This timing may reflect a strategy to assess students' immediate readiness for graduation and entry into residency, though potentially limiting time for remediation should it be necessary.

In the broader context of workplace-based assessments, OSCEs have remained a gold standard for determining clinical skill for decades.[2] However, as medicine shifts towards a more competence-focused approach to medical education newer metrics, such as Entrustable Professional Activates (EPA), have been developed. Evidence is beginning to emerge supporting EPA correlation with established examination frameworks, like OSCEs.[8] However, until that evidence grows more robust, OSCEs remain crucial for evaluating clinical skills. Future efforts to identify the optimal balance between formative and summative OSCEs, and their timing within an MD program, could better support student development while maintaining rigorous standards for clinical competence.

Limitations

First, the inclusion of mini-OSCEs in the total count may overestimate the number of full-scope OSCEs conducted. This potentially skews the interpretation of the overall frequency of assessments, although the median statistic helps to account for this.

The lack of curriculum analysis is another limitation, as the project did not explore the curricular purposes behind variations in OSCE implementation. We did not explore if OSCEs included comprehensive clinical skills, were cumulative or were course specific. Different medical schools may have unique educational philosophies, objectives and operational factors that drive the content and use of OSCEs. Without this context it is difficult to fully understand the rationale behind the observed practices. This omission means that the results cannot explain the reasons for the variability observed in OSCE implementation across the country. Further qualitative study is warranted to better understand this.

The results do not provide a detailed analysis of the specific costs and resource allocations required for OSCE implementation. Without financial information, it is challenging to assess the feasibility and sustainability of OSCE practices across institutions. This lack of cost analysis means that insights into how budget constraints influence OSCE implementation cannot be determined.

Conclusion

This project provides a snapshot of OSCE implementation across all Canadian medical schools, revealing and overview of their use and variability in both the frequency and timing of the assessments. There is a balanced approach between formative and summative OSCE's in the pre-clerkship phase, with an emphasis on summative assessments during clerkship. This pedagogically sound approach to OSCEs within an MD program may serve as guidance for new medical schools seeking to build their assessment programs or established schools revisiting their assessment plans.

Conflicts of Interest: None
Funding: None
Edited by: Marcel D'Eon (editor-in-chief)
Acknowledgements: We would like to acknowledge Drs. Patricia Houston and Meredith McKague for their contributions to this project.

References

1. Harden R, Stevenson M, Downie W, Wilson G. Assessment of clinical competence using objective structured examination. *Br Med J.* 1975 Feb 22;1(5955):447-51. https://doi.org/10.1136/bmj.1.5955.447
2. Harden RM. Revisiting "assessment of clinical competence using an objective structured clinical examination (OSCE)." *Med Educ.* 2016;50(4):376-9. https://doi.org/10.1111/medu.12801.
3. Patrício M, Julião M, Fareleira F, Young M. Is the OSCE a feasible tool to assess competencies in undergraduate medical education? *Med Teach*. 2013;35(6):503-14. https://doi.org/10.3109/0142159X.2013.774330.
4. Boursicot K, Kemp S, Wilkinson T, Findyartini A, Canning C, Cilliers F, Fuller R. Performance assessment: Consensus statement and recommendations from the 2020 Ottawa Conference. *Med Teach*. 2021;43(1):58-67. https://doi.org/10.1080/0142159X.2020.1830052.
5. Schuwirth LW, Van der Vleuten CP. Programmatic assessment: From assessment of learning to assessment for learning. *Med Teach*. 2011;33(6):478-85. https://doi.org/10.3109/0142159X.2011.565828.
6. Epstein RM. Assessment in medical education. *N Engl J Med.* 2007;356(4):387-96. https://doi.org/10.1056/NEJMra054784.
7. Touchie C, Ten Cate O. The promise, perils, problems, and progress of competency-based medical education. *Med Educ.* 2016;50(1):93-100. https://doi.org/10.1111/medu.12839.
8. Lin YH, Yang YY, Chen CH, et al. Can routine EPA-based assessments predict OSCE performances of undergraduate medical students? *Med Teach*. 2024 Oct 14. https://doi.org/10.1080/0142159X.2024.2413024.
9. Heal C, D'Souza K, Hall L, Smith J, Jones K, collaboration Accla. Changes to objective structured clinical examinations (OSCE) at Australian medical schools in response to the COVID-19 pandemic. *Med Teach*. 2021;44(4):418–24. https://doi.org/10.1080/0142159X.2021.1998404

Appendix A. Survey instrument

An e-mail was sent out to all medical school asking for the following information (2022)

1. How many summative OSCE's do you have in your program?
2. When do they occur?
3. Do you count them as a course on your program transcripts or are they part of a programmatic assessment framework?

Follow-up E-mail (2023-2024)

Can you please fill out the following table for the MD Program you represent:

School	OSCEs					
	Pre-clerkship Formative	Pre-clerkship Summative	Clerkship Formative	Clerkship Summative	Total	Notes