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Celebrating inquiry and scholarship: the inaugural Canadian Medical Student Research Competition

Célébrer la recherche et l'érudition : Le premier concours de recherche des étudiants en médecine du Canada

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Background

The CanMEDS framework, integral to the training of Canadian physicians, emphasizes the role of the physician as a scholar, mandating competency in research and evidence-based medicine.[1] Despite the variability in structured research training across Canadian medical schools, the 2023 Graduation Questionnaire by the Association of Faculties of Medicine of Canada (AFMC) reported that 80.7% of medical students had engaged in a research project during their studies.[2] This statistic underscores a rising trend in research participation and highlights the opportunity for formal celebration and recognition of student research efforts.

Development

The Canadian Medical Student Research Competition (CMSRC) was conceived to address this need, providing a national platform to showcase and celebrate the research achievements of medical students. As the Founding Chair, I engaged national UME decanal leaders with the proposal for a national symposium in which the most exceptional student research from participating institutions could be highlighted. Eleven out of seventeen Canadian medical schools participated, each selecting an MD and, optionally, an MD-combined student through an internal selection process based on provided scoring criteria.

The competition was divided into two streams: MD students and Combined-Degree students (e.g., MD-PhD, MD-Masters). This distinction acknowledges the higher expectations for research output and protected time afforded to students in combined programs. Each school's internal selection ensured that the most outstanding research projects were represented, maintaining equitable representation across institutions. Research in all fields (e.g. clinical, basic science, education, humanities) were welcomed.

The judging process was specifically designed to focus on students' inquiry behaviors and presentation of their research (See Appendix A) rather than purely project outcomes. Judges, sourced from diverse institutions and research backgrounds (clinical, basic science, and educational research), evaluated presentations based on the clarity and relevance of the research question, study design justification, critical appraisal, and communication skills, aligning with Medical Council of Canada (MCC) objectives SC2.2 through SC2.5.[3] The office of Human Research Ethics at Western University deemed that no REB oversight was needed for this initiative.

Event execution and outcomes

The inaugural CMSRC took place virtually in May 2024. The event opened with a keynote address from a medical school Dean on the significance of research and scholarship in medical training, followed by student presentations. Each student had seven minutes to present, followed by three minutes for questions from the judges. The morning session was dedicated to MD-Combined program participants, while the afternoon session featured MD program participants.

Feedback from participants highlighted the event's efficiency and the caliber and diversity of presentations. One participant remarked, 'It was run very efficiently, and the quality of presentations was very high,' while another appreciated the 'great representation from schools across Canada.' Judges echoed these sentiments, praising the clear judging criteria and the relevance of the research presented. However, both participants and judges suggested improvements, such as allotting more time for post-presentation questions, and an opportunity for students to receive feedback from judges after the event.

The competition culminated in the selection of winners and runners-up from each stream based on the highest overall scores. This structure not only recognized individual excellence but also fostered a sense of national recognition and competition among medical students.

Positioning within Canadian medical education

The CMSRC represents a significant addition to the landscape of Canadian medical education. It aligns with the growing emphasis on research as a core component of medical training, supporting the CanMEDS Scholar role and the increasing incorporation of research into undergraduate curricula. The event addresses gaps in formal recognition and structured opportunities for student researchers, particularly those not enrolled in combined programs.

Research involvement during medical school has been associated with broader academic skills and deeper learning experiences during training,[4] and potentially enhanced career development opportunities.[5] By providing a national platform for showcasing research, the CMSRC not only motivates students to engage in scholarly activities but also sets a standard for research excellence.

Moreover, the CMSRC is committed to equity by ensuring fair representation from each medical school across Canada. Each institution develops its own internal selection process, allowing them to choose participants who best represent their unique context and strengths. This approach ensures that both students with structured, protected research programs and those without are fairly represented in the competition. By providing an equitable platform for all schools, the CMSRC celebrates a diverse range of research topics and perspectives.

Conclusion

The inaugural CMSRC provided a platform to highlight the remarkable research efforts of Canadian medical students and setting a precedent for future competitions. By fostering a national culture of research excellence and providing equitable opportunities for recognition, the CMSRC contributes meaningfully to the evolving landscape of medical education in Canada. The feedback and outcomes from this first event will inform improvements, ensuring that the CMSRC continues to support and inspire the next generation of physician-scholars.

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Appendix A. Judging process criteria

Criteria	Points /40
1. Clear Definition of the Problem Being Studied (5 points)	**/5**
a. Relevance to Medicine (2.5 points)	**/2.5**
The problem definition lacks relevance to medicine, with no clear connection	0.5
Some relevance is present, but it requires significant improvement to align with medicine	1
Clear relevance to medicine, but further refinement may be beneficial	1.5
Highly relevant to medicine, with a well-defined problem	2
Exceptionally relevant to medicine, with a problem of wide general relevance and importance	2.5
b. Gap in the Existing Literature (2.5 points)	**/2.5**
The student fails to identify a gap in the existing literature related to the problem	0.5
A gap in the literature is implied and the audience can infer the need for research	1
A gap is explicitly identified, but it lacks clarity and may require further development	1.5
A clear gap in the existing literature is identified, demonstrating a need for the research	2
Exceptionally clear identification of a significant gap in the existing literature	2.5
2. Formulation of the Research Question (5 points)	**/5**
The research question is poorly formulated, lacking clarity and specificity	1
The research question is somewhat clear but requires significant refinement	2
A clear research question is presented, but there may be room for greater precision	3
The research question is well-structured and appropriately focused	4
An exceptionally well-formulated research question demonstrates advanced inquiry skills	5
3. Explanation and Rationale of the Study Design (5 points)	**/5**
The explanation of the study design is unclear, and the rationale is missing or flawed	1
The study design is somewhat clear, but the rationale requires significant improvement	2
The study design and rationale are adequately explained, with room for further development	3
The study design and rationale are well-explained and logically structured	4
An exceptionally clear and well-justified study design and rationale demonstrate advanced inquiry abilities	5
4. Explanation of the Results (5 points)	**/5**
The explanation of results is extremely poor, lacking clarity and coherence	1
The explanation of results is inadequate, requiring significant improvements	2
The explanation of results is somewhat clear but may need further development	3
The explanation of results is clear and coherent	4
An exceptionally clear and comprehensive explanation of results is provided	5
5. Explanation and Soundness of Conclusions (5 points)	**/5**
The conclusions are poorly explained and lack soundness or alignment with the research	1
The conclusions are somewhat clear but need significant improvement in soundness	2
The conclusions are adequately explained, with potential for further refinement	3
The conclusions are well-explained and sound, aligning with the research	4
An exceptionally clear and well-justified set of conclusions demonstrates advanced inquiry skills	5
6. Extent of Involvement of the Student in the Project (5 points)	**/5**
The student's involvement in the project is minimal, with no meaningful contribution	1
The student's involvement is limited, requiring a larger contribution to be considered meaningful	2
The student has made a moderate contribution to the project but may need further development	3
The student's involvement is substantial and meaningful, demonstrating a significant role	4
The student's involvement is exceptional, significantly impacting the success of the project	5
7. Presentation Skills (10 points)	**/10**
a. Content Organization* ***Judges should note that 'flow' does NOT pertain to fluency – some students may not be presenting in their primary language, and 'flow' should be evaluated based on the sequence of information presented***	**/4**
The content organization is extremely disorganized, lacking structure and logical flow*	1
The content organization is poorly structured, with major issues in flow*	2
The content organization is somewhat organized but requires improvement*	3
The content organization is well-structured and follows a logical flow. Exceptionally organized content enhances the overall presentation*	4
b. Engagement and Delivery	**/3**
The presenter fails to engage the audience, and the delivery is extremely ineffective	1
The presenter engages the audience to some extent but needs improvement in delivery.	2
The presenter captivates the audience with enthusiasm and confidence, delivering key points effectively	3
c. Effective Visual Aids	**/3**
Visual aids are extremely unclear, detracting from the presentation	1
Visual aids are clear and effectively support the presentation	2
Visual aids are exceptionally clear and greatly contribute to the presentation	3