

Bridging gaps in orthopedic residency admissions: embracing diversity beyond research metrics

Comblent les lacunes dans les admissions en résidence en orthopédie : aller au-delà des critères de recherche pour embrasser la diversité

Rahul Kumar,^{1,2} Ansh Gosain,¹ Jeremy Joshua Saintyl,³ Ajay Zheng,³ Karsten Chima,³ Roger Cassagnol⁴

¹Department of Biochemistry and Molecular Biology, University of Miami Miller School of Medicine, Florida, USA; ²Batchelor Children's Research Institute, University of Miami Miller School of Medicine, Florida, USA; ³Department of Chemistry, University of Miami, Florida, USA; ⁴Phillip Frost Department of Dermatology and Cutaneous Surgery, University of Miami Miller School of Medicine, Florida, USA

Correspondence to: Rahul Kumar, BS, Department of Biochemistry and Molecular Biology, University of Miami Miller School of Medicine, 1011 NW 15th Street, Gautier Building, MC R629, Miami FL, 33136-1019; email: rxk641@miami.edu; rahulca13@gmail.com; cell: (408) 239-6102

Published ahead of issue: Jan 29, 2025; published: May 1, 2025. CMEJ 2025, 16(2) Available at <https://doi.org/10.36834/cmej.80264>

© 2025 Kumar, Gosain, Saintyl, Zheng, Chima, Cassagnol; licensee Synergies Partners. This is an Open Journal Systems article distributed under the terms of the Creative Commons Attribution License. (<https://creativecommons.org/licenses/by-nc-nd/4.0>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is cited.

Introduction

Orthopedic residency programs in Canada and the United States have increasingly emphasized research publications as indicators of an applicant's academic potential.¹ Although this shift aims to enhance academic rigor, it may unintentionally disadvantage underrepresented minority groups, including Indigenous students and applicants from resource-limited institutions such as Historically Black Colleges and Universities (HBCUs) or community-centered medical schools. These institutions often operate with limited research infrastructure, constrained mentorship networks, and reduced access to publishing opportunities, making it challenging for students to meet the publication standards in many residency selection criteria.

In reflecting on these challenges, we understand that the current focus on publication metrics is not arbitrary. Both Canada and the United States have recently highlighted research as an essential aspect of medical training. In Canada, for instance, the Canadian Residency Matching Service (CaRMS) reports that residency programs have increasingly sought candidates with academic publications.² We noticed that this aligns with trends in the United States, where the National Resident Matching Program data shows an uptick in the number of research publications among successfully matched orthopedic residents.³ However, prioritizing such metrics risks narrowing the field, inadvertently reinforcing inequities.

The role of community contributions and patient-centered experiences in residency selection

We note that Canada has a longstanding history of promoting diversity in its healthcare system, with policies aimed at improving access to medical education for Indigenous and underrepresented students. For instance, the Indigenous Student Access Program (ISAP) at the University of Saskatchewan offers Indigenous dental students tailored support, including guidance on research and community engagement. However, we believe that the emphasis on publications in residency selections often overrides these efforts.⁵

Based on these observations, our commentary advocates for broader selection criteria in orthopedic surgery residency programs—criteria that recognize research as one valuable component, rather than the defining measure of a candidate's potential. Similar to the Indigenous Admissions Pathway (IAP), orthopedic residency programs could benefit from evaluating applicants' dedication to underserved communities, hands-on advocacy, and experience with healthcare disparities, broadening beyond research metrics.⁶ This approach aligns with the Canadian Orthopaedic Association's (COA) mission to foster a diverse orthopedic workforce capable of addressing the needs of North America's multicultural population.⁷

Research publications and equity: reconsidering metrics in residency selection

From our perspective, the heavy dependence on research publications as a metric can obscure other crucial attributes that minority candidates bring to the field. Indigenous and racial minority applicants, for example, often navigate complex systemic barriers and still engage deeply in their communities. Their work may involve culturally relevant health initiatives, leadership in community health programs, or advocacy to improve healthcare access, all of which demonstrate skills invaluable to orthopedic surgery and the medical profession in general.

Evidence from CaRMS and ERAS selection process

We have created a table (available upon request) which shows the evaluation criteria used by orthopedic surgery programs in US and Canada for admissions. We assessed whether the programs have specific consideration for community contribution, impact on health equity, representation, and inclusiveness. Our conclusion is that while some programs have made these criteria explicit, the majority have room to improve.

Policy recommendations: toward an inclusive and diverse orthopedic workforce

We recommend residency programs integrate metrics other than research that capture the comprehensive capability of an applicant's experience and potential. First, CaRMS could develop scoring guidelines that reward community engagement and patient-centered initiatives, particularly for applicants from underrepresented backgrounds. Points could be assigned for leadership roles in community health initiatives, participation in public health projects, and involvement in organizations that advocate for health equity.

Developing flexible residency selection models that recognize non-publication achievements in orthopedic surgery could also encourage medical institutions to build inclusive frameworks that recognize diverse pathways into healthcare and promote a more representative medical workforce.

While these take effect or if they are not implemented, then residency programs should consider implementing mentorship pathways in partnership with organizations like the Indigenous Physicians Association of Canada and the American Academy of Orthopaedic Surgeons, which can help guide students from underserved backgrounds through the research publication process. By providing structured mentorship and research support specifically for

minority students, programs can work to mitigate the existing publication gap.

While we advocate for an inclusive approach to orthopedic residency programs by emphasizing facets that go beyond research competencies, we acknowledge the importance of monitoring for unintended outcomes of new policies. Without careful evaluation, well-meaning reforms may inadvertently reinforce existing inequities or introduce new forms of bias. It is therefore critical to establish robust systems for evaluating the effectiveness and fairness of any changes implemented. This includes regularly collecting and analyzing data to identify gaps, ensuring transparency, and fostering ongoing dialogue with underrepresented groups to address their needs effectively. These measures will help ensure that the policies achieve their intended goals of promoting equity and inclusivity while maintaining high standards in residency selection.

Conclusions

In prioritizing traditional research metrics, we believe orthopedic surgery residency programs risk overlooking diverse talents and experiences that could enrich the field. Recognizing community engagement, health advocacy, and adaptability as integral to residency criteria can help create a more inclusive, dynamic orthopedic workforce. This change not only aligns with the COA and Health Canada's diversity goals but also attracts candidates who may be better prepared to meet the healthcare needs of North America's increasingly diverse population. By embracing these reforms, we would reaffirm the orthopedic field's commitment to equity and excellence, fostering a new generation of surgeons dedicated to advancing patient-centered care.

Conflicts of Interest: None

Funding: None

Edited by: Marcel D'Eon (editor-in-chief)

References

1. Adeyeri B, Lee T, Beal T, Huang A, Harrington MA. Analysis of research productivity of orthopedic surgery residency applicants. *Cureus*. 2023 Oct 2;15(10) <https://doi.org/10.7759/cureus.46384>
2. Lukings J, Bell A, Stobbe K, et al. Scholarly activity as a selection criterion in the Canadian Residency Matching Service (CaRMS): a review of published criteria by internal medicine, family medicine, and pediatrics programs. *Can Med Educ J*. 2020 Jul 15;11(3). <https://doi.org/10.36834/cmej.69094>
3. Donley C, McCrosson M, Prahad S, et al. High research productivity during orthopaedic surgery residency may be predicted by number of publications as a medical student. *JB JS*

- Open Access*. 2024 Jan 30;9(1).00105.
<https://doi.org/10.2106/IBJS.OA.23.00105>
4. Corbie G, Brandert K, Noble CC, et al. Advancing health equity through equity-centered leadership development with interprofessional healthcare teams. *J Gen Intern Med*. 2022 Dec;37(16):4120-4129. <https://doi.org/10.1007/s11606-022-07529-x>
 5. Teplitsky PE, Uswak GS. The University of Saskatchewan's Aboriginal Equity Access Program in dentistry. *J Dent Educ*. 2014 Feb;78(2):181-6. <https://doi.org/10.1002/j.0022-0337.2014.78.2.tb05668.x>
 6. Black KA, Schroeder B, Felske-Durksen C, Rich R. Perspectives of Indigenous medical students on a postgraduate Indigenous admissions pathway. *Can Med Educ J*. 2023 Dec 30;14(6):102-111. <https://doi.org/10.36834/cmej.75170>
 7. International Orthopaedic Diversity Alliance. Diversity in orthopaedics and traumatology: a global perspective. *EFORT Open Rev*. 2020 Oct 26;5(10):743-52. <https://doi.org/10.1302/2058-5241.5.200022>