

**Matching to urology during the COVID-19 pandemic and with the Association of Faculties of Medicine of Canada electives diversification policy: Survey of the 2021 urology Canadian Residency Matching Service applicants**

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**Introduction**

Medical students participating in the 2021 Canadian Residency Matching Service (CaRMS) cycle faced many challenges. Starting with the 2021 cohort, the Association of Faculties of Medicine of Canada (AFMC) implemented the student electives diversification policy which limits student elective opportunities to a maximum of eight weeks in any single entry-level discipline.<sup>1</sup> Its implications for Canadian urology have been discussed in a previous article.<sup>2</sup> Due to the COVID-19 pandemic, the AFMC suspended visiting electives and all interviews were conducted virtually.<sup>3</sup> These restrictions significantly impacted urology applicants and programs, as performance during a visiting elective has been previously found to be the most important factor when selecting a future urology resident.<sup>2,4,5</sup>

We sought to characterize the elective experience of urology applicants participating in the 2021 CaRMS match in the context of both the new AFMC electives policy and restrictions imposed by the COVID-19 pandemic. We also assessed the impact that regionalization and lack of away elective experiences had on match outcomes.

## Methods

The Canadian Undergraduate Urology Committee (CanUUC) distributed a survey to all (n=38) students invited to the virtual Canadian Urology Fair on March 26, 2021. The survey inquired about elective strategies, elective experiences, number of interviews offered, and perception of the AFMC student electives diversification policy. Respondents were also asked to rate statements related to these topics on a 5-point Likert scale with 5 being considered “very important” or “completely agree”. The survey can be found in the Appendix. Survey responses were not viewed before the final rank list submission date (April 1st, 2021) and were not shared with programs.

Additionally, the CanUUC asked all Canadian urology program directors in August 2021 to provide the following information on each of their current residents (including those matched in 2021): current year of resident, medical school graduated, and if they completed an elective as a medical student at their matched program. The data received was further coded to determine if the applicant matched at their home school, in their home province, and/or in their home region (Western [British Columbia, Alberta, Saskatchewan and Manitoba], Ontario, Quebec, or Eastern [Maritime provinces and Newfoundland]). International medical graduates, sponsored medical graduates, and residents that transferred to the program from another school or specialty were excluded.

The proportion of 2021 residents matching to a location the same as or different than where they attended medical school was compared to previous cohorts of active residents using Fisher's exact test. Match outcomes based on elective rotation at the matched school were compared using a Chi-square test. The threshold of significance was set at a two-sided  $p < 0.05$ . All analyses were performed in Stata MP14 (StataCorp LLC, College Station, TX, USA).

## Results

### *Urology applicants' demographic information*

We received 21 responses (55.3%) from urology applicants. Respondents represented 10 universities. Urology was the first-choice specialty for all respondents. Twelve (57.1%) applicants decided to apply to urology in the 3<sup>rd</sup> year of medical school.

### *Elective strategy*

Of all respondents, 81% planned to apply to urology before their first urology elective. Eleven (52.4%) students had a parallel plan, 8 (38.1%) did not, and 2 (9.5%) were still undecided. Urology applicants pursued various non-urology electives, with the most common being general surgery, vascular surgery, gynecology and urogynecology, radiology, and nephrology. The most important reasons to pursue these electives included complementing their urology application ( $4.4 \pm 1.0$ ), gaining additional clinical experience ( $4.2 \pm 1.0$ ), and exploring other fields ( $3.7 \pm 1.3$ ). Other reasons noted by respondents included becoming well-rounded physicians and preparing for licensing examinations.

***Elective experience***

The median maximum number of elective weeks permitted by the respondent's curriculum was 18 weeks (IQR 12-18). Most respondents spent the maximum 8 elective weeks in urology (61.9%), with some also noting that they spent more than 8 weeks total in urology due to core and selective urology opportunities. Fifteen (71.3%) respondents pursued urology electives at a single institution, while 3 (14.3%) were able to visit more than one urology program and 3 (14.3%) did not visit any urology program. Sixteen (76.2%) respondents actively contacted urology programs.

***CaRMS application and interview results***

The median number of urology programs applied to was 10 (IQR 9-10). The median number of urology interviews received was 7 (IQR 5-8). The median number of urology interviews received from non-visited programs was 4 (IQR 3-8). On average, students were invited for interviews by 69.2% of the urology programs they applied to and 61.5% of the non-visited urology program they applied to. The median number of non-urology applications submitted, non-urology interviews received, and non-urology interviews received from non-visited programs were 2 (IQR 1-5), 1 (IQR 0-3), and 2 (IQR 0-3), respectively.

***Perception of the AFMC student electives diversification policy***

The majority (71.4%) of respondents agreed that their electives enabled them to seek clinical experiences in a wide variety of disciplines to broaden their knowledge base. The majority (61.9%) of respondents agreed that their electives allowed them to optimize their ability to engage in the increasingly competitive match process. Overall, 15 (71.4%) respondents support the AFMC student electives diversification policy.

***Program survey – Mobility of matched applicants and outcomes by elective visit status***

Eleven of the 13 (84.6%) urology program directors responded. After excluding IMGs and transfers, 133 current urology residents were available for analysis. Compared to previous years, there was no statistically significant difference in proportions of matched applicants of the class of 2021 matching to their home school (53.6% in 2021 vs. 47.2% in applicants from 2017-2020,  $p=0.67$ ), home province (82.1% vs. 63.8%,  $p=0.07$ ), nor home region (82.1% vs. 68.6%,  $p=0.24$ ). Figure 1 presents the mobility of matched applicants between 2017 and 2021. There was a statistically significant difference in the proportion of matched applicants from the 2021 cohort that completed an in-person elective at their matched program (64.3% in 2021 vs. 94.3% in previous years,  $p<0.001$ ).

## Discussion

The AFMC electives diversification policy and the COVID-19 pandemic were causes of significant uncertainty for the 2021 cohort applying for a urology residency spot. We found that both the new policy and the pandemic reduced the number of weeks and sites visited for urology electives. Overall, students supported the AFMC's elective cap on single-entry specialties.

The unique circumstances faced by urology applicants participating in the 2021 CaRMS cycle may have reduced the number of urology interviews received. Our sample of respondents were offered interviews by 69.2% of the programs they applied to – in 2020, 83.0% of urology applications were offered an interview.<sup>6</sup> There was no evidence of statistically significant reduced mobility of matched applicants despite a trend towards regionalization with more 2021 cohort applicants matching to their home school, in their home province, or in their home region compared to previous years. Our findings are similar to those of the US urology match.<sup>7</sup>

Most respondents supported the AFMC electives diversification policy as they felt it diversified their clinical experience. However, applicants primarily used their non-urology electives to complement their urology application rather than to parallel plan.

This CaRMS cycle was especially challenging for applicants from Calgary, Memorial, Saskatchewan, and the Northern Ontario School of Medicine who do not have urology residency programs, which limited exposure to programs. Virtual open houses were offered as way to help mitigate this. The variation in undergraduate urology exposure with varying selective and core rotations has previously been investigated<sup>8</sup> and should be further studied to assess its impact on selecting future urology residents, as it may have played a role this cycle.

The COVID-19 pandemic has created challenges but has also created opportunities to improve the CaRMS match process. Many respondents noted that virtual events hosted by programs were greatly appreciated and should be continued. Considering that restrictions to the number of electives in any single entry-level specialty and virtual interviews will likely continue in future CaRMS iterations (at least for the 2022 cohort), there should also be continued considerations for more virtual matchmaking such as updating websites, enhancing social media presence, and developing new virtual opportunities.<sup>9,10</sup>

Our study is not without limitations. First, it only captured a subset of urology applicants that attended the CaRMS Urology Fair and completed the survey, missing applicants that did not receive an interview, did not complete the survey and those that only interviewed at francophone programs. This respondent bias may have affected our results. Second, our study can't assess the independent effects of the new AFMC policy and the pandemic. Future studies, likely starting with the 2023 or 2024 cohort, are needed to generate generalizable elective trends and match outcomes under the AFMC student electives diversification policy. It would also be interesting to analyze the impact of restricted elective experiences on a larger cohort of Canadian students who choose surgical specialties.

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## Figures and Tables

*Fig. 1.* Mobility of matched urology applicants between 2017 and 2021.