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# An analysis of diversity within academic urology leadership

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CASALS RK, OVERHOLT TL, MATTHEWS CA, PATHAK RA, MCCONNELL JD, TSIVIAN M. An analysis of diversity within academic urology leadership. *Can J Urol* 2022;29(4):11204-11208.

**Introduction:** Women, underrepresented minorities, and international medical graduates are underrepresented in urology. We sought to compare demographics of leaders in academic urology to urology faculty and academic medical faculty.

**Materials and methods:** The Association of American Medical Colleges provided academic medical faculty demographics. Women, underrepresented minorities, and international medical graduates in leadership roles (department/division chair or full professor) were identified. Fisher's exact tests were performed to compare proportions of those groups in urology leadership to academic urology, academic medicine leadership, and academic medicine.

**Results:** In 2019, there were 179,105 faculty in academic medicine with 41,766 in leadership and 1,614 faculty in urology with 567 in leadership. Significantly fewer women were in urology leadership compared to academic

urology (7.4% vs. 22.0%,  $p < 0.0001$ ), academic medical leadership (7.4% vs. 25.0%,  $p < 0.0001$ ), and academic medicine (7.4% vs. 42.0%,  $p < 0.0001$ ). Significantly fewer underrepresented minorities were in urology leadership compared to academic medicine (6.9% vs. 9.4%,  $p = 0.04$ ) with no significant difference when compared to urology faculty (6.9% vs. 8.1%,  $p = 0.4$ ) or medical faculty leadership (6.9% vs. 6.4%,  $p = 0.6$ ). Significantly more international medical graduates were in urology leadership compared to across academic urology, (32% vs. 24%,  $p = 0.0006$ ), but significantly fewer than those in leadership across all medical specialties (32% vs. 40%,  $p = 0.0001$ ).

**Conclusions:** Women and underrepresented minorities are significantly underrepresented in academic urologic leadership while international medical graduates are statistically overrepresented. Considering calls for diversity, equity, and inclusion, these data highlight a need for increased representation in leadership positions in academic urology.

**Key Words:** diversity, medicine, leadership, academic, representation

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## Introduction

As the overall population of the United States (US) continues to become more diverse, representation

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Accepted for publication June 2022

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within medicine is lagging. Current national demographic trends highlight that African American or Black and Hispanic or Latinx physicians were more underrepresented amongst US clinical faculty in 2016 than they were in 1990.<sup>1</sup> Reports in the literature that have analyzed trends within surgical fields specifically have highlighted that while the overall number of women and underrepresented minorities (URMs) within surgery, including African American

or Black, Hispanic or Latinx, American Indian, and Alaska Native physicians, are growing, they are both still proportionally underrepresented within surgical specialties as a whole.<sup>2,3</sup>

Urology has traditionally had fewer URMs and women within the field compared to other medical specialties. The 2019 American Urological Association (AUA) census data demonstrated only 15.0% and 9.9% of non-white and female urologists, respectively.<sup>4</sup> Additionally, the proportion of international medical graduates (IMGs) within urology has substantially decreased over the last 30 years, from 27.0% in 1978 to 5.0% in 2013, while representation of IMGs in other specialties has largely remained stable.<sup>5</sup> Prior studies have examined trends of female representation within urologic leadership positions. Cancian et al demonstrated that women were underrepresented in advanced urologic leadership positions including editorial staff, boards of directors, department chairs, and program directors.<sup>6</sup> Teh et al also demonstrated that women are underrepresented in urologic leadership positions despite growing numbers of women within the field.<sup>7</sup>

Individuals holding major leadership roles within urology, and especially academic urology, are visible towards not only the general patient population but also to medical students across the country seeking to pursue future careers within the field. The demographics of these leaders may influence patient treatment and the career choice of students in their institutions. Additionally, leaders provide mentorship and sponsorship to general faculty, post-graduate trainees, and students, strongly influencing the likelihood of academic career promotion and success. Herein, we analyzed current demographics of individuals who hold academic urologic leadership positions across the US as compared to all academic urology as well as all academic medical faculty.

## Materials and methods

After Institutional Review Board approval, we performed a retrospective cohort analysis of current academic US physicians. All data within this study were obtained from the Association of American Medical Colleges (AAMC), which were sourced from the AAMC US Medical School 2019 Faculty Roster and Student Records System (SRS) (AAMC Faculty Roster, December 31, 2019 snapshot, as of 9/30/2020). The AAMC Faculty Roster data are generated from a self-reported census that includes physician demographics and position or rank within their respective field. Two reports were utilized for

this present study: 1) AAMC data report of current urology faculty at US medical schools, and 2) AAMC data report of all US medical school faculty across all specialties. All data were de-identified and did not include identifiable information. Permission was granted by the AAMC to utilize this data for the purposes of this present study.

We identified which academic faculty members carried a leadership role within their department or division, defined for this study as a department/division chair and/or full professor. We then identified four subgroups for analysis: Group 1) academic urologists with a leadership role, Group 2) all academic urologists regardless of role/rank, Group 3) academic faculty across all specialties with a leadership role, and Group 4) all academic faculty across all specialties regardless of role/rank. The primary outcomes of this study were the proportion of women, URMs (defined within this study as individuals who are Black/African American, Hispanic/Latinx [including multiple race-Hispanic], American Indian, or Alaska Natives), and IMGs (defined within this study as those that earned their medical degree outside of the United States of America) in academic urology with a leadership role compared to all academic urology, academic faculty across all specialties with a leadership role, and all academic faculty across all specialties. In order to estimate IMG faculty members, the AAMC provided a separate report that defined an IMG as a faculty member at a US medical school that earned an MD or equivalent degree outside of the US after 1978, which is the first year that the AAMC SRS tracked that data.

GraphPad Prism software version 7.05 for Windows (GraphPad Software, San Diego, CA, USA) was used to perform Fisher exact tests to compare the proportion of academic urologists with a leadership role to all academic urologists, to academic faculty across all specialties with a leadership role, and to all academic faculty across all specialties. P values < 0.05 were considered statistically significant.

## Results

A total of 179,105 academic faculty members across all medical specialties self-reported census data to the AAMC and were included in this study. There were 1,614 academic faculty members who reported that they were members of their department/division of urology and of these, 567 (35.1%) reported that they held a leadership role within their department/division, Table 1.

There were significantly fewer women who held

**TABLE 1. Overall representation of women, underrepresented minorities (URMs), and international medical graduates (IMGs) in academic urologic leadership roles, all academic urology, in academic medicine leadership roles across all specialties, and in all academic medicine across all specialties. This table also demonstrates the total representation of women and URMs within the United States (US) as a whole**

Category	Women n (%)	Men n (%)	URM n (%)	Non-URM n (%)	IMG n (%)	Non-IMG n (%)	Total n
All urology faculty	350 (22)	1,264 (78)	130 (8.1)	1,484 (92)	340 (24)	1,076 (76)	1,614
Urology leadership	42 (7.4)	525 (3)	39 (6.9)	528 (93)	167 (32)	356 (68)	567
Full professors	39 (8.1)	444 (92)	30 (6.2)	453 (94)	150 (34)	289 (66)	483
Chairperson	3 (3.6)	81 (96)	9 (11)	75 (89)	17 (20)	67 (80)	84
All academic medical faculty	75,771 (42)	103,404 (58)	16,862 (9.4)	162,376 (91)	46,408 (34)	90,416 (66)	179,105
All academic leadership	10,511 (25)	31,255 (75)	2,659 (6.4)	39,116 (94)	12,367 (40)	18,386 (60)	41,766
Full professors	9,874 (26)	28,595 (74)	2,367 (6.2)	36,111 (94)	11,578 (41)	16,588 (59)	38,469
Chairperson	637 (19)	2,660 (81)	292 (8.9)	3,005 (91)	789 (31)	1,798 (70)	3,297
US population <sup>a</sup>	1.7 × 10 <sup>8</sup> (51)	1.6 × 10 <sup>8</sup> (49)	1.1 × 10 <sup>8</sup> (33)	2.2 × 10 <sup>8</sup> (67)	-	-	3.3 × 10 <sup>8</sup>

<sup>a</sup>United States Census Bureau. (2019, July 1). Quick facts-population estimates. [Table]. Retrieved from <https://www.census.gov>

a urologic leadership role compared to all academic urology (7.4% vs. 22.0%,  $p < 0.0001$ ), academic medical faculty across all specialties who held a leadership role (7.4% vs. 25.0%,  $p < 0.0001$ ), and all academic medical faculty across all specialties (7.4% vs. 42.0%,  $p < 0.0001$ ; Table 2; Figure 1).

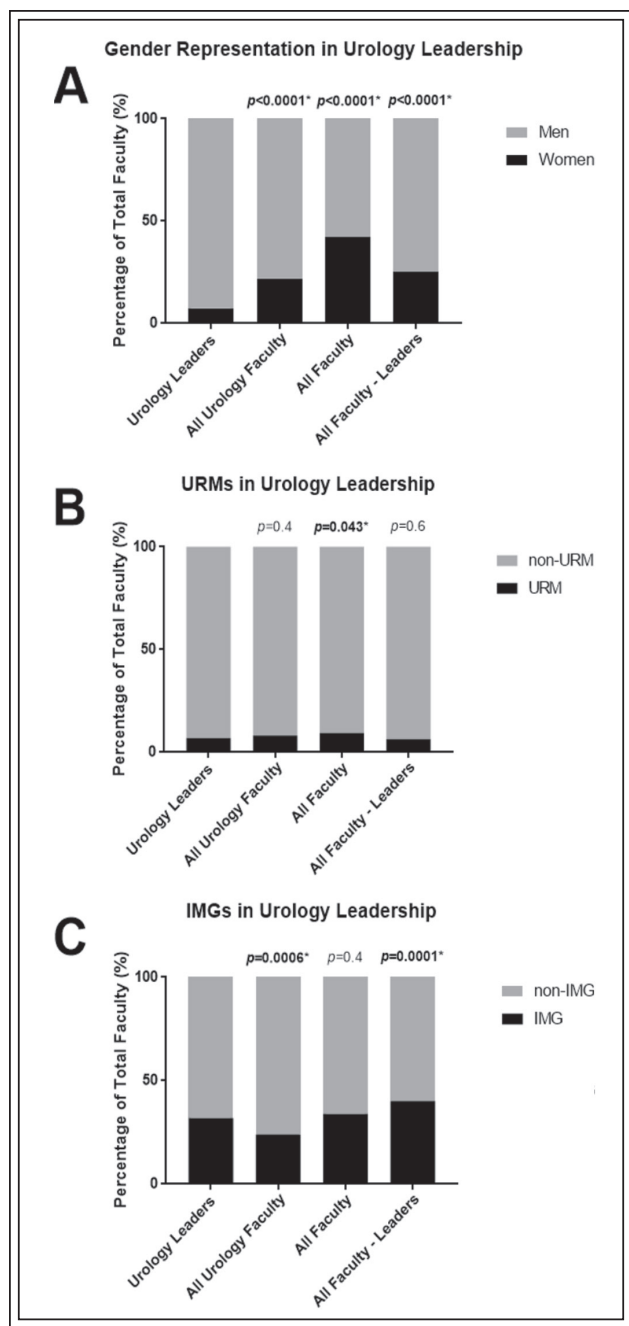
There were also significantly fewer URMs in urologic leadership roles compared to academic

medical faculty across all specialties (6.9% vs. 9.4%,  $p = 0.04$ ; Table 2; Figure 1).

There were significantly more IMGs in urologic leadership roles compared to the proportion of IMGs across all academic urology (32% vs. 24%,  $p = 0.0006$ ), but significantly fewer when compared to those with leadership roles across all medical specialties (32% vs. 40%,  $p = 0.0001$ ; Table 2; Figure 1).

**TABLE 2. Statistical comparisons of women, underrepresented minorities (URMs), and international medical graduates (IMGs) in urologic leadership roles compared to all urologic faculty, academic medicine leadership roles, and all academic medicine.**

Category	Proportion (%)	p value
<b>Women</b>		
Urology leadership vs. all urology faculty	7.4 vs. 22	< 0.0001
Urology leadership vs. all medical faculty	7.4 vs. 42	< 0.0001
Urology leadership vs. all medical leaders	7.4 vs. 25	< 0.0001
<b>URMs</b>		
Urology leadership vs. all urology faculty	6.9 vs. 8.1	0.4
Urology leadership vs. all medical faculty	6.9 vs. 9.4	0.043
Urology leadership vs. all medical leaders	6.9 vs. 6.4	0.6
<b>IMGs</b>		
Urology leadership vs. all urology faculty	32 vs. 24	0.0006
Urology leadership vs. all medical faculty	32 vs. 34	0.4
Urology leadership vs. all medical leaders	32 vs. 40	0.0001



**Figure 1.** Proportions of women (A), underrepresented minorities (URMs) [defined as Black, Latinx, American Indian, Alaska Native] (B), and international medical graduates (IMGs) (C), within urology leadership roles compared to their proportions among all academic urology faculty, all academic faculty in US medical schools, and leadership roles for all academic medical departments. P values reported are the result of comparing proportions using Fisher’s exact test in GraphPad Prism 7.05 for Windows (GraphPad Software, San Diego, CA, USA).

## Discussion

Representation of women, URMs, and IMGs is lacking in leadership roles in the medical field within the US and particularly within urology.<sup>2,3</sup> In this study, we demonstrate a persistent significant underrepresentation of women in urologic academic leadership roles compared to the respective proportion of women in academic urology and compared to the respective proportion of women in academic leadership roles across all medical specialties.

Several previous studies corroborate evidence of a lack of promotion for women and minorities to leadership positions in medicine and in particular, surgical subspecialties. Andriole et al analyzed demographic data of residents across multiple surgical specialties and highlighted underrepresentation of women and African Americans.<sup>2</sup> Cancian et al also reported that only 10% of individuals who held a leadership role within urology (with a broadened definition to include various committee and board positions) identified as women.<sup>6</sup> Breyer et al highlighted differences in the promotion timeline between men and women in urology, with women receiving promotions on average 1.2 years later than men despite having proportionately higher rates of fellowship training and work in an academic setting.<sup>8</sup> A recent longitudinal study using AAMC data from 2013-2019 from Riner et al supports these findings by identifying either a downward trend or no change in the representation of women from underrepresented groups as full professors or department chairs.<sup>9</sup>

Our study also demonstrated the lack of URMs in academic leadership positions in urology compared to the respective proportion of URMs across all medical faculty. This suggests that the pipeline of potentially competitive URM candidates for leadership positions in urology is constricted much earlier in medical training and efforts towards intentional recruitment of URMs to academic urology is needed.

Our analysis also revealed a significant difference in the increased proportion of IMGs in urologic leadership roles when compared to the respective proportion amongst all academic urologists but not to IMGs in leadership roles across all medical specialties. To our knowledge, there are no prior studies examining the proportion of IMGs who hold a urologic leadership role. Halpern et al’s work demonstrating the prevalence of IMGs in US urology residencies decreased significantly from 1978 to 2013.<sup>5</sup> Leadership roles tend to be populated by more senior faculty and it is plausible that the increased proportion of IMGs in leadership roles within urology in our study

could be partly explained by the fact that a larger proportion of senior faculty are IMGs compared to the decreasing number of IMG junior faculty and residents within urology.

Diversity of leadership in academic medicine is important for mentorship and sponsorship of underrepresented minorities to surgical subspecialties that continue to attract a homogenous pool of faculty candidates to academic medicine. Urology has traditionally been a small specialty, and increased exposure to a more diverse leadership could improve recruitment of medical students and residents to the field.<sup>10</sup> Urology residency program directors and other faculty should keep this historic underrepresentation in mind when planning medical student education, designing opportunities for female and URM students to gain exposure to the field, and when crafting future residency classes. Diverse programs signal a welcoming environment, enticing applications from a larger pool and overall increasing the quality of our trainees.

This investigation offers a current snapshot of the demographics of leadership roles within academic urology as they pertain to the proportion of women, URMs, and IMGs. A major strength of this study is the robust data provided by the AAMC. This data provided self-reported demographic data from medical faculty members from all academic medical schools within the US. This enabled us to objectively characterize faculty demographics as reported by the individual themselves without making any subjective inferences to an individual's gender, race, or ethnicity.

This study is not without its limitations. First, naming conventions differ between medical schools, and urology faculty may not be listed as members of the department/division of urology if they are listed as members of the department of surgery, for example. However, the search terms by AAMC data scientists were robust and included any faculty listed in departments or divisions with words like "urology," "urologic," or "urological" in their title. Second, the determination of IMG status is imperfect as it includes MD graduates prior to 1978 as well as all DO graduates. We hypothesize that several of the faculty currently counted as IMGs in our analysis were not in fact international medical graduates but fell into one of those categories. Although it was not possible for us to make these distinctions from our de-identified database, we posit that the true proportions of IMGs would be significantly decreased if such analysis were possible. Third, we limited our definition of leadership role to full professor and chair roles. While this definition is admittedly narrow, we chose these

roles as the ones that are both clearly publicly visible within academic urology as well as provided by the AAMC's report. Roles such as program director, while meeting the definition of an influential and visible leadership role in academic urology, unfortunately were not identified in our chosen dataset.

Regarding future directions, specific questions inquiring about leadership roles can be added to future far-reaching surveys of urologists such as the AUA Census. These questions should not be limited to the roles we have studied but instead should encompass a broader definition of leadership roles that are still publicly visible to account for the continuously changing landscape of academics and medicine.

## Conclusion

Women, underrepresented minorities, and international medical graduates are significantly underrepresented in academic urology as a whole and specifically within urologic leadership. In the wake of growing calls for diversity, equity, and inclusion, these data highlight a national need for increased representation at the highest levels of academic urology to reflect the changing demographics of society. □

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