

Contents lists available at ScienceDirect

# The American Journal of Surgery

journal homepage: www.americanjournalofsurgery.com



### Featured Article

## Gender differences in urology society award recipients

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#### ARTICLE INFO

Article history: Received 18 February 2020 Received in revised form 15 May 2020 Accepted 25 June 2020

Keywords:
Gender equity
Gender disparity
Distinguished sub specialty awards
Urology organizations

#### ABSTRACT

*Background:* Approximately 91% of urologists are male and 9% female. We aim to characterize gender differences amongst urology society awardees over the past six decades.

Methods: We queried 16 American urology societies. Inclusion criteria were active membership enrollment, majority urologist members, and awards provided at an annual, biennial or triennial basis.

Results: Ten urology societies were included. Between 1963 and 2019, 848 awardees for 34 awards were

Results: Ten urology societies were included. Between 1963 and 2019, 848 awardees for 34 awards were identified. Men comprised 92.2% and women 7.8% of recipients. The highest percentage of women awardees per year (21.7%) occurred in 2018, increased from 6.5% in 2008 and 0% in 1998. Over the last 11 years, women received 0% of awards offered 61% of the time.

*Conclusions:* There is an increased trend in the representation of women awardees by urology societies, although the frequency varies widely between societies. This is in keeping with the trend of increasing number of women entering the field of urology.

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#### Introduction

Over the past 3 years, an increasing number of physicians are questioning the discrepancy between the growing number of female faculty and the number of high-level promotions earned by women compared to men. In 2018, a study on women in anesthesiology found that despite gains in research grants, faculty and professorship positions, there was a smaller relative increase in female department chairs. Ellinas et al. explored this discrepancy a year later, hypothesizing that female anesthesiologists would be underrepresented in receiving Distinguished Service Awards from specialty societies despite an increase in the number of potential applicants and recipients over the past decades. They found a "persistence of low-to-zero number" of women recipients across several anesthesiology specialty organizations, although females accounted for 22.5% of the 41,718 practicing anesthesiologists in the United States in 2017.

Awards from professional societies and organizations may help embellish and fortify the qualifications and profile of women seeking faculty or departmental promotions. Gender imbalance in award recipients may indicate a need for systemic change, to prevent widening of the gender gap in academic opportunities,

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including promotion and recognition. According to the American Association of Medical Colleges (AAMC) 2017 workforce database, there were 9917 practicing urologists in the United States, of whom 91.3% were male and 8.7% were female.<sup>3</sup> Similarly, the American Urological Association 2018 census found that 90.8% of practicing urologists were male and 9.2% were female. This gender discrepancy was decreased from 2008, when only 4.7% of practicing urologists were female, and from 2013, when 7.2% were female. While the field remains predominantly male, Halpern et al. found an encouraging 11-fold increase in female urology residents between 1996 and 2015.<sup>5</sup>

The aims of this study were to: (1) determine the gender breakdown of award recipients by urology specialty organizations, and (2) determine the trends in receipt of urology society award by females. We hypothesized that women would be underrepresented in Distinguished Awards relative to the proportion of women in urology.

#### Methods & materials

Sixteen professional societies of urology were queried for this study. This list was guided by an online publication of urology subspecialty societies recognized under the auspices of the American Urological Association (AUA).<sup>6</sup> Inclusion criteria were active membership enrollment, majority urologist members, and awards provided at an annual, biennial, or triennial basis until 2019.

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Awards considered for this study included Distinguished Service Award, Lifetime Achievement Award, Education Award, Young Investigator Award of Excellence, Traveling Fellowship, Lectureship, Research Grant Awards or other equivalent awards. Societies that were exclusive to female urologists, such as the Society of Women in Urology, were excluded from this study.

Awardee information was obtained from each society's public website. If gender information was not available or unclear, it was further verified through internet searches of awardee's name and affiliated institution, utilizing pronoun use, photographs, videos or obituaries for confirmation. Data regarding society membership demographics and the selection process for award winners, when available, was obtained through direct email communication with administrative representatives of each society. We excluded societies with limited or no awardee information or if we were unable to contact their administration via email or telephone. The six societies excluded from this study were Society for Basic Urologic Research (SBUR), Society for Fetal Urology (SFU), Engineering and Urology Society (E&U), Geriatric Urologic Society (GUS), Society for Infection and Inflammation in Urology (SII), and Research on Calculus Kinetics Society (R.O.C.K.).

An ad hoc analysis was completed to identify relevant timelines for further investigation. The 1998–2018 timeline was chosen because we had census data for the percent of practicing female urologists in 2008 and 2018, providing a change in demographics over a decade. To allow for the two most recent decades worth of analysis, we used the timeline 1998–2018. The year 2005 was also chosen in a subset of the analysis as it was the last year that 0 women were awarded. In order to best show trends without the erratic changes in the small number of awards given each year, we employed the use of mathematical moving averages. The year 1984 was chosen as the start date as it is the first year a woman was awarded.

The AAMC report of "Physician Specialty Data Report, 2017" as well as the data referenced from the AUA census in 2008 and 2018 were used to determine the gender demographics of all practicing urologists in the United States of America. This study is exempt from the University of Maryland Institutional Review Board.

#### Results

A total of ten urology societies met the inclusion criteria and/or responded to our inquiry on awards offered throughout society history between 1963 and 2019. In total, there were 34 distinct awards recognizing 848 award recipients. Of these, 92.2% of awards were given to men, while women comprised 7.8% of award recipients (Fig. 1a and 1b). In 2018, the largest historic percentage of women were awarded by urology societies, with 21.7% of awards given to women. Since 2006, at least one woman has been awarded each year, with 2005 representing the last year when no awards were given to women.

Evaluating awards given by the societies excluding the AUA, the average share of awards bestowed to women increases to 12%, compared to 7.8% when including all the societies. The AUA was established in 1963 and the next society to be established, SUFU, started awarding in 1979. Controlling for this different start date, the difference in awards given to women becomes larger, with the AUA granting just 3.4% of the total awards to women between 1979 and 2019.

The selection process for award winners varied by society, with common criteria including awardee's significant contributions to the field of urology, distinguished service in practice, lifetime achievements, scientific originality of research projects and quality of presentation. Among the societies, there is great variation in the representation of women awardees ranging from 0 to 50% of total

awards given. One society, the Indian American Urological Association (IAUA), has never awarded a female despite providing society awards since 1990 (Table 1). In contrast, the Urologic Society for Transplantation and Renal Surgery (USTRS) has awarded men and women equally since its inception in 2014.

In the past 11 years, women received 0% of the awards offered by a single society on 67 occasions (60.9%) (Table 2). Women received awards similar or greater to the proportion of women in urology on 8 (7.3%) and 26 (24%) occasions, respectively.

Nearly half of urology society awards (414 of 848) were given by the AUA, which has the longest history of providing urology society awards, beginning in 1963 (Table 1 & Table 2). This organization currently has over 20,000 members worldwide, of whom 14% are women and 86% are men. Of the 416 total awards distributed by the AUA over the past 50 years, 402 (96.6%) have gone to men, while 14 (3.4%) have gone to women. Of the 134 AUA awards given in the past 10 years, 126 (94%) have been awarded to men, and 8 (6%) have been awarded to women. In order to smooth out the short-term fluctuations and better understand the data's relevance with respect to long-term implications and forecasting, we used the mathematical calculation of moving averages. As shown in Fig. 2, the 10-year moving average of the women's share of awards was overall decreasing between 1984 and 2000 and started to increase in 2008. The increasing moving average denotes that as the years progress, the share of women's awards over the past 10 years increases. In other words, the share of awards given to women from 2005 to 2015 was greater than the share of awards from 1995 to 2005. However, since 2015, the moving averages have stabilized and subsequently decreased as no woman has been awarded. This plateau in moving averages arises due to the decreased percent of women awardees in 2015 and 2019, as illustrated in Fig. 1b.

From 1998 to 2018, the Society for Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU) had a total of 9689 members, of whom 2583 were females (26.7%). However, during that same time period, only 17.5% of 63 awards were given to females. This means that females were awarded 34.5% less than their male counterparts when accounting for membership demographics. In the last 10 years, females comprised 32.7% of 6619 SUFU memberships, but were awarded 25% of the time. Based on membership breakdowns, females were awarded 23.4% less than males over the past decade, compared to 34.5% fewer in the previous two decades.

Fig. 3a and b illustrate the number of male and female award recipients annually over time. We applied a third-degree polynomial line of best fit, which maximized the R<sup>2</sup> value, to determine the trajectory and implications of the pattern. The first and second derivatives of the two equations of the trend lines signify that the rates at which men and women are awarded is increasing, and the rate of rise is also increasing. For example, the first derivative shows that the increase of awards from 2010 to 2015 is greater than the increase from 2005 to 2010, which was greater than the increase from 2000 to 2005. The second derivative indicates that the rate at which awards increased from 2010 to 2015 was greater than the rate at which they increased from 2005 to 2010. Of note, both the first and second derivatives of the awards to women over time are greater than those of the awards to men. On the graph, the trajectory of the trendline for women's awards is steeper than the trajectory of the trendline for men.

## Discussion

There is a growing body of research documenting the discrepancy between male and female recognition and advancement in the workplace, as a function of gender bias. Notably, the National Academy of Sciences found this discrepancy not to be due to

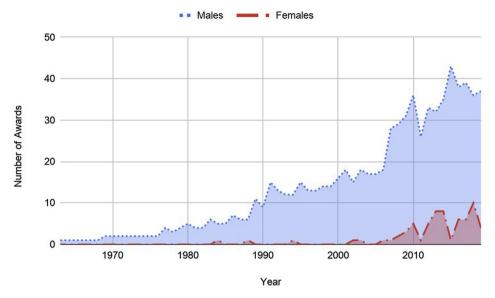


Fig. 1a. Number of Urology Specialty Awards given to each gender by 10 societies since 1963

Caption: The graph illustrates the number of awards given to males and females by all 10 urology societies included in this study since the inception of the first — the American Urological Association.

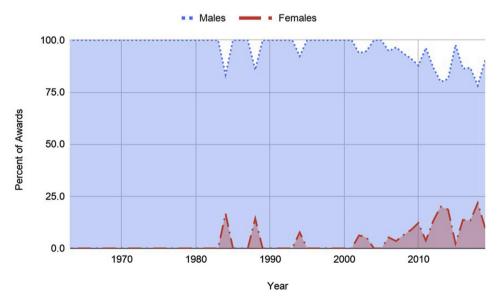


Fig. 1b. Percent of Urology Specialty Awards given to each gender by 10 societies since 1963

Caption: The graph illustrates the percent of awards given to males and females by all 10 urology societies included in this study since the inception of the first — the American Urological Association.

**Table 1**Professional Urology Societies and Respective Award Distribution in Men vs. Women from 1963 to 2019.

	Society Name	Awards Offered			
		Men	Women		
1	American Urological Association (AUA)	<b>400</b> (96.6%)	<b>14</b> (3.4%)		
2	Society of Urologic Oncology (SUO)	<b>92</b> (98.9%)	<b>1</b> (1.1%)		
3	Society for Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU)	<b>80</b> (87.9%)	<b>11</b> (12.1%)		
4	Society of Academic Urologists (SAU)	<b>23</b> (85.2%)	<b>4</b> (14.8%)		
5	Indian American Urological Association (IAUA)	<b>39</b> (100%)	0 (0%)		
6	Sexual Medicine Society of North America (SMSNA)	<b>23</b> (95.8%)	1 (4.2%)		
7	Society for the Study of Male Reproduction (SSMR)	<b>85</b> (77.3%)	<b>25</b> (22.7%)		
8	Society of Genitourinary Reconstructive Surgeons (GURS)	<b>21</b> (91.3%)	2 (8.7%)		
9	Urologic Society for Transplantation and Renal Surgery (USTRS)	<b>3</b> (50%)	3 (50%)		
10	The Societies for Pediatric Urology (SPU)	<b>16</b> (76.2%)	<b>5</b> (23.8%)		
	Subtotal	<b>782</b> (92.2%)	<b>66</b> (7.8%)		

 Table 2

 Urology society awardee gender demographics over the last 11 Years.

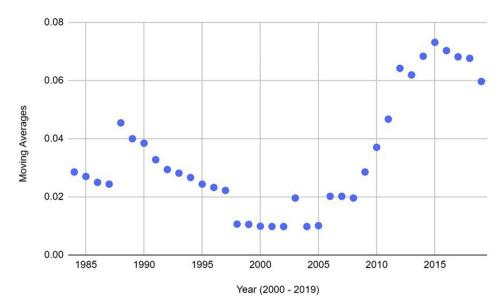
SOCIETIES		Total Awards	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
AUA	Male	400	14	14	13	13	13	12	12	10	11	14	12
	Female	14	0	0	0	1	1	1	1	2	1	1	1
	% F Awardees	3.4	0	0		7.1	7.1	7.7	7.7	16.7	8.3	6.7	7.7
Fotal Number	of Years with No Fe	male Awarde	e										3
SUO	Male	92	5	6	6	4	5	5	3	4	5	4	4
	Female % F Awardees	1 1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Fotal Number	of Years with No Fe												11
				1	2	4	4	4		2	2		4
SUFU	Male Female	80 11	4 0	1 3	2 2	4 0	4 0	4 0	0 3	3 0	3 0	2 1	0
	% F Awardees	12	0	75	50	0	0	0	100	0	0	33.3	0
Total Number	of Years with No Fe	male Awarde	e										7
SAU	Male	23	0	3	3	2	2	1	2	2	1	2	2
	Female	4	2	1	0	0	0	0	0	0	0	0	1
	% F Awardees	14.8		25	0	0	0	0	0	0	0	0	33.
Total Number	of Years with No Fe	male Awarde	e										8
IAUA	Male	39	2	2	2	2	2	2	2	1	0	2	2
	Female % F Awardees	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0
Fotal Number													11
	of Years with No Fe												
SMSNA	Male Female	23 1	1 0	1 0	1 1	3 0	2 0	3 0	2 0	1 0	1 0	1 0	2 0
	% F Awardees	4.2	0	0	50	0	0	0	0	0	0	0	0
Fotal Number	of Years with No Fe	male Awarde	e										10
SSMR	Male	85	10	6	9	8	11	5	10	9	1	7	0
	Female	25	1	5	2	3	0	6	2	2	0	3	0
	% F Awardees	22.7	9.1	45.5	18.2	27.3	0	54.5	16.7	18.2	0	30	-
Total Number	of Years with No Fe	male Awarde	e										3
GURS	Male	21	0	2	2	1	2	2	1	2	2	2	2
	Female	2	0	0	0	1	0	0	1	0	0	0	0
	% F Awardees	8.7		0	0	50	0	0	50	0	0	0	0
Fotal Number	of Years with No Fe	male Awarde	e										9
USTRS	Male	3	0	0	1	1	1	0	0	0	0	0	0
	Female % F Awardees	3 50	1 100	1 100	0 0	0 0	0 0	1 100	0 0	0	0 _	0	0
Fotal Number	of Years with No Fe			100									3
SPU	Male Female	16 5	1 0	1 0	0 1	0 1	1 0	1 0	0 1	1 1	2 0	2 0	3 1
	% F Awardees	23.8	0	0	100	100	0	0	100	50	0	0	25
Fotal Number	of Years with No Fe	male Awarde	e										6
All Societies	Total	443	41	46	45	44	44	43	40	38	27	41	34
55516165	Male	386	37	36	39	38	43	35	32	33	26	36	31
	М %	87	90.2	78.3	86.7	86.4	97.7	81.4	80.0	86.8	96.3	87.8	91.
	Female	57	4	10	6	6	1	8	8	5	1	5	3
	F %	13	9.8	21.7	13.3	13.6	2.3	18.6	20.0	13.2	3.7	12.2	8.8

**Caption:** This table denotes the number of awards conferred by each society to males and females broken down by year in the last 11 years.

AUA – American Urological Association; SUO – Society of Urologic Oncology; SUFU – Society for Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction; SAU – Society of Academic Urologists; IAUA – Indian American Urological Association; SMSNA – Sexual Medicine Society of North America; SSMR – Society for the Study of Male Reproduction; GURS – Society of Genitourinary Reconstructive Surgeons; USTRS – Urologic Society for Transplantation and Renal Surgery; SPU – The Societies for Pediatric Urology.

traditional forms of sexism, but rather "unintentional biases and outmoded institutional structures" — or institutional discrimination.  $^{7}$  In particular, there is a significant disparity in the number of women recognized and in turn promoted in academic medicine compared to men.  $^{8}$ 

We sought to determine the extent of this discrepancy in urologic specialty awardees. Our study found evidence of a gender gap with more men (92.2%) than women (7.8%) receiving distinguished service awards between 1963 and 2019. However, there has been a trend toward awarding more women over time, with up to 21.7% of available awards being given to women in 2018, with a dip to 9.8% awarded in 2019. Furthermore, the percent of men awarded, while high, is also close to the 90.8% of male practicing urologists. Of the societies that have awarded more than 3 women, there is a larger



**Fig. 2.** 10-year moving averages of women's share of awards from the AUA between 1984 and 2019 **Caption:** This graph depicts the 10-year moving averages of women being awarded by the American Urological Association (AUA) since the year the first woman was awarded in 1984. The 10-year moving average is a function of the ratio of women awarded, averaged over the past 10 years.

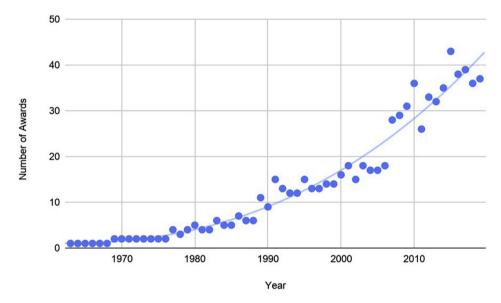


Fig. 3a. Number of Women given Urology Specialty Awards since 1963 Caption: This graph depicts the number of men awarded from 1963 through 2019. A 3rd degree polynomial trend line was added, to determine the rate of change of increase in men being awarded. The polynomial trend line equation is  $706-0.74x+1.9E-4x^2$  with a derivative yielding -0.74+3.8E-4x and a double derivative of 3.8. A 3rd degree polynomial was used as it conferred the greatest  $R^2$  value.

increase in the number of female recipients relative to the increase in female membership. This has still mostly fallen short of representing the number of women in the field. Lastly, not only is the number of women being awarded increasing, but the rate at which they are being awarded has been increasing.

Professional groups across many disciplines offer awards to members as an opportunity to incentivize membership, foster healthy growth and competition, and recognize achievement through endorsement. Medical specialties are a prime example, with multiple associations and organizations regularly awarding members for achievement in research, clinical work, and lifetime dedication. As an example, the AUA awarded 14 individuals in 2019 alone. These awards improve a urologist's standing among his/her

patients and colleagues, and in the community. Further, by providing specialty-wide recognition, awards help foster promotions and tenure-ship in academic medicine as well as clinical growth in private practice and leadership opportunities in the specialty societies.

Frey (2007) referenced the relationship between award recognition and career advancement, noting that awards improve career opportunities and "indicate superior talent and motivation to outsiders." Similarly, Ellinas et al. reported on gender differences with respect to awards conferred by 9 anesthesiology societies. They noted between 11.8% and, most recently between 2008 and 2017, 17.1% of awards had been conferred to women. They concluded a gender discrepancy favoring more men than women

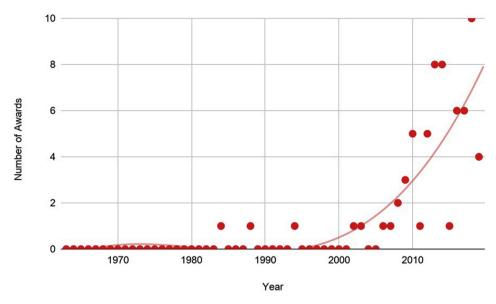


Fig. 3b. Number of women given Urology Specialty Awards since 1963 Caption: This graph depicts the number of women awarded from 1963 through 2019. A 3rd degree polynomial trend line was added, to determine the rate of change of increase in women being awarded. The polynomial trend line equation is 1886–1.9x+4.8E-4x\*2 with a derivative yielding -1.9 + 9.6E-4x and a double derivative of 9.6. A 3rd degree polynomial was used as it conferred the greatest R2 value.

being awarded.<sup>2</sup> While our study also concluded a similar discrepancy exists, our data offers a positive trend with an increasing number of women being offered, along with the rate of rise increasing. Saltzman et al. demonstrated an increase in the number of women holding traditional academic ranks, from 22 to 31% in the early 1990s to 44.6% in 2015.<sup>10</sup> While a significant disparity is still present, the last decade has shown some improvement in the overall number of females who have joined the field of urology and been recognized for their work. From 2008 to 2017, the number of practicing female urologists increased by 46% from 466 to 863. Concurrently, there was a 37% increase in the proportion of female award recipients between 2008 and 2017.

Conversely, the double dip in 2015 and 2019 in the percent of women awardees, as referenced in the results of Fig. 1b is concerning. It may be an anomaly of those years secondary to a reduction in number of women joining specialty organizations or the number applying for achievement awards. However, it is surprising that multiple organizations had zero awards given to women physicians in the prior ten years with few exceptions as noted in Table 2. This indicates that while overall numbers appear to have a positive rate of change, individual societies should undergo a critical assessment of their selection criteria and committees to negate possible impact of implicit bias on awardee selection.

The AUA's census from 2018 observed that the majority of practicing urologists did not feel there was a gender bias, although there was a significant difference between genders: 98.8% of males vs. 60.7% of females did not feel there was a gender bias. This difference in male vs female perceived bias is important as significant evidence pointing toward a gender bias exists, however it is often unrealized particularly by the "in group" due to the presence of implicit bias. Further, it has been shown that those who do not explicitly believe in the presence of biases and gender-related factors in selection are more likely to promote men compared to women. The findings in the AUA's census, along with the patterns documented by Régner et al. and others, show that there is an opportunity in educating selection committees on their possible unconscious biases in order to better equalize the opportunity for women and men to be awarded. As there is a discrepancy between

the number of females awarded in certain societies even after accounting for the proportion of female members, it is worthwhile exploring if this discrepancy is across additional specialties of medicine. Future research can determine the extent of discrepancy after accounting for the proportion of female members, and how many of those were eligible and applied for awards.

Furthermore, as the flagship society for Urology with the longest track-record for awarding members, the AUA is in a position to lead on the matter by changing the percent of women they award from a historical 3.4% towards one that represents both the diversity of composition of their society and the specialty as a whole.

Achieving gender parity in selection committees for awardees is one way to reduce gender bias in the selection process. Lincoln et al. (2009)<sup>12</sup> found that in a physics society the presence of each woman on an award committee doubled the chances of a woman winning an award, and that committees chaired by women were three times more likely than those chaired by men to name a woman as an awardee. While we were unable to obtain the gender composition of selection committees for the awards reviewed in this study, increasing female presence in these positions is critical. Having diverse selection committees not only reduces bias but offers a variety of viewpoints from which potential awardees are reviewed to better reflect the opinions of the society membership.

In addition to the above, increased sponsorship for women by mentors of both genders can allow for increased visibility of women for specialty awards. Networking programs, funding opportunities, or professional development programs directed to women members can offer additional opportunities for women to achieve recognition. Lastly, societies performing audits of their gender representation in leadership and awardees on a continual basis can promote their continued commitment to minimizing gender bias.

This study's limitations center around the application process for each society as well as the overall membership demographics broken down by gender. The pre-selection criteria as well as the number of males and females who were eligible, who applied, and were subsequently considered for awards was not determined. Furthermore, we were also not able to retrieve the gender

breakdown of each society by year, making it hard to properly compare the percent females being awarded in relation to their percent by membership. Given the trend towards an increasing number of women joining the field of urology, as well as the number of women receiving awards, it would be valuable to determine how many awards are given specific to early career faculty. However, we were unable to determine the number of awards specific to early career faculty. Lastly, we did not have access to award winners' age or academic status in our initial data collection, therefore we cannot examine senior urologists separately.

In conclusion, an increasing number of women are being recognized by urology society awards, paralleling an increase in the number of women entering the field of urology and obtaining urologic society memberships. This is evidenced not only by the greater percent in women receiving awards, but the rate at which an increasing number of women are being awarded. The growth in percent of women is also outpacing the relative increase in female urologists over the past 10 years, as evidenced when comparing Fig. 3b with the doubling of female urologists per the AUA census from 2008 to 2018 as referenced in the introduction. This can open the door to greater female involvement in society leadership, award committees, and more. As more women join the field of urology and become members of societies, there will be an expanding group of eligible applicants as well as former recipients, and thus award committee members, who can continue to ensure a proportional increase and equal allocation in the number of female award recipients. Furthermore, a confluence of factors, including increased institutional awareness regarding gender discrepancy. along with a broader societal movement for greater gender equity and opportunity may also be driving the relatively greater increase in number of service awards conferred to females. There remains room for improvement, in recruiting, promoting, and recognizing women in urology. In order to reduce gender bias, organizations may benefit from critical review of their award criteria, organizational demographics, and award statistics to further ensure equitable gender representation.

#### **Declaration of competing interest**

The authors declare that they have no conflicts of interests.

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