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REVIEW ARTICLE

Gender equity in oncology: Progress, challenges, and the path forward in urologic oncology and oncologic specialties

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Abstract

Women now comprise over 50% of medical school graduates and over one-third of practicing physicians in the United States. Despite this progress, significant barriers to career advancement and leadership persist, particularly in male-dominated fields like urology and oncology. Women physicians are linked to improved patient outcomes and are critical to addressing the projected physician shortage, which is expected to be exaggerated in oncology specialties. This review highlights progress, challenges, and future directions for gender equity in urology, urologic oncology, and oncology subspecialties. Urology and urologic oncology have seen growth in female representation, whereas radiation oncology remains stagnant, and medical oncology has reached near gender parity among trainees. However, leadership roles across all these fields continue to reflect gender inequities. Key barriers include the gender pay gap, insufficient maternal leave policies, workplace harassment, and lack of mentorship and sponsorship for women physicians. Moving forward, efforts to advance gender equity must include transparent pay structures, supportive maternal leave, and robust antiharassment policies. Promoting women in leadership and fostering mentorship are also essential to retaining and advancing women in these fields. By addressing these issues, the health care community can progress toward gender equity, strengthen the physician workforce, and improve patient outcomes. Institutional and national advocacy is crucial for creating an equitable and effective medical community.

KEYWORDS
gender equity, leadership, pipeline, women, workforce

INTRODUCTION

Although medicine was previously a field dominated by men, women now make up over 50% of medical school applicants and graduates.[1] There has been a 97% increase in the number of women in the physician workforce from 2004 to 2022, and women now make up over one-third of practicing physicians in the United States. This growth has occurred across specialties, with 17 of the 20 largest medical specialties having an increased percentage of women over the last several years.[2] Whereas the rise of women in medicine

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represents a significant shift in the health care profession toward gender equity, there remains significant gender inequity in promotion and academic leadership. Women fall behind men in attaining positions of leadership and ascending the academic ladder.[3] Across medical specialties, women take longer to be promoted and represent a minority of department chairs (25%) compared with men.[1] This is particularly true in fields like urology, and specifically oncology subspecialties, that have traditionally been dominated by men.

The shift in gender composition of the physician population not only is important to achieving gender equity but also is critical to the health of the physician workforce. According to recent workforce projections, the United States will face a shortage of up to 86,000 physicians by 2036.[4] This shortage is expected to be further exaggerated among oncologic providers given the aging US population and the projected increase in cancer survivors.[5] The exaggerated workforce shortage will have a direct, negative impact on timely access to diagnosis and care for patients with cancer. Women are expected to play a critical role in the impending shortage, currently comprising more than one half of the current physician workforce younger than 45 years.[4] Urology is a notable example of this, with an expected shortage of urologists per capita of 32% by 2030.[6] According to Gaither et al., nearly one-third of practicing urologists are nearing retirement, and, of those, an estimated 2% are women.[7] By contrast, women make up one quarter of practicing urologists younger than 45 years.[8] Therefore, it is not surprising that recent analyses have indicated that women urologists will play a crucial role in bolstering the urology workforce in the next 4 decades in multiple growth models.[9,10]

Women are critical to addressing the physician workforce shortage, particularly in oncology, and there is a time-sensitive need to recruit, retain, and support women in medicine. This is particularly true given the higher rate of attrition of women physicians compared with men at every stage of career in medicine.[11] Aside from the impact of the attrition of women physicians on workforce shortages, there is also an expected impact on the delivery of patient care. Multiple studies have demonstrated that women physicians are more likely to practice evidence-based medicine, have fewer readmissions, and have lower rates of postoperative complications[9] than men. In addition to improved patient outcomes, women in urology are more likely to care for diverse patient populations, seeing twice as many dual-eligible Medicare and Medicaid beneficiaries and more people of color than men urologists.[12] Increasing representation of women in medicine is critical for gender equity, bolstering the physician workforce, and improving outcomes while providing care to more diverse patient populations.

Within this context, the objective of this review is to describe the progress, challenges, and path forward to achieving gender equity for women in urology, urologic oncology, and oncology subspecialties.

Progress of women in urology

Although urology has traditionally been a field dominated by men, the gender composition of the urology workforce has changed dramatically over recent decades. There has been an 11-fold increase in the representation of women in urology from 1978 to 2013, making it the largest growth in representation of women in any medical specialty in that timeframe.[13] This is reflected in the 2023 American Urological Association (AUA) census data, which report women currently make up 11.8% of practicing urologists and 30.9% of urology residents, compared with 22 female urologists in 1978 and 0.9% of female urology residents in 1985.[13,14]

Despite the overall increase in the number of women in the field of urology, there remains significant gender inequity in leadership within urology. A 2017 study of urology programs found that 3.3% of department chairs, 4.5% of vice chairs, and 7.9% of division directors in urology were women.[15] Overall, women in urology are nearly half as likely as men to become full professors, regardless of age, years since completion of training, or number of publications.[16] An example of an organized effort to address gender inequity is the Society of Women in Urology, which was organized in 1980, with a primary mission to promote the career development and professional growth of women in urology.[17] The growth of women in urology has been exponential; however, the expansion of that growth into leadership remains a critical area of inequity within the field.

Progress of women in urologic oncology

Within urology, women are underrepresented in urologic oncology, and only 4% of urologists with an oncology focus are women.[18] Similar to the overall increase in women within urology in recent decades, there has also been an increase in women practicing urologic oncology, albeit on a smaller scale. Since the first woman urologic oncologist, Elisabeth Pickett, in 1954, the field has experienced slow, incremental growth in the number of women that provide urologic oncology care. From 2004 to 2015, there were only 34 women urologic oncologists.[19] This number has since grown, with 78 women registered in the Society of Urologic Oncology in 2021 and 91 registered in 2022. This is likely a by-product of an increase in the number of women applicants to urologic oncology fellowship in recent years, with 10 women applicants in 2019, up to a peak of 17 in 2021, and, most recently, 13 in the 2025 fellowship match.[20–22]

Despite this increase, women remain a significant minority in urologic oncology, prompting the establishment of the Women in Urologic Oncology organization in 2019 within the Society of Urologic Oncology. The organization's primary objective is to support women in urologic oncology by advancing their recruitment, retention, and promotion.[19] Although the overall number of women pursuing urologic oncology in recent years has increased, there continues to be a huge gap in gender equity among leadership in urologic oncology. As of 2017, there were no women oncology division chiefs, the Board of Directors of the Society of Urologic Oncology had its first woman named to the executive board in 2023, and the current Board of Directors features five women to 23 men.[15,23]

Progress of women in oncology subspecialties

As the number of women increases across medicine, the proportion of women entering different specialties and attaining leadership roles has varied, particularly in oncology subspecialties.

Similar to urology, radiation oncology has historically been a field dominated by men; however, unlike urology, radiation oncology has had a slower increase in the number of women in the field over recent decades despite having similar proportions of women applicants to residency positions.[24] In 1980, 27.1% of radiation oncology residents identified as women compared with 33.3% in 2010[25] and, more recently, 30.8% in 2019,[26] suggesting an overall slow and intermittently receding growth pattern of women entering the field. Over a similar time period, the number of women faculty in radiation oncology has grown from 11% in 1980 to 26.7% in 2012.[25] In light of the stagnant growth of women in the field, in 2022, the American Society for Radiation Oncology formed the Women in Radiation Oncology Affinity Group task force to evaluate the current state of women in the field and identify areas for improvement.[27] One such area identified for improvement was women in leadership. Although women make up approximately one-third of all faculty positions in radiation oncology, only 12% of departments have a chairwoman,[26] and one of four current radiation oncology trustees for the American Board of Radiology are women, suggesting persistent gender inequity at higher levels of academic leadership.[28] Compared with urology, our colleagues in radiation oncology have had less growth of women in their workforce but have a similar to slightly improved proportion of women in positions of leadership, although this still lags in gender equity on the whole.

Compared with radiation oncology, medical oncology has seen a significant and ongoing increase in women within the field over recent decades that has closely matched the overall percentage of women in medicine. Furthermore, women made up 48.4% of medical oncology trainees in 2013, nearing gender parity.[29] Despite the impressive percentage of women trainees, the number of women faculty in medical oncology has yet to follow suit, with 35.8% of practicing oncologists identifying as women according to the 2022 American Society of Clinical Oncology Snapshot.[30] Representation of women in leadership positions in medical oncology is slightly more favorable than in urology or radiation oncology, with 31.4% in any leadership position and 21.7% of chairs identifying as women.[31,32] Medical oncology, although it reaches near gender parity in trainees, continues to fall short of gender equity in leadership, similar to their colleagues in urologic oncology and radiation oncology.

Challenges

These findings across urologic oncology, radiation oncology, and medical oncology outline how gender equity has remained elusive in oncologic specialties. Whereas each specialty has made variable progress in the recruitment, retention, or promotion of women into leadership, there are shared gender-specific challenges. The first step toward achieving gender equity is to identify these shared challenges within oncology subspecialties.

Despite differences in the representation of women at the trainee and faculty levels across urologic oncology and medical and radiation oncology, there is a persistent pattern of decreased representation of women in higher levels of academic leadership compared with men across all three specialties. This has been referred to by many as the *leaky pipeline*, or a diminishing proportion of women at each level of higher academic leadership.[31] Although some have explained this phenomenon as a function of time, men and women have been in near parity proportions of medical school graduates for decades, beyond the length of time required over a career to ascend to leadership. This suggests that the pipeline, although long, is also leaky, such that women drop out of the pipeline before climbing the leadership ladder. Recently, gender-specific barriers to attaining higher level leadership and *leaking* from the pipeline have come into focus.

Multiple studies have demonstrated that women physicians across specialties are paid less than men, with an estimated difference of nearly $2 million over a 40-year career.[33] In urology, providers who are women earn significantly less than men, with a median salary difference of $81,578 when controlled for hours, practice setting, fellowship training, and the use of advanced practice providers.[34] This is also true specifically within urologic oncology, wherein providers who are women have median salaries that are $54,000 lower than those of men in the field.[18] Whereas gender pay discrepancy has long been reported across specialties, it is not surprising that women urologists who are well-compensated report higher levels of job satisfaction, which may combat attrition.[35]

Another major contributor to the leaky pipeline is work–life conflict for women trainees and young faculty members, particularly as it relates to family building. Although there has been increased attention paid to fertility, pregnancy accommodations, and maternal leave as the proportion of women in medicine and urology grows, it remains poorly understood. For example, women urologists are more likely to bear children later in life, have fewer children, use assisted reproductive technology more often, and have higher rates of pregnancy complications compared with the general US population.[36,37] A survey of over 240 women urologists with at least one biologic child reported that 69% of respondents were dissatisfied with their maternal leave because of work-related or residency-related issues.[38] Although federal legislation to prevent pregnancy discrimination (the Pregnancy Discrimination Act of 1978, the Family and Medical Leave Act of 1993 [FMLA]) and well defined policies for pregnant residents exist through the Accreditation Council for Graduate Medical Education, there are no national organizational policies regarding family building for attending physicians within the AUA, the American Society for Radiation Oncology, or the American Society of Clinical Oncologists, with the vast majority of policies arising at the institutional level if at all.

Beyond family building, gender inequity in domestic tasks, including childcare, has been identified as an ongoing challenge for women physicians in the workforce. Persistent societal expectations that women serve as primary caregivers in the home have been identified as a barrier to the professional advancement of women physicians.[39] Women physicians have been found to spend on average 8.5

more hours weekly on domestic tasks, including parenting, compared with men physicians.[40] Although differences in caretaker duties have not been shown to result in gender differences in work–life balance satisfaction,[41] they may cause women physicians to modify their clinical or surgical practices.[42] Importantly, studies during the coronavirus pandemic revealed that women physicians with children were more likely to lose child care coverage and to have high rates of burnout.[43,44] Although the coronavirus pandemic was an exacerbated example of childcare challenges, it highlighted that policies and programs to support childcare for physicians, and particularly women physicians, are often lacking at the institutional level.[45]

Women physicians also may face significant harassment in the workplace. A recent AAMC report indicated that 34% of women physicians have experienced sexual harassment compared with 22% of men.[46] This is particularly true in fields dominated by men, such as urology. According to 2023 AUA census data, 61% of women urologists reported experiencing discrimination and/or harassment by patients or their families, which was notably higher than 21% among men who are urologists.[8] This trend was similarly identified among women residency applicants to urology, who reported significantly higher rates of discrimination, abuse, or harassment compared with men applying to residency (63% vs. 35%; $p < .001$).[47] Addressing harassment at an institutional level is key to creating a safe space in which women can excel.[31] Although the AUA has issued a position statement on fostering a productive work environment to eliminate discrimination and harassment, they encourage the development of policy at the institutional level to achieve these goals.[48] Thus, it is imperative that individual institutions develop and enforce effective antiharassment and discrimination policies that can further create safe workspaces for women within urology and medicine as a whole.

When it comes to promoting gender equity in higher levels of leadership, mentorship and sponsorship are crucial. Departments with women in leadership positions have from 7% to 10% more women retained in faculty positions.[32] Similar trends have been noted among residency applicants and trainees. In the AUA match from 2018–2020, there was a positive correlation between the proportion of women applicants matched and the proportion of women residents and faculty in each program.[49] To recruit, retain, and promote women in urology, we must acknowledge the importance of representation of women in leadership positions. Although this is likely true for most medical specialties, it is particularly true in surgical specialties, wherein 35% of women medical students were discouraged from pursing surgical careers because of the lack of women role models.[50] Institutions must seek to promote and retain women in leadership positions to beget future women leaders and progress toward achieving gender equity.

Future directions

Because women physicians who are well-compensated report higher job satisfaction,[35] there has been increased attention placed on addressing the gender pay gap in medicine. Some proponents have suggested that the first step to achieving pay equity is transparency. This includes offering standardized pay packages for new hires, particularly because the largest gender pay gap among physicians occurs in the first few years of the career.[33] This transparency can be extended to more senior roles by setting public salary benchmarks within departments. Beyond departmental and institutional policies, our specialty society organizations must support equal pay legislation at the national level.

While detailed policies regarding family building exist for resident physicians, there is no comparable policy on a national level for attending physicians despite recommendations made by national organizations beyond the federal and state regulations (e.g., the FMLA). Furthermore, the FMLA does not provide salary support or paid leave, and it does not apply within the first year of employment.[51] This leaves the management of maternal leave policy up to individual institutions, with 40% of women urologists reporting no maternal leave policy at their institution.[38] As such, a critical first step to supporting family building among women physicians is the enactment of transparent and readily accessible maternal policies and benefits that include leave duration as recommended by obstetric specialists and paid leave that is separate from vacation or sick leave.[51] Although this may be suggested and supported by our national organizations and societies, the responsibility for policy in the current state falls on the institution. Beyond institutional-level change, workplace cultures must be shaped to acknowledge and support maternal health to accommodate family building without penalizing career progress for women physicians.

Lack of accessible childcare options and flexible policies regarding caretaker responsibilities may contribute to burnout among women physicians and delay career advancement. There is a substantial need to develop programs to support women physicians and trainees who have children. Potential interventions to address this barrier include institutional investment in on-site childcare, including extended or 24-hours a day/7 days a week, to account for the unpredictable work hours of on-call physicians or sick children.[52] In addition to providing these resources, to reduce burnout and increase physician engagement, institutions should promote schedule flexibility and work–life integration, particularly for women who take on a greater degree of domestic duties outside the workplace.[40,53] This is critical because, in a survey of over 600 women surgeons, the workplace factor with the strongest association with career satisfaction was the degree of work–life integration efforts in the workplace.[42] Institutions should seek to build flexible cultures that promote work–life integration and enact structural changes to provide childcare coverage for physicians to reduce burnout and support women physicians in the workforce.

Harassment and discrimination within the workplace, which are experienced at greater rates by women residents and attending physicians, can lead to increased burnout and may contribute to subsequent attrition from the workforce.[54,55] This is particularly true among women physicians from underrepresented groups.[54] Although national legislation exists to combat harassment in the workplace, it remains prevalent in health care culture and is typically addressed at the institutional level. Institutional actions to combat the increased prevalence of harassment among women physicians in the workplace

include efficient avenues for event reporting, required training targeted to health professionals, and deployment of bystander training. These efforts should be paired with clear, direct institutional policy and enforcement to instill a culture of accountability and create a psychologically safe health care workplace for everyone, and particularly women.

Perhaps the most influential barrier to addressing the leaky pipeline of women in academic medicine is lack of available women role models, mentors, and sponsors. To seek out gender equity in academic medicine leadership, we must promote more women to leadership roles, provide appropriate leadership training, and support women mentoring other aspiring women to follow their footsteps. A critical first step to promoting women to leadership is increasing their representation on recruitment committees through institutional policy and quotas. For example, the University of California at San Francisco reported a 50% increase in the number of female chairs in the years after a policy requiring 50% of hiring committee members to be women or persons from underrepresented minority backgrounds.[56] Once women are hired or promoted to positions of leadership, it is critical for institutions to support their development by offering leadership courses designed for women, such as those offered by the Executive Leadership in Academic Medicine, to provide women with the skills to excel in their leadership and mentorship roles.[57] Institutions and departments can also consider the development of term limits on academic leadership positions such that new leaders, including women and persons of diverse backgrounds, can enter into leadership positions earlier and promote gender equity and diversity in academic leadership.[58] Although these are a few institutional interventions to promote gender equity in academic promotion, concerted efforts at the individual and departmental levels are also likely required to make a meaningful change in the pipeline.

CONCLUSION

To repair the leaking pipeline of women from academic leadership in urology, urologic oncology, and adjacent oncology specialties, we must address the ongoing gender-specific barriers to achieving equity, including advocating for equal pay, promoting equitable maternal leave policies, offering accessible childcare, addressing workplace harassment, and supporting women trainees and faculty, with women role models, mentorship, and sponsorship so that they may ascend to higher levels of leadership. Taking these steps not only will work toward improving gender equity in urologic oncology and oncology subspecialties, but also may support the physician workforce ahead of looming shortages and improve the quality of care delivered to patients across specialties.

AUTHOR CONTRIBUTIONS

Madison K. Krischak: Conceptualization, investigation, writing–original draft, writing–review and editing, and project administration. **Catherine S. Nam**: Conceptualization, writing–review and editing, investigation, and supervision. **Amy N. Luckenbaugh**: Conceptualization, writing–review and editing, and supervision. **Lindsey A. Herrel**: Conceptualization, writing–review and editing, and supervision.

CONFLICT OF INTEREST STATEMENT

The authors disclosed no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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