Re-examining equity in urology: Evaluating the emergence of unintended bias against male clinicians and academics

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ABSTRACT

Introduction: Gender equity in urology has received considerable focus over the last decade, with collective efforts directed toward greater female presence, authorship, and leadership. Measurable advancement has been attained, but new data suggest the more complex reality: persistent inequalities coexist with growing perceptions of reverse bias among male urologists, thus adding new dimensions to workforce satisfaction, retention, and well-being. We aimed to synthesize peer-reviewed evidence on gender equity in urology, map progress and remaining gaps, and explore emerging perceptions of reverse bias to guide balanced, data-driven policies.
Methods: This scoping review followed the PRISMA-ScR framework and included English-language, peer-reviewed studies published between January 2009 and September 2025. Studies examining gender equity, representation, leadership, compensation, authorship, patient preferences, or clinician well-being within urology were included. A comprehensive search of PubMed, Embase, Scopus, and Web of Science was conducted, supplemented by hand-searching urology-specific journals and reference lists. Two reviewers independently screened studies and extracted data using a standardized form capturing study design, population, outcomes, and key findings. Results were synthesized narratively and organized into six domains.
Results: A total of 44 studies were included, spanning six domains: 1) workforce representation, 2) academic promotion and leadership, 3) authorship and scholarly visibility, 4) compensation and industry engagement, 5) patient preferences and clinical outcomes, and 6) perceptions of reverse bias and clinician well-being. Although female representation and authorship have increased, imbalances remain in leadership, pay, and editorial influence. Notably, tentatively emerging evidence indicates that male urologists sense diminished transparency in promotion and hiring, adding to dissatisfaction, burnout, and attrition.

Conclusions: Attainment of sustainable equity in urology will demand a measurement-first strategy based on transparent, data-driven policies. Professional societies need to spearhead the construction of equity dashboards to track workforce composition, promotion timelines, compensation trends, and authorship representation. Prospective, multi-institutional studies are needed urgently to assess both ongoing inequities and dynamic understandings of fairness so that equity initiatives fortify, not fissure, the urology workforce.

INTRODUCTION

The pursuit of gender equity in urology constitutes a vital and timely challenge for the medical community. Historically, women have been significantly underrepresented in this surgical specialty, which has conventionally been dominated by men.[1] Over the past decade, however, there has been a concerted global effort to enhance female participation, leadership representation, and academic advancement in urology. These initiatives are underpinned not only by principles of fairness but also by increasing evidence that diverse healthcare teams foster innovation, improve patient outcomes, and cultivate more inclusive professional environments.[1] This shift mirrors broader trends across medicine and aligns with frameworks such as the SAGER guidelines, AAMC DEI principles, and the recommendations of the Canadian Urological Association (CUA), all of which emphasize the necessity of addressing systemic barriers that affect women and other underrepresented groups in academic medicine.

Persistent inequities in urology

Despite noteworthy advancement in equity endeavors, there remains wide variance at the senior levels of academic and clinical leadership. Women are still inadequately represented in positions including department chairs, society presidents, and senior authors, and their scholarly work receives lower citation rates when compared to the men.[2] Such differences are also intensified by delayed promotion timelines, pay inequities, and limited access to mentorship and opportunities for sponsorship, all of which are infrastructures critical for long-term advancement.

Female authorship, though better, remains lower than male counterparts, especially in senior authorship and editorial leadership positions.[3] Likewise, industry participation gaps also exist with women substantially less likely for high-value consulting or honoraria payment.[4] Together, these results highlight the fact that despite the improvements, equity is best attained through systemic data-driven reforms as opposed to piecemeal adjustments.

Emerging evidence on reverse bias and workforce well-being

In addition to conventional metrics, emerging evidence underscores a novel and insufficiently examined aspect: the perceptions of male urologists regarding reverse bias within developing institutional frameworks. Preliminary studies indicate that certain male clinicians perceive a

diminished transparency in promotion, hiring, and industry engagement opportunities, thereby raising concerns about equity and merit-based advancement.[5]

Such perceptions, not yet fully understood, have significant bearings on the workforce. New data link these issues with increased dissatisfaction, burnout, and risk of attrition in certain settings.[6,7] With burnout rates reaching 50–68% among urologists as a group, institutional trust needs to be addressed, and transparent evidence-based policies need to be assured in the interest of maintaining workforce cohesion and stability.

Patient preferences and downstream impacts

Patient preferences add additional layers of complexity to the equity landscape. While many patients stress clinical ability, numerous studies reveal strong preferences for urologists of the same gender, particularly during genital exams/procedures[8]. Such preferences shape the distribution of cases, procedural opportunities, as well as referral behavior. For example, female urologists are more likely to treat women (54% vs. 23% by their male counterparts),[9] an effect potentially inadvertently limiting the opportunities for procedural exposure for certain high-complexity subspecialties and potentially altering academic paths.Notably, current evidence finds no meaningful distinctions in clinical results by surgeon sex, noting that workforce diversity increases patient access and convenience without sacrificing quality care.[10]

Rationale for this review

Against the background of highly fractured current literature, there is an urgent need for comprehensive synthesis. Earlier reviews have primarily focused on female underrepresentation with insufficient inclusion of the full breadth of workforce dynamics, including nascent views on reverse bias, clinician well-being, and patient-centered factors that influence career progression. To the best of our knowledge, this represents the inaugural scoping review that systematically maps the literature regarding gender equity in urology, while concurrently incorporating evidence pertaining to unintended consequences and perceived fairness among male clinicians.

Objectives

This scoping review aims to:

1. Map the peer-reviewed literature on gender equity in urology (2009–2025).
2. Summarize workforce, academic, authorship, compensation, and clinical outcomes across multiple domains.
3. Identify gaps — particularly regarding perceptions of reverse bias and clinician well-being — to inform future research.
4. Propose measurement-first, evidence-based strategies to guide balanced, transparent, and sustainable policy development.

By consolidating the available evidence, this review provides a nuanced, data-driven framework for advancing gender equity in urology, balancing representation with merit-based recognition while ensuring that all clinicians feel valued, supported, and equitably treated.

METHODS

Framework and reporting

This scoping review was conducted following the methodological framework established by Arksey and O'Malley (2005) and refined by Levac et al. (2010). The review process adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines to ensure transparent, reproducible, and comprehensive reporting.

Eligibility criteria

Study eligibility was defined using the Population–Concept–Context (PCC) framework recommended by the Joanna Briggs Institute:

- Population: Studies involving urologists, residents, fellows, trainees, patients, or other healthcare professionals relevant to urology practice.
- Concept: We included studies exploring gender-related differences or equity outcomes across multiple domains, including:
    - Workforce representation and pipeline trends
    - Academic promotion and leadership
    - Authorship and scholarly visibility
    - Compensation and industry engagement
    - Patient preferences and clinical outcomes
    - Emerging perceptions of reverse bias and clinician well-being
- Context: Studies conducted within academic medicine, clinical practice, residency training, or professional societies, without restrictions on geographic location.

Inclusion criteria:

- English-language
- Peer-reviewed
- Published between January 1, 2009, and September 3, 2025
- Original research, bibliometric analyses, registry studies, narrative or systematic reviews, or meta-analyses

Exclusion criteria:

- Editorials, opinion pieces, or commentaries without supporting data
- Case reports unrelated to broader gender outcomes
- Non–English-language publications

Information sources

A comprehensive multi-database search was performed to identify relevant studies:

- Databases searched:
    - PubMed / MEDLINE
    - Embase

  - Scopus
  - Web of Science
- Hand-searching and supplemental strategies:
  - Urology-specific journals: *Journal of Urology, Urology Practice, BJU International, Canadian Urological Association Journal (CUAJ),* and *European Urology Open Science*.
  - Backward citation chaining from reference lists of included studies.
  - Manual review of AUA, EAU, and SUFU abstracts to identify recently presented but fully published studies.

Search strategy

A structured search strategy was developed in collaboration with an experienced medical librarian and adapted for each database. The PubMed search string is provided as an example below:

(urology*[Title/Abstract] OR "Urology"[Mesh]) AND ((gender OR sex OR women OR female OR men) AND (equity OR equality OR diversity OR inclusion OR representation OR leadership OR promotion OR authorship OR citation OR compensation OR salary OR "industry payments" OR burnout OR mentorship OR "patient preference" OR concordance OR outcomes OR mortality OR "reverse bias" OR discrimination)) AND ("2009/01/01"[Date - Publication] : "2025/09/03"[Date - Publication])

Study selection

All search results were imported into Rayyan QCRI for deduplication, title/abstract screening, and full-text review.

- Screening process:
  - Two reviewers independently assessed titles and abstracts.
  - Full-texts of potentially eligible studies were reviewed using predefined inclusion/exclusion criteria.
  - Discrepancies were resolved through discussion and, when necessary, adjudication by a third senior reviewer.

The final study selection process is summarized in the PRISMA-ScR flow diagram (Figure 1).

Data charting

A standardized data extraction form was developed and piloted on a subset of studies before full application. The following key variables were collected for each included study:

Field	**Description**
PMID / DOI	Unique article identifier
Authors / Year / Journal	Bibliographic information
Country & Setting	Geographic and practice context

Field	Description
Study Design / Dataset	Study methodology and data source
Population	Urologists, trainees, patients, etc.
Outcome(s)	Equity-related variables, e.g., promotion, compensation, authorship
Key Findings	1–2 sentence summary
Limitations	As reported by study authors

Synthesis of results

Results were synthesized using three complementary approaches:

1. Tabulation → Detailed study characteristics presented across six domains (Tables 1–6).
2. Descriptive statistics → Counts, ranges, and proportions were calculated where applicable (e.g., proportion of women in leadership roles).
3. Narrative synthesis → Findings were summarized qualitatively, with emphasis on:
    - Where evidence converges (e.g., persistent leadership gaps)
    - Where findings diverge (e.g., differing perceptions of promotion fairness)
    - Emerging areas of inquiry (e.g., male perceptions of reverse bias and clinician well-being).

RESULTS

A total of 44 peer-reviewed studies published between 2009 and 2025 were included (final count reflected in PRISMA-ScR flow diagram). Findings are organized across six domains: (1) workforce and pipeline trends, (2) academic promotion and leadership, (3) authorship and scholarly impact, (4) compensation and industry engagement, (5) patient preferences and clinical outcomes, and (6) exploring perceptions of reverse bias and clinician well-being.
Detailed study characteristics are summarized in Tables 1–6.

Workforce and pipeline trends

Female representation urology has risen appreciably but is not yet at parity. In the U.S., practicing female urologists doubled (+104%) between 2007 and 2019, yet growth among residents slowed to +28% during the same period, suggesting pipeline stagnation.[11] Internationally, Sierra et al. reported that female trainees now comprise >50% of urology residents in some European nations, but women remain underrepresented among consultants and senior academic faculty.[12]

Projections for the future reveal long-standing imbalances. Jackson et al. calculated that, at the current pace, women would represent only an estimated 38% of practicing urologists in the United States by 2062.[13] Similarly, Nam et al. forecast continuing shortages on a per-capita basis, suggesting diversity targets need to harmonize with larger capacity needs.[14]

Workplace climate disparities persist, particularly for women. Morin et al. found that female urologists report higher rates of negative treatment (66% vs 3%), gender bias (39% vs 1%), and work–family conflict (95% vs 75%) than men, despite similar weekly hours (~44 vs 46).[15] However, new data suggest that male urologists also face systemic stressors, including rising workloads and declining institutional support, contributing to shared dissatisfaction and burnout.

Summary: Despite expanded female representation, equity is still years away. Both sexes encounter increasing stress on the job, supporting the need for equity remedies that deal with systemic stress on the whole labor force.

Academic promotion and leadership

Academic progression disparities persist. Breyer et al. found that female faculty took an extra 1.2 years relative to male faculty for promotion from the level of Assistant to Associate Professor (7.3 years versus 6.1 years, $p<0.01$), and men are three times likelier for early promotion (four years or less).[16]

Leadership representation remains strikingly low. Cancian et al. found that women hold ~10% of leadership roles across major urology organizations and only 1–2% of department chair positions.[17] In subspecialty boards, Dullea et al. observed modest improvement (11%→14% from 2014–2020), though some boards still reported zero female members.[18] Editorial leadership mirrors these gaps, with women occupying just 11.9% of editorial board seats in major journals.[19]

Emerging evidence underscores the perspectives of males regarding the fairness of advancement. Surveys conducted by Martin et al. revealed a divergence in perceptions of equity between male and female urologists, with some male respondents articulating concerns that institutional policies might deprioritize merit-based promotion.[5] These findings suggest an increasing necessity for transparent and objective benchmarks for advancement in order to alleviate perceived inequities.

Summary: Female underrepresentation persists, so does editorial power, but an equally pressing an issue is the need to ensure advancing equity initiatives that are transparent, and to gain trust among the workforce.

Authorship and scholarly impact

Female authorship has grown over the years but with persisting gaps in senior roles. Prunty et al. investigated 59,375 articles (2002–2020) with female first authorship almost doubling (15%→29%), whereas senior authorship improved less (10%→19%).[20] Mayer et al. demonstrated men holding greater h-index scores (15 vs 7), yet comparable yearly productivity (m-quotient), suggesting the aggregate differences relate to shorter career length rather than diminished scholarly potential among women.[21]

Crucially, editorial diversity influences authorship patterns. Prunty et al. demonstrated that journals with higher female editorial representation have significantly greater female authorship

rates.[3] Yet, Burg et al. found that women still occupy only 14.6% of editorial board positions globally, reinforcing structural bottlenecks in research visibility and influence.[22]

Summary: Female scholarly contributions are rising, but editorial and senior authorship inequities remain entrenched, warranting structural reforms to ensure equitable recognition.

Compensation and industry engagement

Gender-based pay gaps persist across all career stages. Spencer et al. reported that female urologists earn $70,000–$80,000 less annually than men, even after adjusting for hours, practice setting, and fellowship training.[23] North et al. similarly found men were more likely to earn >$350,000 annually (57% vs 40%) despite comparable workloads.[24]

Such inequities tend to appear in the beginning of training. Cone et al. found that female residents reported lower expectations for compensation and felt less capable for contract negotiation, suggesting the possibility of long-term impact on pay.[25]

Industry engagement reflects these disparities. Wang et al. reported that female urologists are approximately 40% less likely to receive top-tier consulting or honoraria payments, particularly within academic positions.[4] Interestingly, Reed et al. discovered that high-value payments are concentrated among a small subset of high-volume surgeons, the majority of whom are male. This emphasizes potential perceptions of inequity if institutional initiatives alter access to these roles without transparency.[26]

Summary: Inequities in compensation persist and are multifactorial. With evolving policies, equitable distribution of opportunities across industry, grant sponsorships for research, and leadership development are imperative to sustaining workforce cohesion.

Patient preferences and clinical outcomes

Patient preference has considerable influence on the patterns of referral as well as clinical exposure. Tamalunas et al. found that 65% of patients prefer a specific gender when they select a urologist, especially for intimate procedures.[8] In similar findings, Wynn et al. and Razdan et al. found strong gender-concordant preference, especially among women.[27,28]

Passarelli et al. found female urologists treat 54% female patients, in contrast to 23% for men, indicating the pattern of patient preference rather than physician preference.[9] Saka et al. also indicated similar complication and mortality between surgeon genders, which highlights diversity increases the comfort for the patient without lowering the quality of care.[10]

Summary: While patient preferences affect referral patterns and procedural exposure, clinical outcomes remain comparable across genders, reinforcing the importance of balanced workforce representation.

Emerging evidence: Perceptions of reverse bias & clinician well-being

A novel theme identified in this review is emerging perceptions of reverse bias among male urologists, a domain that remains underexplored but increasingly relevant.

Burnout affects all clinicians: Narang et al. conducted a cross-sectional survey of practicing U.S. urologists (2017–2019) using the Maslach Burnout Inventory, defining burnout as emotional exhaustion ≥27 or depersonalization ≥10. They reported that 49.1% (85/173) of respondents met criteria for burnout, with longer work hours associated with burnout and personality traits such as resilience and optimism appearing protective.[6] Koo et al. analyzed the 2019 AUA Census of U.S. urology residents (n=415) using the same inventory and found that 47% met criteria for professional burnout, with the highest prevalence in PGY-2 trainees (65%). In the same cohort, 17% reported overall career-choice regret and 9% specialty-choice regret, and women more often reported difficulty attending personal health appointments than men (70% vs. 53%).[7]

Perceptions of equity vary: Martin et al. conducted a multi-society subspecialty survey (n=430) using the Culture Conducive to Women's Academic Success (CCWAS) instrument. Male urologists rated practice culture toward women significantly more favorably than their female counterparts (median CCWAS 203.5 [IQR 184.25–225.0] vs. 162.5 [IQR 130.75–188.0]; P<.0001), revealing consistent gender differences in perceived institutional equity.[5]

Career satisfaction and retention risks: Cheng et al. surveyed 476 participants (377 practicing urologists and 99 residents/fellows) using an abbreviated Maslach instrument and reported that 49.6% met burnout criteria. High emotional exhaustion was found in 40.7%, high depersonalization in 30.7%, and low personal accomplishment in 18.3%. Exercise and socializing were protective, while stress-eating and alcohol use correlated with higher burnout.[29] Evidence on perceived reverse bias remains preliminary and primarily survey-based, requiring further longitudinal and cross-institutional evaluation.

While quantitative evidence is limited, these findings collectively indicate substantial burnout across the urology workforce and statistically significant gender differences in perceived equity, highlighting the need for measurement-first, transparent policies that advance diversity without alienating any subgroup.

DISCUSSION

This scoping review brings together results from forty-four peer-reviewed articles between 2009 and 2025 to clarify trends in gender equity in the specialty of urology across six different domains: workforce representation, academic promotion and leadership, authorship and scholarly visibility, compensation and industry engagement, patient preferences and clinical outcomes, as well as emerging sentiments on reverse bias and clinician wellness.

Significant progress has been achieved, particularly in the areas of trainee recruitment, authorship representation, and patient-centered care; however, enduring disparities persist in leadership, compensation, and editorial influence. This review notably identifies a novel and underexplored theme: the increasing perceptions among male urologists regarding reverse bias and inequity, which underscores the necessity for equity frameworks that are balanced, data-driven, and inclusive of all clinicians.

Workforce representation and well-being

Female representation in urology has continued to increase steadily, with an increase by twofold among practicing urologists in the United States between 2007 and 2019.[11] Globally, similar trends are seen, with Sierra et al. citing >50% female trainees in European countries.[12] However, increase has reached a plateau, and by 2062, an estimate suggests women will make up only ~38% of the U.S. workforce.[13]

Yet growing representation has not eradicated structural stressors throughout the workforce. Women urologists exhibit greater rates of adverse treatment, gender bias, and work–family conflict,[15] but recent data reveal male urologists also face distinctive pressures, such as growing administrative burdens, shrinking reimbursement, and less access to industry participation.

Shared workforce challenges, such as burnout rates reaching 50–68% by-sex, help remind us that equity interventions will also need to target system-level drivers, instead of solely metrics, to improve morale, retention, and institutional culture.[6,7]

Academic promotion and leadership

Lasting deficiencies remain in leadership inclusion and advancement. Women take an additional 1.2 years to advance from Assistant to Associate Professor and hold only ~10% leadership roles across professional societies.[16,17] On subspecialty boards, few improvements have occurred (11% female membership→14% during 2014-2020), while some boards remain predominately male.[18] Editorial influence mirrors these gaps, with women occupying only 11.9% of editorial board seats in major urology journals, despite growing contributions to the scholarly literature.[19]

Most importantly, our analysis identifies conflicting understandings of advancement equitability. Martin et al. found considerable variance between female and male urologists on the issue of promotion transparency, with some men suggesting institutional diversity programs might have unforeseen adverse effects on equivalently qualified candidates.[5] Though strong data is sparse, these results indicate data-based promotion thresholds are needed for assurance and cohesion across the workforce.

Authorship and scholarly visibility

Female authorship has nearly doubled over 15 years (15%→29%), but senior authorship remains lagging (10%→19%).[20] Although men currently possess larger aggregate scholarly impact (median 15 vs 7), Mayer et al. illustrated that scholarly productivity per year (m-quotient) is the same in both sexes, so perceived differences largely reveal preceding underrepresentation instead of scholarly output quality.[21]

It is also important to recognize that editorial diversity fosters authorship equity. Journals with greater female membership on their editorial boards have been found to publish substantially high rates of female first and senior authorship.[3] However, Burg et al. found that women occupy only 14.6% of editorial board roles globally, demonstrating the structural barriers on visibility and influence.[22]

Interestingly, some male authors have cited apprehensions that institutional diversity targets would impact peer review processes and authorship attributions.[5] Though these impressions are anecdotal, they indicate the need for transparent editorial policies for reviewer education to ensure trust in merit-based paths to publication.

Compensation and industry engagement

Gender-based compensation differences persist throughout various career stages for urologists. Females receive $70,000–$80,000 less per year when adjusted for practice category, fellowship, and work hours.[23] North et al. also discovered that men are substantially more likely to receive >$350,000 per year (57% vs 40%).[24]

Contributing factors also present early: Cone et al. noted that women residents will expect lower beginning salaries and feel less prepared for contract negotiations, thus perpetuating downstream injustices.[25] Such similar discrepancies also exist in industry payments; Wang et al. indicated that female urologists are roughly 40% less likely to receive the highest consulting or honoraria fees.[4]

It is noteworthy that high-value industry relationships are predominantly found among a limited group of high-volume surgeons, the majority of whom are male.[26] This concentration may lead to perceptions of inequity, particularly if evolving institutional policies alter these opportunities without clear and transparent criteria, thereby emphasizing the necessity for equitable engagement frameworks.

Patient preferences and clinical outcomes

Patient preference greatly determines referral behavior and procedural exposure. Tamalunas et al. identified that 65% of patients reveal a gender preference when choosing a urologist, especially for intimate procedures and exams.[8] Passarelli et al. demonstrated that female urologists see 54% female patients versus 23% for male urologists, indicating trends dictated by patient selection rather than physician preference.[9]

Notably, clinical results are the same across surgeon sexes, with the rate of complications and mortality statistically indistinguishable.[10] Such results indicate the enhancement of patient-centered services by access and comfort without the loss of quality.

However, referral behavior that is congruent with gender could potentially cause unequal access to complex cases, thus affecting female surgeons disproportionately across their training and in academic careers, a nuance that warrants further investigation.

Emerging evidence: Perceptions of reverse bias and clinician well-being

One of the most novel contributions of this review is its synthesis of preliminary evidence on male urologists' perceptions of reverse bias, burnout, and equity within evolving institutional frameworks.

Burnout affects all genders: Rates approach 47–68% among practicing urologists, driven primarily by workload, administrative burden, and institutional culture.[6,7]

Perceptions of equity diverge: Martin et al. demonstrated that some male urologists perceive reduced transparency in promotion and hiring, potentially affecting morale and career satisfaction.[5]

Training satisfaction and attrition risks: Cheng et al. evaluated clinician well-being across 476 participants and identified high rates of burnout linked to work hours, coping behaviors, and lifestyle factors, underscoring the importance of supporting wellness early in training to promote long-term retention.[29]

These findings, though preliminary, highlight an urgent research gap. Without measurement-first approaches, equity initiatives risk unintended consequences, including workforce fragmentation, reduced engagement, and burnout across genders.

Policy implications

To achieve true equity, measurement must precede mandates. Professional societies and institutions should prioritize:

- Equity Dashboards — Transparent reporting of workforce composition, leadership representation, compensation, authorship, and industry engagement
- Structured Mentorship & Sponsorship — Inclusive mentorship programs pairing trainees and faculty across genders, coupled with leadership and negotiation training
- Transparent Promotion Criteria — Clear benchmarks to ensure institutional policies are perceived as merit-based and fair
- Balanced Industry Engagement Frameworks — Equal access to consulting and research sponsorships based on objective performance metrics

These strategies would enhance institutional trust and ensure that diversity efforts strengthen, rather than fracture, the workforce.

Future directions

This review identifies three critical research priorities:

1. Longitudinal Workforce Tracking — Multi-institutional registries monitoring leadership advancement, attrition, and satisfaction over time
2. Perception Audits — Validated instruments measuring perceived fairness, bias, and opportunity among male and female clinicians alike
3. Equity Intervention Outcomes — Rigorous evaluation of mentorship, sponsorship, and policy reforms to identify which models drive diversity without unintended harms

Limitations

There are several limitations with this review. Because most included studies originated from U.S.-based cohorts, the generalizability of these findings to international urology settings may be limited. Most of the study designs— including surveys, bibliometric studies, and registries—are heterogeneous, making the ability to cross-compare challenging. Finally, reverse bias perception comes largely from initial, small-numbered studies, so higher quality, multi-center data is

needed. Additionally, future research should also examine how intersecting factors such as race, age, and caregiving responsibilities compound gender-based experiences within the urology workforce.

CONCLUSIONS

Over the past 15 years, urology has made measurable progress toward gender equity, particularly in trainee recruitment, authorship representation, and patient-centered care. The proportion of women entering urology has steadily increased, and scholarly contributions from female authors have nearly doubled. Yet, this review highlights that significant disparities persist across leadership representation, compensation, editorial influence, and access to high-complexity surgical cases.

Of note, this review identifies an emerging but previously unexplored axis: the growing awareness among male urologists of reverse bias. Though strong data are scarce, initial studies indicate that some male clinicians sense less visibility on promotion, hiring, and opportunities for industry interaction with potential impact on morale, burnout, and retention. These findings underscore the need for balanced, evidence-informed approaches that maintain equity systems favorable to all clinicians but also further the goals of diversity.

Attainment of sustainable equity requires a measurement-first strategy. Physician organizations, such as the AUA, CUA, and EAU, should lead the charge in the creation of equity dashboards tracking workforce composition, timing of promotion, compensation thresholds, authorship rates, and industry affiliations. Setting transparent metrics would help increase accountability, rebuild institutional trust, and ensure that dynamic policies are perceived as fair, objective, and inclusive.

Finally, there is a critical need for multi-institutional, prospective investigations designed to examine the causal determinants of inequity and determine the empirical impact of diversity initiatives. Future studies should not only address the current barriers faced by women but also explore clinician well-being, fairness perception, and attrition risk among all genders.

By aligning institutional policies with data-driven frameworks, including the SAGER guidelines, the AAMC DEI principles, and the recommendations of the Canadian Urological Association (CUA), the field of urology is presented with the opportunity to guide surgery towards a model characterized by transparent, balanced, and patient-centered equity. This approach not only fosters innovation but also enhances workforce cohesion and improves care for the diverse populations that we serve.

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FIGURES AND TABLES

Figure 1. PRISMA-ScR flow diagram for the identification, screening, eligibility, and inclusion of studies examining gender equity and perceptions of bias in urology (January 2009 – September 2025). Records were identified from four databases: PubMed (n=612), Embase (n=488), Scopus (n=530), and Web of Science (n=462), totaling 2,092 database records, plus 91 additional records from hand-searching and citation chaining.[48]

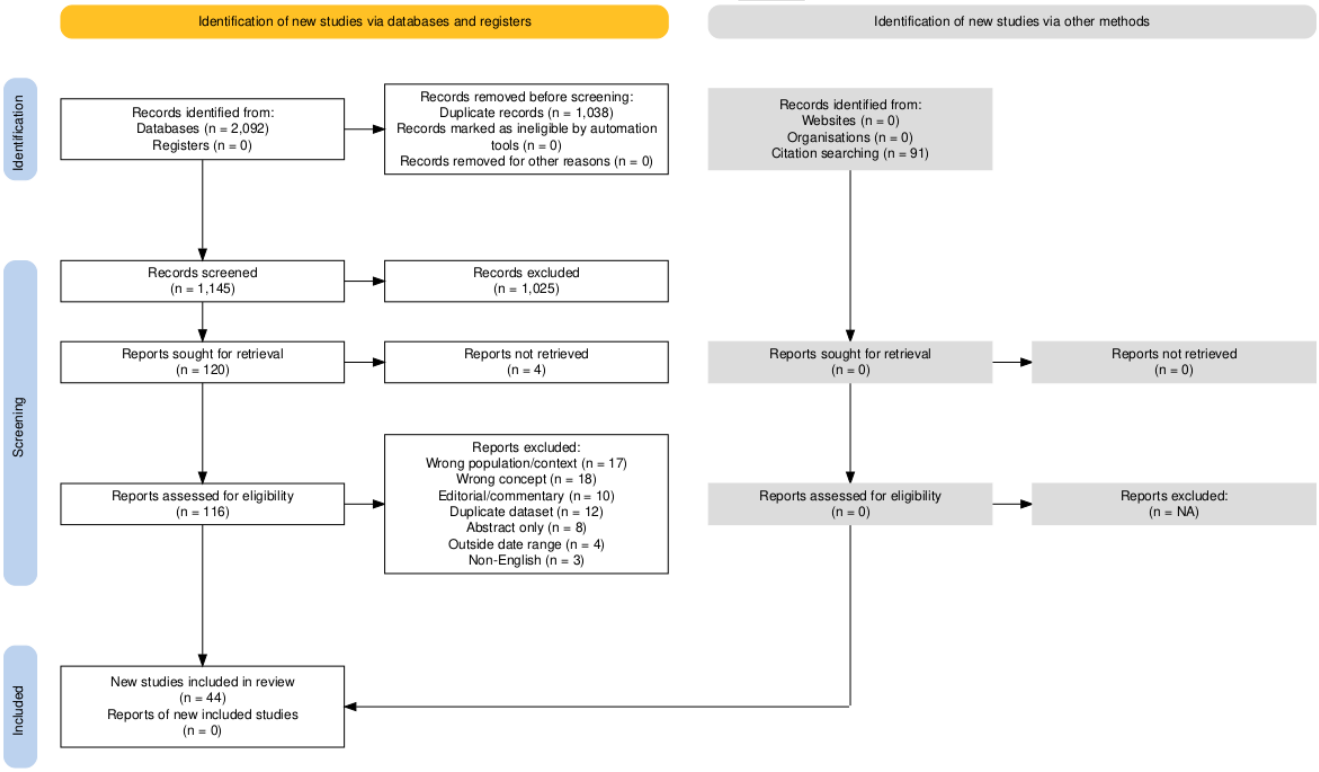

Table 1. Workforce & pipeline trends (n=8)						
Study	**Year**	**Country**	**PMID/PMCID**	**Design/data source**	**Population**	**Key finding**
Findlay BL, Path to parity (*Urology*)	2023	USA	36495948	Cross-sectional trends (AAMC)	US urologists & trainees, 2007–2019	Practicing female urologists doubled (+104%); resident growth +28% → parity still distant.[11]
Jackson EM, how female is the future of urology? (*Urology*)	2023	USA	37244431	Projection model (workforce + trainee inputs)	US workforce through 2062	Female urologists projected ≈38% by 2062 under status-quo trends.[13]
Nam CS, projected urology workforce per capita (*JAMA Netw Open*)	2021	USA	34783827	Simulation/projection	US per-capita supply	Per-capita urology shortage persists; diversification occurs within overall scarcity.[14]
Sierra A, gender demographics in urology in Europe (*Eur Urol Focus*)	2024	Europe (9 nations)	39477704	National trainee/consultant datasets	Trainees & consultants, 2012–2022	Female trainee share rising; consultant growth slower; wide country variation.[12]
Wang CN, AUA 2021 Census:	2023	USA	37003473	AUA Census 2021	Practicing urologists	Women more likely to report differential

differential treatment by gender (*Urology*)						treatment & constrained scope.[30]
Saltzman A, Women urologists: changing trends (*Urology*)	2016	USA	26952567	National survey	Practicing female urologists	Women younger; clustered in academic/urban settings; high weekly hours despite part-time reports.[31]
Oberlin DT, gender divide: Practice atterns (*J Urol*)	2016	USA	27177426	Case-log analysis	US urologists	Female surgeons' panels skew toward women & gender-neutral procedures; men do more male-specific cases.[32]
Grutman AJ, Voices of change: experiences of early women urology residents — a single institution qualitative research study (*BMC Medical Education*)	2025	USA	39915762	Qualitative analysis	Early women residents (single-institution)	Context on training climate; notes 44.9% female 2024 match vs ~11.8% women in practice.[33]

Table 2. Academic promotion & leadership (n=7)						
Study	**Year**	**Country**	**PMID/PMCID**	**Design**	**Population**	**Key finding**
Breyer BN, Promotion disparities in academic urology (*Urology*)	2020	USA	31917291	Cross-sectional + regression	2,926 academic urologists	Women took ~1.2 yrs longer to reach Associate; men 3× likelier to be rapid-promoted; no diff. Associate→Full.[16]
Awad MA, gender differences in promotion & productivity (*Can J Urol*)	2017	USA/Canada	28971789	Cross-sectional	Academic urologists	Senior-rank underrepresentation among women; productivity strongly associated with rank.[34]
Cancian M, representation of women in urological leadership (*Urol Pract*)	2018	USA	37300232	Cross-sectional audit	Societies, boards, chairs	~10% leadership overall; ~1–2% dept chairs at snapshot; committees more balanced than top posts.[17]
Dullea AD, female representation on AUA subspecialty boards (*Cureus*)	2022	USA	35371808	Longitudinal audit	AUA subspecialty societies	Board representation rose modestly (≈11→14%, 2014–2020); some boards had 0 women.[18]
Casals RK, diversity within academic urology leadership (*Urology*)	2022	USA	35969723	Cross-sectional (AAMC data)	Urology leaders vs med leadership	Women 7.4% of urology leaders vs 22% in academic urology overall ($p<0.0001$).[35]

Nettey OS, gender representation in urologic subspecialties (*Urology*)	2018	USA	29331304	ABU certification dataset	Certifying urologists	Women 16.7% of first-time certifiers; more likely in academia (23.6% vs 13.7%).[36]
Marco BB, glass ceilings at EAU/ESPU meetings (*EU Open Science*)	2023	Europe	37284042	Congress analytics	EAU/ESPU 2012–2022	Female chairs/speakers increased but remain minority; incremental change.[37]

Table 3. Authorship & citation impact (n=8)

Study	Year	Country	PMID/PMCID	Design/ dataset	Population	Key finding
Mayer EN, publication productivity & gender (*Urology*)	2017	USA	28232174	Bibliometric (Scopus/GS)	1,922 academic urologists	Men higher h-index; m-quotient similar → gaps reflect shorter careers/representation.[21]
Prunty M, redefining gender gap in authorship (*Eur Urol Focus*)	2022	USA	34975008	Bibliometric (10 journals; 59k+ papers)	2002–2020	Female first authorship ~15%→29%; senior ~10%→19%; senior gap persists.[20]
Prunty M, authorship vs editorial board composition	2022	USA	35534391	Correlational bibliometric	8 high-impact journals	More women on editorial boards correlated with higher female authorship.[3]

(*Eur Urol Focus*)						
Suárez-Arbeláez MC, Authorship gender composition (*Urology*)	2022	USA	34995564	Bibliometric (18 journals)	2015–2020	≈21% of authors were women; lower share in higher-impact journals; gradual increase.[38]
Burg ML, gender disparities on urology journal editorial boards *(Eur Urol Focus*)	2022	Int'l	35504837	Cross-sectional audit (105 journals)	5,989 editors	Women 14.6% overall; regional & quartile differences.[22]
Nguyen AX, editorial boards of major urology Journals (*CUAJ*)	2021	USA/Canada	3509938	Cross-sectional	29 journals, 1,364 editors	Women 7.5%→11.9% (2015→2020); leadership still heavily male.[19]
Singh A, Women on CUA guideline panels (*CUAJ*)	2025	Canada	40637624	Authorship audit	CUA guideline committees	Female guideline authorship underrepresented; growth not proportional to workforce.[39]
Demir DÖ, Women in urology publishing in EU & JU (*Urol Int*)	2023	Europe/USA	36330955	Bibliometric	Eur Urol & J Urol output	Women's academic presence rising yet comparatively low; subspecialty patterns differ.[40]

Table 4. Compensation & industry payments (n=6)						
Study	**Year**	**Country**	**PMID/PMCID**	**Design**	**Population**	**Key finding**
Spencer ES, gender differences in compensation (*J Urol)*	2016	USA	26384452	National survey (AUA)	848 urologists	Adjusted salary gap ≈$70–80k/yr disadvantaging women; hour differences didn't explain.[23]
North AC, gender pay gap in urology (*Urol Pract*)	2021	USA	37145431	AUA Census 2017	2,323 urologists	Men more likely to earn >$350k (57% vs 40%) despite similar weekly hours.[24]
Cone EB, salary expectations & contract preparedness (*Urology*)	2021	USA	32540301	Residency survey	705 residents	Women expected lower starting salaries; felt less prepared for contracts.[25]
Wang Y, gender gap in industry payments (*Investig Clin Urol*)	2024	USA	38978221	Quantitative observational study	15,980 urologists	Women urologists were found to be significantly less likely than men to receive high-value consulting or honoraria payments,

						highlighting persistent gender disparities in industry engagement despite some progress.[4]
Reed J, open payments: urologists vs APPs (*Urology*)	2023	USA	37517679	Retrospective cross-sectional observational desig n	Urologists & APPs	Urologists received significantly higher total and category-specific industry payments compared to APPs. Women urologists received significantly less compensation on average compared to men urologists.[26]
Nam CS, practice patterns & reimbursements (*JAMA Netw Open*)	2019	USA	34783827	Retrospective cohort study using fee-for-service Medicare claims	US urologists	Female urologists cared for more female patients and received lower payments per wRVU (context for pay gap).[14]

Table 5. Patient preferences & clinical outcomes (n=7)						
Study	**Year**	**Country**	**PMID/PMCID**	**Design**	**Population**	**Key finding**
Amir H, do urology male patients prefer same-gender urologist? (*Am J Men's Health*)	2018	Israel	27222116	Clinic survey	119 male pts	42.8% preferred male urologist; skills/experience outweighed gender; embarrassment drove preference.[41]
Wynn J, patient preference for urologist gender (*Int J Urol*)	2021	Australia	33150602	Clinic survey	400 outpatients	Most had no strong preference; preference rose for intimate exams/procedures.[27]
Tamalunas A, How do patients choose their urologist? (*Eur J Med Res/Patient Prefer Adherence*)	2022	Germany	36353408	Multisite survey	1,012 pts	~65% reported some gender preference; strong same-gender preference for intimate/embarrassing conditions.[8]
Razdan S, Provider gender preference in urology (*BJUI Compass*)	2022	USA	36816153	Single-center survey	540 pts	60% no preference; 37% preferred male, 3% female; preferences attenuate with positive experience.[28]
Ficko Z, Urology is a sensitive area: Assessing preferences (*Urol Pract*)	2018	USA	37300200	Survey	457 pts	80% no preference; 18% same-gender preference; modest effect sizes overall.[42]
Steinkohl F, Acceptance of female	2021	Germany	3440396	Survey (stones cohort)	1,025 pts	83% of male pts had no gender preference;

urologists (*Patient Prefer Adherence*)						17% preferred male urologist.[43]
Passarelli N, Are women urologists caring for predominantly women patients? (*Urology*)	2025	USA	40122293	Case-log analysis	93k minimally invasive cases	Female urologists' panels ~54% women vs 23% for male urologists; pronounced gender-concordance in case mix.[9]

Table 6. Perceptions of reverse bias, burnout & well-being (Male-focused signals) (n=8)

Study	Year	Country	PMID/PMCID	Design	Population	Key finding
Martin B, Perceptions of gender equity by urologic subspecialty (*Urology*)	2023	USA	36702444	National survey	536 urologists	Perceptions of inequity varied by subspecialty; male and female responses diverged on fairness and opportunity.[5]
Martin B, Perceptions of gender equity among endourologists (*J Endourol*)	2022	USA/Int'l	36112672	Society survey	Endourology community	Reported gender-related barriers; baseline perceptions data to track equity efforts.[44]
Koo K, burnout among urologists (*Urology*)	2021	USA	34174271	Survey analysis	Practicing urologists	High burnout; identified institutional drivers; informs male burnout context alongside female.[7]
Cheng JW, Burnout and career regret in	2020	USA	32032685	National resident survey	Urology residents	Significant burnout and career-choice

trainees (*Urology*)						regret; program factors associated.[29]
Narang SK, Personality traits and burnout: A survey of practicing US urologists (*Urology*)	2022	USA	35292294	Cross-sectional survey	US Urologists	Burnout was prevalent across genders, with about 49.1% of respondents meeting criteria for burnout.[6]
Reeson E, burnout in pediatric urology fellows (*J Pediatr Urol*)	2024	USA	38582728	Survey	Pediatric urology fellows	High burnout; workload & institutional support salient; not sex-limited but relevant to male experience.[45]
Payne K, Sexual harassment & discrimination in training (*Urol Pract*)	2025	USA	40517820	Multi-center survey	Pediatric urologists	Increased prevalence of burnout among pediatric urologists since the 2016 AUA census, with 43% meeting criteria for high burnout (compared to 25.5% in 2016).[46]
de Mazancourt ES, discrimination during pregnancy in training (*Prog Urol*)	2024	France	38909782	National survey	FR trainees	High discrimination reports (mostly women); sets context for climate; male trainees also report inequities.[47]