Women in Urology

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KEYWORDS

• Female urologist • Woman urologist • Pay discrepancies • Gender disparities • Breastfeeding • Maternity leave

KEY POINTS

- The demographic trend of GU training presages a significant increase in the slope of the shift toward female representation in GU clinical practice in the next decade.
- There are significant differentials within clinical practice between men and women, including selection of subspecialization, practice milieu, and practice geography.
- Women in GU continue to experience discrimination and harassment and also have unique challenges, including assumptions about gender roles, accommodations for pregnancy and breastfeeding, along with pay disparities.
- GU has extant provider workforce shortages, which will likely worsen, particularly in rural areas, based on current patterns of female postgraduate training and selection of clinical practice environment.
- In order for the field of GU to evolve and adapt to the demographic trends, the differences in training and practice experiences between men and women should continue to be identified and addressed.

HISTORY

The role of certain women as caretakers for the sick and injured has assuredly existed since the beginning of cooperative human society. There is abundant historical evidence that women have participated in maternal and neonatal care, particularly to facilitate labor and provide assistance immediately after parturition. Peseshet (c. 2500 BCE), "lady overseer of the female physicians," may have been responsible for training midwives at an ancient school in Egypt.[1] Medical texts from the library at Ashurbanipal in the ancient Assyrian empire demonstrate that midwives, *sabsutu*, were routinely in attendance at births, and the records from the Greeks have several references to women practicing both Obstetrics and Gynecology as well as more general medical care.[2] Nonetheless, although notable exceptions exist beyond reproductive care, as specialization within society evolved to create formal roles for those who treated ailments of all types, the historical record suggests that most of these earliest dedicated providers of health care were men.

Certainly, the pathologic condition of the genitourinary (GU) tract has contributed to human misery since antiquity. Evidence of detailed anatomic study of the GU tract and uroscopy as a diagnostic tool is replete in the historical record. Furthermore, the existence of early urologic subspecialization is exemplified by Hippocrates' familiar admonition from the fifth century BCE, "…to leave such [urologic] procedures to the practitioners of that craft."[3] As medical and surgical training became more formalized throughout the middle ages, women were systematically and specifically excluded from participation outside of a very limited purview. In fact, beginning in the Middle Ages, the characterization of women with any medical knowledge as witches,[4] combined with the rigorous exclusion of women from increasingly structured medical education, consigned those few remaining to practice only in limited capacities and in total obscurity.

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EVOLUTION

These entrenched attitudes and assumptions regarding the female role in the provision of health care finally began to reverse, only haltingly, close to a millennium later. It was ultimately through tremendous resourcefulness, perseverance, and even the sheer serendipity of mistake that, despite Osler's assessment that admitting women to medical school had been a "failure," he was forced to concede that the "die was cast" in the late nineteenth century.[5] However, notwithstanding this tentative and partial step of women in the United States into the field of medicine during the industrial revolution in the late 1800s, it was believed that women did not need and were not capable of receiving the same scientific education as their male counterparts. There was fear that the study of certain aspects of medicine, including anatomy, would damage a woman's character or lead them astray sexually. For that reason, women were not permitted to dissect male genitalia and were given castrated papier-mâché models.[6] Upon examining this early modern history of women in medicine, it is apparent why women's clinical representation in GU lagged well into modern days and is particularly notable for its languorous pace compared with that of many other medical fields. Although unable to receive equivalent education and training to participate in the field of urology, some women were nonetheless able to innovate technology and theory to advance the field. In 1878, Anna Broomall, a surgeon at the Women's Hospital of Philadelphia, created a lithotrite that was attached to a dental drill to break large bladder calculi.[6] In addition, in the late 1800s, Mary Putnam Jacobi, a physician, scientist, and advocate for women's rights, published in *The Lancet* on the theory of urethral syndrome.[6]

By the 1920s and 1930s in the United States, several determined women were entering into formal urologic training. Dr Mary Child MacGregor trained in urology at the New York Infirmary in 1928 and went on to become the Chief of Urology at that institution. She was a mother of 2 and fostered babies who were put up for adoption. Unfortunately, in other cases, limitations imposed by conventions regarding pregnancy and motherhood precluded a full practice.[6] Dr Rosemary Shoemaker completed a 4-year fellowship in urology at the Mayo Clinic in 1938 and had 2 daughters during her training. She was not permitted on the urologic surgery staff while pregnant and thus was relegated to spending a significant amount of her residency time studying pathologic condition. After her training was complete, she opened a clinic dedicated to the care of women and children but was unable to sustain this limited practice and eventually worked as a pathologist. Other women were similarly unable to maintain a surgical urologic practice and elected to leave the field and practice other medical specialties.[6] In other cases, discouraged from surgical urology in the mid-twentieth century, several female urologists were nevertheless able to sustain successful and durable medical urology practices.

In 1962, Elizabeth Pickett became the first female board-certified urologist. By the mid-1970s, female urologists had grown to a notable handful, gaining enough national attention that an article in *Parade* magazine was published highlighting women in the field.[6] By 1985, there were 22 women practicing urology in the United States, representing almost half of the only 50 female urologists practicing worldwide at that time. In a survey from that era, these women reported choosing the field for, among other things: diagnostic techniques; the combination of medicine and surgery; and favorable hours.[6] Interestingly, in surveys regarding the choices of modern trainees, these features continue to be frequently cited reasons by both men and women who choose to train in this field.[7]

TRENDS IN MEDICAL AND UROLOGY TRAINING

The slow-moving pace of these nascent years contrasts with the exponential advancement and penetration of women into the field of urology over the last 3 decades, paralleling the overall trends of women in medical training. The last 40 years have seen staggering demographic shifts in female medical school enrollment and participation in residency spots. Although women made up less than one-quarter of medical school matriculants in 1975, in 2017, for the first time, the majority (50.9%) of US first year medical students were women. Over approximately the same period, the proportion of overall female residents increased from 15.4% to 46.1%.[8]

These trends are not, however, symmetric across all medical and surgical specialties, and women are still proportionally underrepresented in many surgical fields. According to 2017 data from the Association of American Medical Colleges (AAMC), women make up less than one-quarter of 10 surgical specialties, including urology, orthopedic surgery, thoracic surgery, and neurosurgery.[9] In the case of GU, the gender disparity has, nonetheless, narrowed over the past 15 years. American Urological Association (AUA) data from 1996 to 2015 demonstrate that the number of female applicants to urology

residency programs increased from 13.6% to 25.9% over that decade and that there was a similar match rate between male and female candidates.[8] This finding translated to a 429% increase in female urology trainees over the study period, with women accounting for 22.7% of the residency trainees in 2015.[8]

TRENDS IN CLINICAL PRACTICE

Despite these prominent shifts in female students and trainees overall, the percentage of female urologists in the United States has increased only a modicum over the last few years. In 2014, of almost 12,000 practicing urologists, only 7.7% were women; by 2019, female representation, although it had increased slightly, still represented just less than 10% of practicing urologists[10] (**Fig. 1**).

The more recent increase in female GU trainees corresponds to a predominance of comparatively younger women in clinical practice. In 2019, the AUA census demonstrated that 22% of practicing female urologists were less than 45 s old, whereas only 6% were greater than 55 years old (**Fig. 2**). This finding contrasts with their male colleagues who are, on average, 56 years old.[10] Another notable distinction between male and female urologists is the increased likelihood that female residents will pursue fellowship training and, of those, 35% will have pursued postgraduate work in pediatrics or female pelvic and reconstructive medicine.[10] This tendency toward additional post-residency training may partially contribute to the fact that women are 20% more likely than their male colleagues to choose to practice in an academic or hospital setting.

GEOGRAPHIC OBSERVATIONS

A geographic preference for dense urban centers also distinguishes female urologists from their male colleagues in the United States. Although only 2.1% of the total urologists in the United States characterize themselves as practicing in a small town or rural setting, most practicing female urologists live and work in urban areas with a population of greater than 1 million.[11] This finding is likely related, in some degree, to the higher incidence of fellowship training by female residents and consequently greater tendency toward practice within or associated with an academic practice, as academic centers are generally located in more population-dense areas. In other cases, this may simply be related to a preference for academic centers, but it may also reflect a tendency of women trainees to select more urban locations

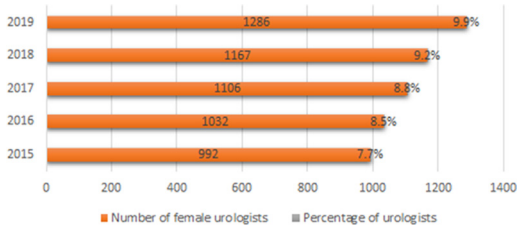

Fig. 1. Number and percentage of female practicing urologists, 2015 to 2019. (*Data from* American Urology Association (2019). The State of the Urology Workforce and Practice in the United States.)

for a variety of other reasons, including job opportunities for a partner.

Although it is difficult to discern which factors are causative and to what degree, the prevalence of fellowship training in tandem with predilection for urban practice location is correlated with the disproportionate representation of female providers in academic settings. There are, of course, other reasons an academic position may be compelling to women, and some reasonable suppositions include the following: (1) generally more robust benefits packages, particularly paid maternity leave benefits, which are still extraordinarily rare in the private practice setting; (2) more flexible schedules; (3) less Relative value units focus, potentially allowing for longer patient visits; (4) part-time or flexible work opportunities in academia; (5) support on-call by residents/Advanced practice providers; and (6) more collegial atmospheres in academia. Further elucidation of the relative contribution of any of these variables, along with the identification of others, is contingent on continued investigation and research.

CLINICAL PRACTICE PATTERNS

As more women enter the GU workforce, studies have been conducted to examine practice patterns between sexes and have demonstrated a tendency toward same-sex patient care by women providers. In a study comparing surgical

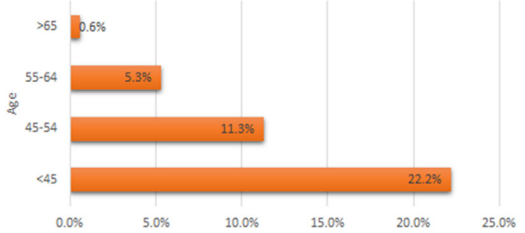

Fig. 2. Percentage of female practicing urologists by age. (*Data from* American Urology Association (2019). The State of the Urology Workforce and Practice in the United States.)

volume, women were more likely to perform gender-neutral procedures (ESWL, TURBT, ureteroscopy) on female patients and more likely to perform female-specific surgery. Men performed more than 3 times as many vasectomies and twice as many prostatectomies as their female colleagues. In addition, female GU patients were 1.65 times more likely to be seen by a female provider than by a male provider.[12]

The presumption, commonly asserted anecdotally, that women in urology practice elect disproportionately for part-time work are not borne out by the statistics. In fact, analysis of the AUA census data in 2014 demonstrated that men and women work essentially the same number of hours on average. This finding is in contrast to the statistics for medicine as a whole, which show women work less hours than their male counterparts.[13] Distinctions between gender practice pattern do exist however, and the AUA census data demonstrated that women providers tend to have longer office visits and see fewer patients on average.[14] The relative predominance of women in practice working in academic settings may partially account for this time differential, as visits in these locations are often associated with more complex or specialized problems and average visits pers provider are typically less than in a private practice setting.

CHALLENGES AND DISPARITIES

As the number of female medical students has increased, the male-to-female representation of trainees and clinicians within many fields has achieved equity and, in some cases, such as Obstetrics and Gynecology, female predominance. However, surgery and many surgical subspecialties continue to be dominated by male attendings and trainees. Although the most flagrant examples of discrimination are far less common than they were decades ago, it is still not unheard of for female surgical staff to find an absence of dedicated female changing facilities proximate to operating rooms or to meet bemusement when trying to obtain scrubs or gloves of the appropriate size. It is at the peril of the field of urology that it is assumed these are anachronisms, and one may fail to recognize both the cost and the frailty of the gains within surgery as a whole and GU in particular. Each advance represents the manifestation of the work of countless diligent and enlightened men and women who recognize the manifold benefits of diversity, both to patients and to their provider colleagues. It is thus critical that those factors are identified that impede progress and create barriers.

Professional Advancement/Mentorship

As previously discussed, female urologists are more likely to practice in an academic setting and have fellowship training. However, this does not translate to similar levels of achievement in academic centers or in career advancement within academia. Breyer and colleagues analyzed the 2017 urology census to find that among academic urologists, men authored more publications and were more commonly principal investigators. It took women, on average, 1.2 years longer to advance from assistant professor to associate professor, and male colleagues had a 3 times higher rate of rapid advancement.[14] It is hypothesized that these disparities may result from underrepresentation of women in senior leadership or from women spending more time in administrative and/or teaching roles rather than research or may be associated with the disproportionate time women spend on daily family responsibilities when compared with male peers with families. In order to foster a more diverse academic environment in the future and provide meaningful opportunities for professional growth, it is critical to highlight these differences and identify and mitigate causes. As in other fields, this will require adaptation, creativity, and flexibility, and a willingness to relinquish potentially long-established customs and assumptions.

Pregnancy, Maternity Leave, and Breastfeeding Issues

The combined features of younger age and gender will inevitably mean that pregnancies during training and practice, maternity leave, breastfeeding policies, and childcare issues will become ever more significant. Although these issues are present for both male and female providers, the biologic facts of gestation and neonate nutrition create an irrefutable disproportionate “burden” on female providers who choose to carry a pregnancy and parent young children. Furthermore, although the primary obligations of child-rearing in dual sex couples have been shifted from the exclusive domain of the female partner, there is still wide recognition that women bear most of the responsibilities related to the child or children. These issues, increasingly extant within many fields of medicine over many decades, will escalate in immediacy and relevance in GU, especially as women of childbearing and child rearing age are increasingly represented in clinical practice.

Maternity leave, or its absence, is another deterrent for women entering a surgical, male-dominated field. The American Board of Urology (ABU) formally determined in 1980 that residents

would *not be penalized* for taking maternity leave. However, the current leave policy states that a resident must complete at least 46 weeks per residency year to graduate, which correlates to a maximum of 6 weeks of maternity leave if no other time whatsoever is taken off. Thirty years after the first explicit pronouncement about maternity leave for GU residents, there is still no specific mention of maternity leave in the current ABU resident leave guidelines.[15] Recently, however, the American Board of Medical Specialties, which includes the ABU among its member boards, promulgated recommendations effective July 2021. These guidelines specifically reference "reasonable leaves of absence" for several reasons, including the care of a newborn, and suggest accommodations during pregnancy and lactation.[16] Although these are only recommendations, this represents a meaningful step in the ad hoc, and often punitive, nature of maternity leave.

In 2009, female urologists were surveyed to determine satisfaction with maternity leave both in and after residency. Only 42% of women reported a formal maternity leave policy during residency. Just less than one-half of the surveyed respondents had a child before completing residency (10% before residency and 38% during residency); slightly more than half (52%) of respondents did not have a child until the completion of her training. However, the timing of birth, while in or out of residency, was not a factor in dissatisfaction, rather this assessment correlated with length of leave. In both residency and in practice, most women took maternity leave for 8 weeks or less; those women who took 9 weeks or longer were *three* times as likely to report being satisfied with their duration of leave.[17]

Accompanying the challenge of absence from residency training or clinical practice during maternity leave is the continued difficulty of breastfeeding upon return to work. Barriers to establishing a breast pumping routine for physician mothers include inadequate time, schedule inflexibility, and inadequate space. A survey study of physician mothers reported longer maternity leave, dedicated space to pump, and accommodating schedules as factors contributing positively to lactation to 12 months' postpartum or to their personal goal. More than 30% of respondents reported pumping in their car, empty patient rooms, bathrooms, locker rooms, and/or closets.[18] Women in nonsurgical specialties were able to maintain lactation for a longer duration postpartum than women in surgical specialties, likely because of more inflexibility in schedule and fewer pumping accommodations for those in surgical practices.[18]

Discrimination and Harassment

Although women continue to increase in prevalence in medical schools and in the medical profession, gender-specific challenges remain. There is implicit bias toward women in surgical specialties, as most are historically predominantly male. Women are met with concerns about the adequacy of their motivation to join the field and of their ability to succeed predicated purely on their gender. Female medical students have been dissuaded from entering into surgical fields based on the perception of obstacles to starting a family and emphasis on concern of a work-life balance, which will not be acceptable or achievable for women who desire to have a family. In addition, as highlighted in a 2006 survey of trainees, women are deterred from entering a surgical career based on the perception that "masculine" personality traits characterize those suited to be surgeons and of surgery being an "old boys' club."[19]

After overcoming the initial gender barrier to entry into the field, women may continually meet with discrimination and sexual harassment through training and practice. In a 2019 study of surgeons, 58% of female surgeons reported being harassed compared with only 25% of male surgeons. These incidences are more common in female trainees, who were more than twice as likely to experience harassment than attending physicians. Unfortunately, most incidents were not reported for fear of negative career impact or retribution.[20] In another survey of physician mothers, 78% of respondents reported that they had experienced discrimination in practice. In the same survey, 68% of respondents reported gender discrimination and 35% reported maternal discrimination. Maternal discrimination was defined as discrimination based on pregnancy, maternity leave, or breastfeeding. Maternal discrimination, in particular, correlated with a higher level of job dissatisfaction and burnout.[17]

Urology is not exempt and, in fact, may be more susceptible to experiences of sexual harassment and discrimination of women in the workplace. Because urology practice often deals with diseases of an intimate nature and involves routine examination of genitals, female physicians can find themselves in a vulnerable position for harassment by both colleagues and patients. In a separate survey of women specifically in urology, similar gender-specific challenges existed, including refusal to be seen by male patients and harassment by both male patients and male colleagues. More than two-thirds of female urologists report patient-perpetrated sexual harassment, with the most at-risk population being residents/fellows and physicians younger than 40 years old.[21]

Pay Gap

The national pay gap between genders extends to medical professions. Adjusting for age, position, and specialty, women make, on average, $20K less than their male counterparts.[22] That number may well be a gross underestimation, as AAMC reports demonstrate that women are far more commonly represented in lower-paying specialties overall. Interestingly, declining trends in reimbursement in many specialties, such as Obstetrics and Gynecology and Pediatrics, directly mirror the increasing preponderance of female providers over the same interval. Although not conclusive, this is consistent with observations of the devaluation of equivalent work when performed by women rather than men. Further amplifying these disparities, a recent article found that pay gaps are even more prominent in surgical subspecialty practices where the physicians are predominantly men, as is likely to be the case in almost every existing GU practice. This study analyzed income data from more than 18,000 physicians in the United States over a 4-year period. In practices with equal male and female physicians, men earned 10% to 12% more than their female counterparts. However, when adjusting for practices with male dominance, the pay gap increased to 20% to 27%, depending on practice type. In private surgical practice, this translates to a staggering $150,000 pay differential for women in male-dominated practices.[23]

HORIZON

Urology has seen tremendous innovation within clinical care for any number of conditions, spearheaded, at least partially, by the epic advancements in the treatment of benign, as well as malignant, prostate disease. Concomitantly, but perhaps not to the same degree, there has certainly been advancement in recognition of the morbidity of certain conditions uniquely related to the female population, such as classic female Stress urinary incontinence, overactive bladder, and pelvic prolapse. A large survey of greater than 1 million cases over several years demonstrated that female surgeons operated on women more frequently and did more female-specific procedures (index urologic procedures).[12] Furthermore, as previously discussed, female providers are more likely to have done a fellowship in female pelvic and reconstructive medicine. The further specialization could absolutely herald a positive trend, as increased attention is paid toward female-specific conditions affecting GU patients, translating into recognition, teaching, and innovative treatments. What factors are related to the selection of these fellowships however, and thus whether the trend will continue, is unclear. Whether this demonstrated preference reflects subtle discrimination, interest in a specialty whereby a mentor or practitioners are more likely to be women, identification or empathy with the patient population among other contributing factors is not yet well elucidated. As more women complete urology residency and consider fellowships, these trends may well shift.

There is also a perception that millennials, of either gender, seek a more equitable work-life balance than their predecessors within medicine. The total dereliction of personal or familial obligations is no longer uniformly openly demanded or lauded as evidence of commitment to a surgical pursuit. These changing trends, coupled with the prevalence of women in academic practices, and thereby typically seeing fewer patients, may exacerbate the already impending anticipated GU provider shortages. In addition, although this “modern” attitude is perhaps typical of junior staff of either gender, it can certainly be a source of disagreement and conflict with more senior partners, who are almost universally men.

In addition to the gender differential, practicing female urologists are, on the whole, almost a decade younger on average than their male colleagues, adding a further generational component to the disparities with more senior staff. Age disparity may well present practice issues beyond more customary gender distinctions pertaining to maternity leave, breastfeeding policies, and child-rearing obligations, as differences are further amplified and magnified by decades of social distraction. Areas of discordance or conflict may extend to social conventions regarding language or dress, work expectations, attitudes toward sexuality, marriage, and cohabitation, and a whole host of other concerns. Practices, although clearly not predicated on universally shared values and beliefs, may nonetheless struggle when confronted with stark differences of values and opinion in certain areas.

A well-documented demographic trend of continued concern has been the “graying” of the GU provider population and concomitant concerns about access and provider shortages as providers retire. In a urology workforce manpower study from 2013, note was made of declining supply of urologists per capita from 1981 along with the distribution of remaining providers into group practices and more urban areas.[24] Although the average age of the practicing male urologist in 2015 was 53, by 2018, the average age had increased to 56. Women in GU practice are, as noted previously,

more than a decade younger, on average. Interestingly, however, women endorse an intent to retire younger than their male counterparts (65 vs 69).[10] Although this is only a prediction, it suggests that the workforce shortfall could become more pronounced over the next few decades if average overall career length is comparatively curtailed.

A chronic issue within medicine, and particularly within specialty care, is rural access. The AUA workforce report from 2019 demonstrates that almost 90% of all urologists practice in a metropolitan setting. The remaining minority, who practice in a micropolitan, small town, or rural area, is twice as likely to be older than 65 than younger than 45.[10] As discussed earlier, women GU providers are even less likely currently to practice in a "rural area." In light of overall GU provider shortages, this could exacerbate critical workforce resource shortages. Therefore, it is important to spend additional efforts to discern what has correlated with this trend and what factors impact female urologists' practice location choices.

SUMMARY

We have been privileged to participate in GU at a time of extraordinary demographic and societal change. It is important to recall that, as urologists, we as specialists share far more in common than any divisions based on gender alone. We are each indebted to those many individuals, both men and women, who have dedicated their careers to our training and mentorship. We chose this specialty because of our common interest in and fascination with urologic pathologic condition, our dedication to the patients we treat, and our thrill at our ability to diagnose, and often, to surgically cure disease. Gender diversity creates challenges to established customs and paradigms and mandates dispassionate and rigorous analysis. We will address these challenges best with the creative thinking and innovation that characterize our specialty and that have advanced urologic care from early history to the modern surgical era.

DISCLOSURE

No disclosure.

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