The Gender Divide: The Impact of Surgeon Gender on Surgical Practice Patterns in Urology

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Abbreviations and Acronyms

ESWL = extracorporeal shock wave lithotripsy

FPMRS = female pelvic medicine and reconstructive surgery

Nx = nephrectomy

TURBT = transurethral resection of bladder tumor

URS = ureteroscopy

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Purpose: There is a perception in urology that female urologists encounter gender based role assignments and are often pigeonholed into caring for more female patients and female specific urological issues than their male colleagues. We assessed the influence of surgeon gender on patient gender demographics by exploring the surgical case logs of American urologists.

Materials and Methods: Six-month case logs of certifying urologists from 2003 to 2012 were obtained from the ABU (American Board of Urology). We reviewed case logs based on CPT codes of common urological procedures, focusing on 6 index gender neutral and gender specific procedure groups, including treatment of nephrolithiasis, nephrectomy, resection of bladder tumors, treatment of stress urinary incontinence, elective sterilization and treatment of prostate cancer.

Results: Among a cohort of 6,166 urologists 1,011,800 cases were logged. Female surgeons operated on a significantly higher percent of female patients than their male peers (54.4% vs 32.5%, $p < 0.01$). Female surgeons performed significantly more female specific procedures, such as slings, than their male counterparts (18 vs 10 per year, $p < 0.001$). Male urologists performed significantly more male specific procedures than their female colleagues, including 3 times as many vasectomies (32 vs 12 per year, $p < 0.001$) and more than twice as many prostatectomies (15 vs 6 per year, $p < 0.001$). These trends were consistent across all subspecialties and geographic regions ($p < 0.01$).

Conclusions: Female surgeon gender has a significant influence on patient gender demographics among index urological procedures. As the number of women in urology grows, increasing attention to gender biases is necessary to understand how these disparities will shape the clinical landscape.

Key Words: urology; women; surgeons; practice patterns, physician's; socioeconomic factors

The percent of female students graduating from medical school recently reached more than 50%.[1] The number of women in the traditionally male dominated specialty of urology has risen from a mere 34 women in 1981 to 512 in 2009, a thousand-fold increase.[2] The percent of female urology residents has increased even more quickly from 5% in 1989 to 23% in 2011.[3] The most commonly cited reasons as to why female urologists chose this specialty include the mix of medicine and surgery as well as the diversity of urological procedures.[3–6]

However, there is concern that female urologists may encounter gender based role assignments, and ultimately care for more female patients and female specific urology issues than their male counterparts. Several studies have suggested that

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caring for female patients may be more time-consuming, potentially provide fewer surgical opportunities and ultimately result in a significant gap in compensation.[7,8]

As the gender landscape in urology quickly changes, little is known about the surgical practice patterns of male and female urologists in the United States. We hypothesized that female surgeons perform a higher proportion of gender neutral, index surgical procedures in female patients relative to their male counterparts and the surgical volume of gender specific female cases is higher for female surgeons. We examined the surgical case logs of urologists in the United States among a representative set of gender specific and gender neutral urological surgeries to determine the change in practice patterns as a function of time, surgeon gender, experience level, practice type and subspecialty training.

MATERIALS AND METHODS

Urologists may apply for certification by the ABU after completing 16 months of training after residency or a year after fellowship. Urologist candidates certified after 1985 apply for initial certification following postgraduate training and recertification at 10-year intervals.

A component of the certification process is the completion of surgical case logs reflecting a 6-month consecutive period prior to certification. These logs include surgeon specific characteristics, including gender, surgeon age, certification cycle and practice type. Surgeons self-report a urological subspecialization in 1 of 5 realms, including oncology, endourology, pediatrics, andrology or female urology, or they identify themselves as general urologists. The logs also track limited patient characteristics, including patient age and gender.

We examined annualized case logs for CPT codes encompassing an index set of common urological procedures among 6 gender specific and gender neutral procedure groups as defined by CPT code. Gender neutral cases, which could be performed in male or female patients, included ESWL (50590), URS (52335-52337, 52351-52353), TURBT (52224, 52234, 52235) and Nx (50220, 50230, 50236, 50240, 50546 and 50548). Female only procedures included urethral sling for stress urinary incontinence (57288) and male only procedures included vasectomy (55250) and radical prostatectomy (55840, 55842, 55845 and 55866).

We analyzed case logs from 2003 to 2012 for practice trends in surgical case volume and distribution among certifying and recertifying urologists associated with subspecialization, surgeon gender, certification group and patient gender. Geographic region is defined by the ABU and it is consistent with AUA (American Urological Association) regions.

The Fisher exact test and the Student t-test were used to compare population variables. For all statistical analyses $p < 0.05$ was considered statistically significant. Analysis was performed using SPSS®, version 21. The study was exempt from institutional review board approval.

RESULTS

A total of 6,616 urologists logged at least 1 queried case during the study period, representing two-thirds of all urologists in the United States based on current estimates.[2] These urologists performed a total of 1,011,800 index cases. Of the 6,616 urologists 558 (8.4%) were women with an overall surgical population of 54.5% female and 45.5% male patients (see table). Conversely, 6,058 of 6,616 urologists (91.6%) were men with an overall surgical population of 32.5% female and 67.5% male patients ($p < 0.001$). The tendency of female urologists to operate on a disproportionate percent of female patients compared to their male peers was observed in every gender neutral procedure group, including ESWL, URS, Nx and TURBT ($p < 0.001$, fig. 1).

For gender specific procedures, such as female urethral sling procedures, female surgeons performed a disproportionate number compared to their male counterparts. Of certifying urologists 8.4% were female and yet 14.5% of all sling procedures were performed by female surgeons ($p < 0.001$). The mean number of urethral slings per year performed by female surgeons was 18 compared to 10 per year by their male colleagues ($p < 0.001$, fig. 2).

Of male gender specific procedures, such as vasectomy and prostatectomy, female urologists performed a disproportionately small number of cases compared to their composition of the overall urology work force. For example, women accounted for 8.4% of all surgeons logging cases and yet they performed only 3.1% and 3.6% of vasectomy and prostatectomy cases, respectively. Male urologists performed an average of 3 times as many vasectomies (32 vs 12) and more than twice as many prostatectomies (15 vs 6) as their female colleagues (each $p < 0.01$, fig. 2).

Despite the assumption that doing a fellowship in a field other than female urology may alter the

Male and female urologist demographics

	Male	Female*
No. urologists	6,058	558
Mean age	43.2	38.7
No. procedures	950,902	60,898
No. female pts (%)	309,242 (32.5)	33,206 (54.5)
No. certification group (%):		
Initial	1,926 (31.8)	348 (62.2)
1st Recertification	2,215 (36.5)	165 (29.5)
2nd Recertification	1,916 (31.6)	45 (8.0)
No. region (%):		
Mid Atlantic	591 (9.7)	37 (6.6)
North Central	930 (15.3)	55 (9.8)
Northeast	905 (14.9)	71 (12.7)
South Central	671 (11)	52 (9.3)
Southeast	1,260 (20.7)	52 (9.3)
West	878 (14.4)	99 (17.7)
Unlisted	823 (13.5)	192 (34.4)

*For age, female patients, certification group and region $p = 0.01$.

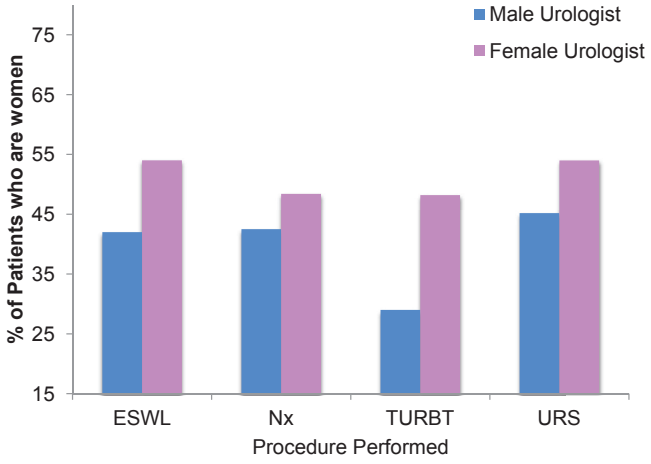

Figure 1. Patient gender distribution for male vs female urologists among gender neutral procedures.

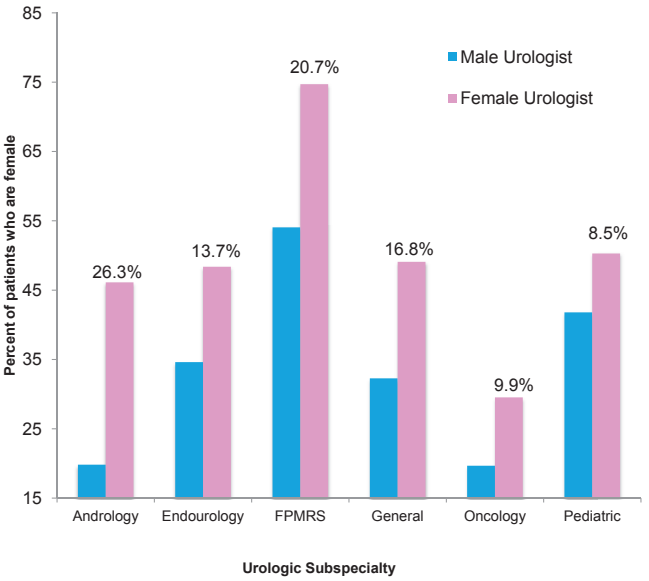

Figure 3. Difference in female surgical patients for female vs male urologists among urological subspecialties.

percent of female patients seen, female urologists operated on a greater proportion of female patients than their male colleagues in each subspecialty in urology (fig. 3). Among all subspecialties women in FPMRS had the highest percent of female surgical patients, significantly more than men who specialized in FPMRS (75% vs 50%, $p < 0.01$).

The relationship between patient and surgeon gender was consistent across each region of the United States (fig. 4). The proportion of female patients treated by female urologists was at least 1.65 times higher than that of their male counterparts in all 6 geographic regions. The largest discrepancy was observed in the Northeast and West regions, where female urologists operated on a proportion of females twice that of their male counterparts ($p < 0.01$).

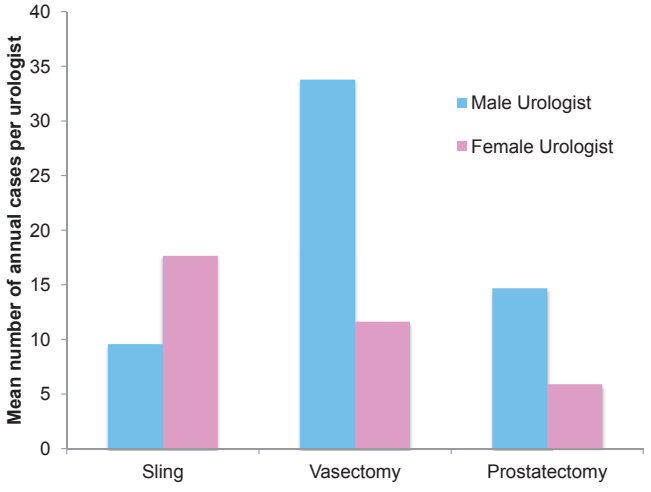

Figure 2. Mean number of annual gender specific cases for male vs female urologists.

DISCUSSION

An assumption is often made in the medical landscape today that women prefer to go to female physicians and surgeons.[9] There have been reports in the obstetric and the primary care literature documenting a preference of female patients for female practitioners. However, to our knowledge no study exists that directly analyzes the influence of surgeon or patient gender on the surgical practice patterns of urologists in the United States. Our results using ABU case logs suggest that these gender distribution patterns are prominent in urology.

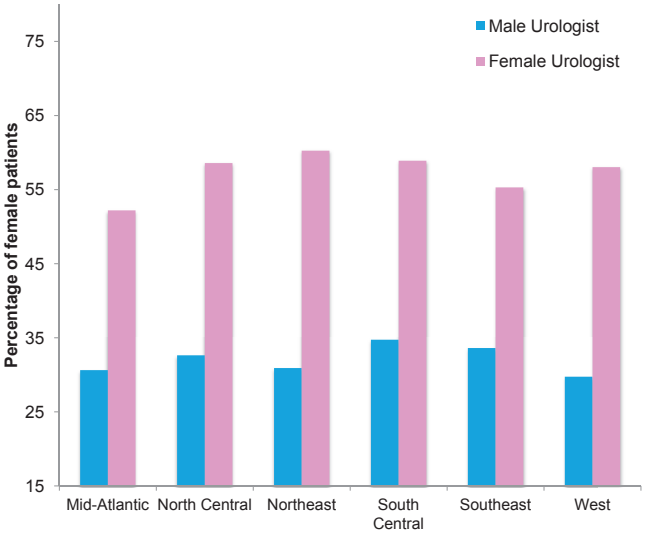

Figure 4. Patient gender distribution for male vs female urologists across regions of United States.

Female urologists were found to operate on a significantly larger proportion of women than their male colleagues (54% vs 32% female patients). This pattern of female urologists caring for more female patients held true for each individual gender neutral procedure that we assessed. In addition, among cases that are female gender specific female surgeons performed a disproportionate volume of surgeries compared to their male counterparts.

Our results are consistent with data on other specialties suggesting that female patients may gravitate toward female physicians.[9–16] Several hypotheses exist for these findings, including the suggestions that physician style is what matters most to patients and the communication style of female physicians is different from that of male physicians.[17,18] Studies have indicated attributes seen more consistently in female physicians, including longer medical visits, engaging in more positive talk and increased partnership building, as examples of communication styles that appeal to female patients.[16]

Our findings emphasize the importance of having women in urology because many patients seem to gravitate to the care of a physician of the same gender, especially in more intrusive fields such as gynecology and urology. For example, Liu et al found that women surgeons accounted for a disproportionate volume of female specific, FPMRS cases, although they comprised a minority of total urologists and female urology subspecialists.[19] We hypothesized that women with advanced subspecialty training in nonFPMRS, gender neutral specialties such as oncology or endourology would balance the observed trend of women surgeons performing a higher percent of procedures in female patients. Yet even women with subspecialty training in gender neutral specialties treated a higher proportion of female patients than their male colleagues. Among every subspecialty female urologists operated on a greater proportion of female patients than their male colleagues. Therefore, training in specialties other than female urology does not change the disproportionately high percent of women in a female surgeon practice.

Finally, ABU case logs do not provide information on physician referral patterns, which undoubtedly influence the case mix of women in urology. The phenomena of gender concordance between patient and primary care physician is well described and it has the potential to impact the gender choice of referred specialists, which could explain why more female patients are ultimately treated by female urologists.[20,21]

Our results are not without limitations. Although we reviewed more than a million surgical cases during a 10-year period and 6 common procedure groups, these logs represent only a portion of the total surgical volume of each surgeon. Therefore, the logs are subject to bias. The ABU database also does not capture extensive clinical information such as surgical history, which would be of interest in the analysis of how case volume changes with time. Additionally, as with any large administrative database, we are unable to account for errors in coding, case validity or spurious case composition among certifying urologists.

Despite these limitations, surgical case log data provide one of the most accurate, contemporary and robust demonstrations of practice patterns of urologists in the United States. An estimated 9,500 urologists are practicing in the United States today.[2] These logs capture more than two-thirds of all urologists currently in practice and represent one of the most complete examples of case load and mix of practicing urologists.

CONCLUSIONS

Women are pursuing medical careers in numbers equal to those of men and they represent 50% of medical school graduates today. The findings of this study highlight important characteristics of gender inequality and imbalance in the urology work force. As the number of women physicians going into urology grows, increasing attention to practice pattern discrepancies and gender biases is needed to better appreciate how these disparities will shape the clinical landscape.

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