
# Gender Disparity in Urology Resident Surgical Experience?

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# Disclosures

- **No Relevant Disclosures**

- **AMS/Boston Scientific Men's Health–**
  - Consultant: Male Sling, AUS
  - Spouse: Male Health Regional Manager/Key Accounts

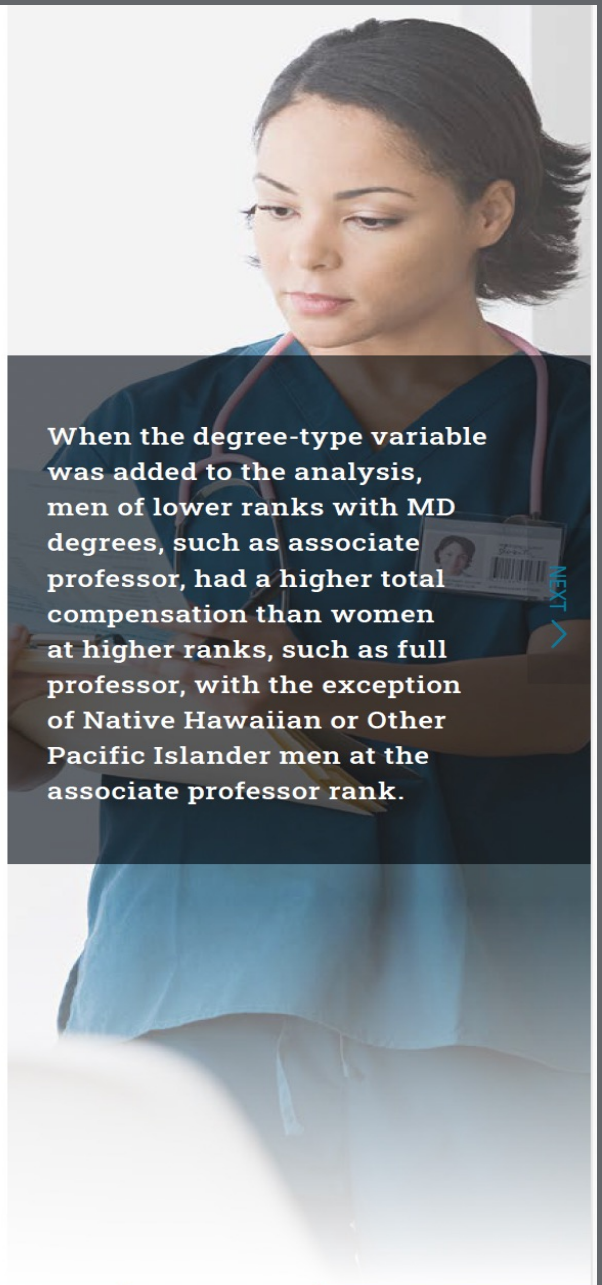
- **Laborie**
  - Data Monitoring Committee (ROBUST III Trial; PINNACLE)

- **AUA Guideline Panels:**
  - Incontinence after Prostate Treatment
  - Genitourinary Syndrome of Menopause (GSM)

## FIGURE 19. Median compensation for clinical science MD faculty by race/ethnicity, gender, and rank.


*Source: FY 2020 AAMC Faculty Salary Survey.*

Note: Data are not shown where groups had fewer than 10 individuals. *Sample size 10-19 people. In each row, the lowest dollar amount is in the smallest box, and the highest dollar amount is in the largest box. Dark shading, women; light shading, men. **REFER TO TABLE A.11 FOR SAMPLE SIZES.**

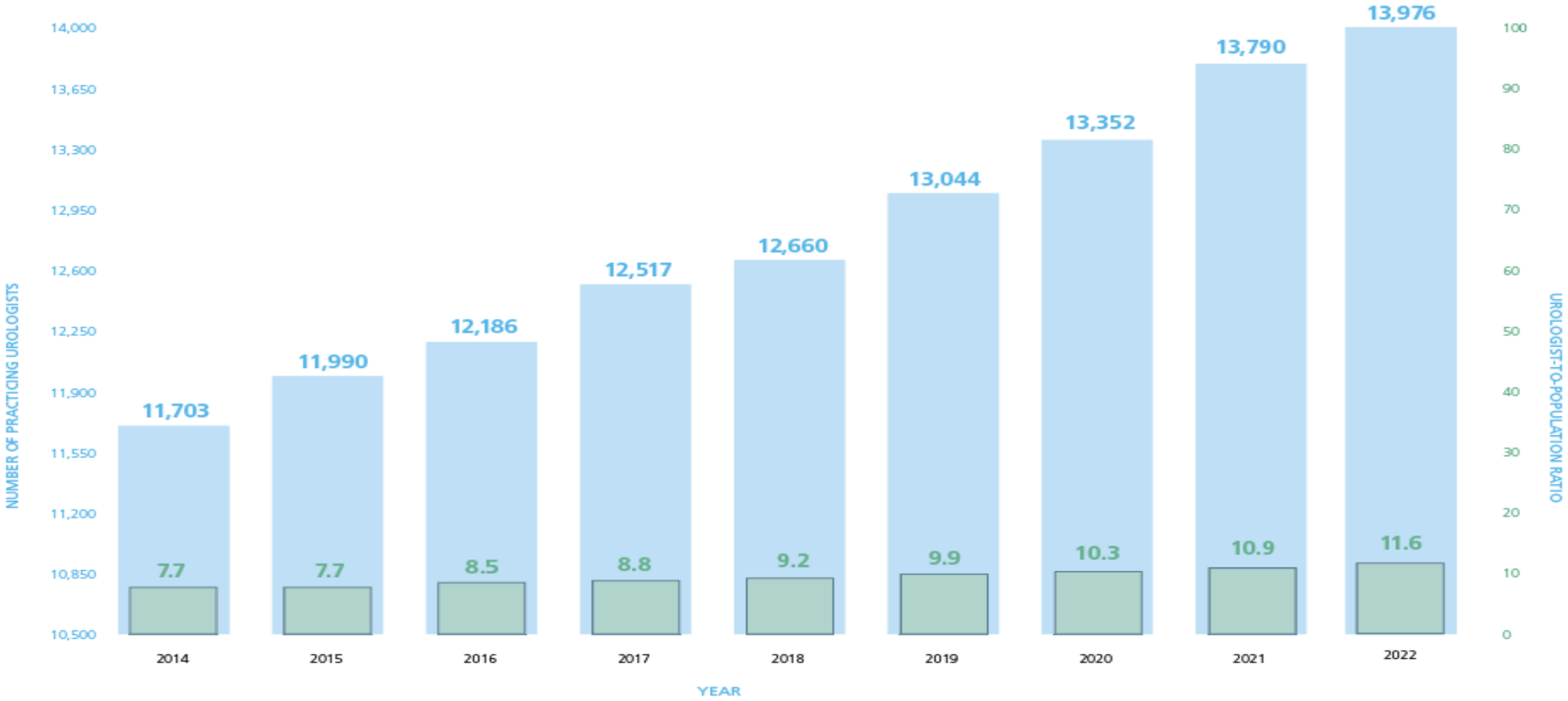


When the degree-type variable was added to the analysis, men of lower ranks with MD degrees, such as associate professor, had a higher total compensation than women at higher ranks, such as full professor, with the exception of Native Hawaiian or Other Pacific Islander men at the associate professor rank.

NEXT

# FIGURE 2-1

## Total Number of Practicing Urologists and Percentage of Women Practicing Urologists in the Workforce from 2014 to 2022



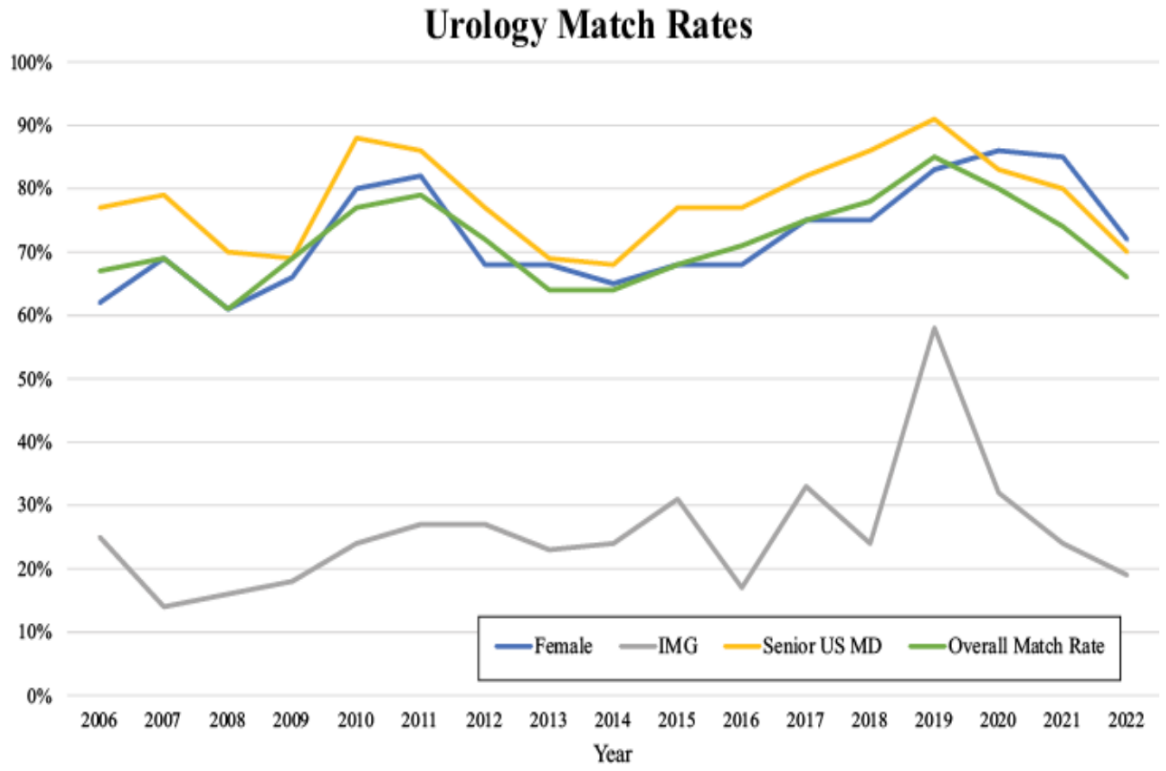

Data sources: National Provider Identifier files and weighted samples from the AUA Annual Census from 2014 to 2022.

Blue: Total number of practicing urologists; Green: Percentage of women practicing urologists.

# Objectives

- **Surgical Log Terminology**
- **Intra-program Case Log Disparity**
  - Examples from other surgical subspecialities
- **Autonomy**
- **Self-Assessment**
- **Relationship to Census Data?**

# Urology Match Statistics




2024

| | Total | Matched | Unmatched |
|---|---|---|---|
| Male | 290 | 209 (72 %) | 81 (28 %) |
| Female | 203 | 173 (85 %) | 30 (15 %) |
| Non Binary | 6 | 2 (33 %) | 4 (67 %) |
| Transgender | 0 | 0 | 0 |
| Undisclosed | 1 | 1 (100 %) | 0 (0 %) |
| Total | 500 | 385 (77 %) | 115 (23 %) |

# Current Match Classes




# Operative Training

# Surgical Log Terminology

To be recorded as **Surgeon**, a resident must perform ***50 percent or more of the procedure, including a significant number of the critical steps.*** When two residents each complete one side of a bilateral procedure (e.g., orchidopexy, ureteral reimplant, nephrectomy), each resident may record the case as Surgeon.

To be recorded as **Assistant** surgeon, a resident must perform ***less than 50 percent of the procedure and/or not the key portion(s) of the procedure.*** Only one resident can claim credit as Assistant on a given procedure.

To be recorded as **Teaching Assistant**, the ***chief or senior resident directs and oversees*** major portions of the procedure being performed by a more junior resident surgeon, under the guidance of a supervising faculty member.

# Urology Residency Case Minimums

**Index Categories and Minimum Procedure Numbers**

| Category | Minimum |
|---|---|
| **General Urology** | 250 |
| Transurethral resection | 100 |
| Transrectal ultrasound (TRUS)/prostate biopsy | 25 |
| Fusion* | 0 |
| Scrotal/inguinal surgery | 60 |
| Urodynamic studies (UDS) | 10 |
| **Endourology/Stone Disease** | 150 |
| Ureteroscopy | 90 |
| Percutaneous renal procedure | 10 |
| **Reconstructive Surgery** | 100 |
| Male | 30 |
| Male penis/incontinence | 15 |
| Male urethra | 5 |
| Female | 15 |
| Intestinal diversion | 10 |
| **Oncology** | 130 |
| Pelvic | 50 |
| Pelvic-bladder | 10 |
| Pelvic-prostate | 30 |
| Retroperitoneal | 50 |
| Retroperitoneal-kidney | 40 |
| **Pediatric-Minor** | 30 |
| Endoscopy | 5 |
| Hydrocele/hernia | 10 |
| Orchiopexy | 10 |
| **Pediatric-Major** | 15 |
| Hypospadias | 5 |
| Ureter | 5 |
| **Robotic** | 80 |

*Residents will have the option of logging magnetic resonance imaging (MRI) fusion as part of a prostate biopsy. Fusion biopsy numbers will be tracked, but there is not a set minimum.

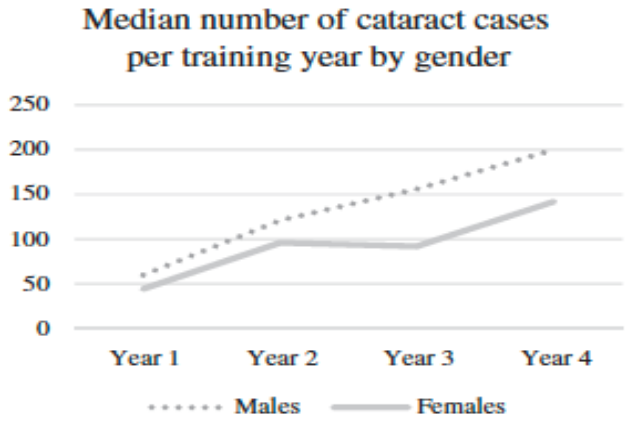
# Definition of Programmatic Sufficient Surgical Experience

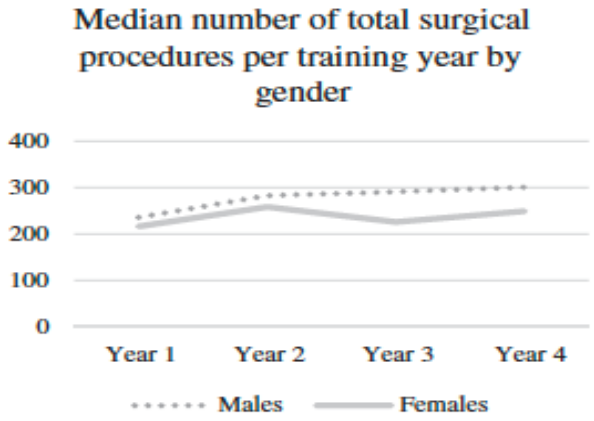
- Minimum numbers represent what the Review Committee believes to be an acceptable minimal experience.
- Surgeon, Assistant, and Teaching Assistant roles are included in the minimum counts.
- Minimum numbers are not a final **target number and achievement does not signify competence.**
- Program directors must ensure that residents continue to report their procedures in the Case Log System after minimums are achieved.
- Achievement of the minimum procedural requirements does not supplant the requirement that the summative evaluation verify a resident has demonstrated sufficient competence to enter practice without direct supervision.
- **Programs are considered compliant with urology procedural requirements if all graduating residents in a program achieve the minimum number in each category.**

# Case Log Disparity

# Existing Data for Case Log Disparity – Country Cohort

| | Male | Female | *p* value |
|---|---|---|---|
| Total surgical cases at 18 months | 340 (IQR 241.5–470) | 313 (IQR 209–452.5) | 0.500 |
| Total surgical cases at 4 years | 843.5 (IQR 490.5–1158.5) | 665.5 (IQR 418.5–932.5) | 0.036 |
| Completed cataract cases at 18 months | 111.5 (IQR 71–151) | 87.5 (IQR 35–146.5) | 0.022 |
| Partial completed cataract cases at 18 months | 68.5 (IQR 30–108) | 87.5 (IQR 35–146.5) | 0.858 |
| Completed cataract cases at 4 years | 369 (IQR 151–567) | 216 (IQR 96–398) | <0.001 |
| Partial completed cataract at 4 years | 95 (IQR 41.5–148.5) | 78 (IQR 38.5–161) | 0.847 |




Gill HK, Niederer RL, Danesh-Meyer HV. Gender differences in surgical case volume among ophthalmology trainees. Clin Exp Ophthalmol. 2021 Sep;49(7):664-671.

# Large Scale General Surgery Program Consortium

**TABLE 1.** Individual and Program Demographics of General Surgery Residency Graduates by Male Versus Female

| | N (%) | | |
|---|---|---|---|
| | Female | Male | *P* |
| Age (yr), median (IQR) | 33 (31–34) | 33 (32–35) | 0.21 |
| Race/ethnicity | | | 0.05 |
| Asian | 75 (15.8) | 136 (15.7) | |
| Black | 30 (6.3) | 35 (4.0) | |
| Hispanic | 30 (6.3) | 43 (4.9) | |
| White | 325 (68.3) | 598 (70.0) | |
| Other | 16 (3.4) | 55 (6.3) | |
| IMG | 26 (5.5) | 125 (14.4) | < 0.01* |
| Dedicated research experience | 235 (49.4) | 355 (41.0) | < 0.01* |
| Pursued fellowship | 391 (82.1) | 698 (80.5) | 0.46 |
| Resident volume | | | < 0.01* |
| Low | 173 (36.3) | 270 (31.1) | |
| Medium | 172 (36.3) | 287 (33.1) | |
| High | 130 (27.3) | 310 (35.8) | |
| Program region | | | 0.13 |
| Midwest | 130 (27.3) | 272 (31.4) | |
| Northeast | 76 (16.0) | 98 (11.3) | |
| Southwest | 85 (17.9) | 156 (18.0) | |
| Southeast | 167 (35.1) | 303 (35.0) | |
| West | 18 (3.8) | 38 (4.4) | |
| Program size | | | < 0.01* |
| Small | 40 (8.4) | 120 (13.8) | |
| Medium | 224 (47.1) | 402 (46.4) | |
| Large | 212 (44.5) | 345 (39.8) | |
| Residency volume | | | < 0.01* |
| Low | 184 (38.7) | 247 (28.5) | |
| Medium | 155 (32.6) | 300 (34.6) | |
| High | 137 (28.8) | 320 (36.9) | |
| NIH funding | | | 0.29 |
| Top 50 | 266 (55.8) | 452 (52.1.8) | |
| Bottom 50 | 112 (23.5) | 206 (23.8) | |
| None | 98 (20.6) | 209 (24.1) | |

*$P < 0.05$.

**TABLE 3.** Comparison of Operative Composition for General Surgery Residency Graduates by Male Versus Female

| | Median (IQR) | | |
|---|---|---|---|
| | Female | Male | *P* |
| Abdomen | 318 (277–371) | 329 (278–386) | 0.06 |
| Biliary | 125 (95–158) | 131 (99–168) | 0.03* |
| General | 41 (30–53) | 39 (28–52) | 0.14 |
| Hernia | 123 (102–148) | 126 (105–150) | 0.29 |
| Liver | 9 (6–14) | 9 (6–13) | 0.95 |
| Pancreas | 11 (7–17) | 12 (7–18) | 0.35 |
| Spleen | 3 (1–4) | 3 (1–4) | 0.88 |
| Alimentary tract | 269 (228–308) | 267 (225–313) | 0.88 |
| Anorectal | 33 (25–44) | 30 (22–41) | <0.01* |
| Esophagus | 11 (7–17) | 12 (7–17) | 0.61 |
| Large intestine | 147 (120–171) | 148 (122–175) | 0.36 |
| Small intestine | 40 (31–50) | 39 (32–50) | 0.88 |
| Stomach | 31 (23–45) | 30 (22–43) | 0.35 |
| Breast | 53 (42–71) | 49 (39–64) | <0.01* |
| Endocrine | 38 (22–55) | 37 (21–56 | 0.95 |
| Endoscopy | 119 (105–143) | 124 (106–153) | 0.02* |
| Pediatric | 23 (16–31) | 23 (17–33) | 0.25 |
| Plastics | 24 (14–44) | 25 (15–42) | 0.78 |
| Skin and soft tissue | 56 (41–75) | 54 (40–73) | 0.20 |
| Thoracic | 32 (23–48) | 37 (25–55) | <0.01* |
| Transplant | 12 (6–18) | 11 (6–18) | 0.46 |
| Trauma | 27 (18–40) | 31 (20–47) | 0.01* |
| Vascular | 102 (78–133) | 113 (86–151) | <0.01* |
| Total laparoscopy† | 279 (226–344) | 287 (221–30) | 0.48 |
| Basic laparoscopy | 171 (129–220) | 179 (125–226) | 0.39 |
| Complex laparoscopy | 107 (80–137) | 108 (78–135) | 0.90 |

*$P < 0.05$.

†Laparoscopy includes operations within the other listed domains that are coded as open versus laparoscopic and, therefore, total laparoscopy is not counted toward total case counts.

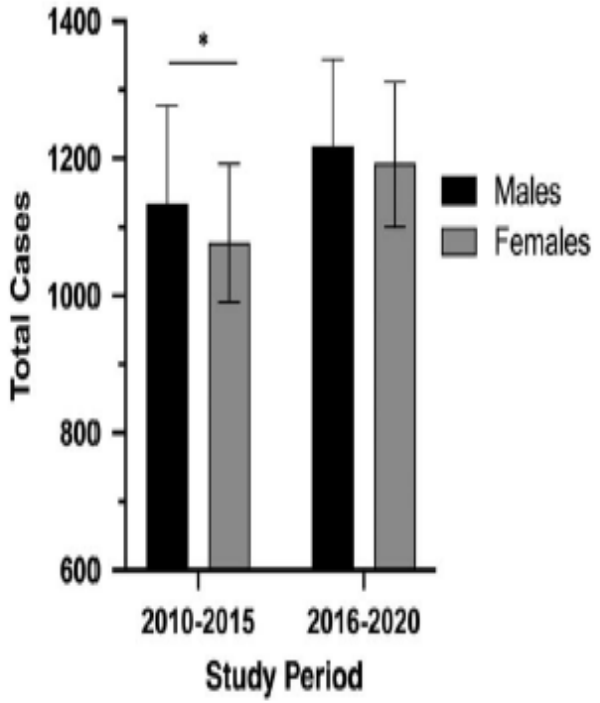
Winer LK, Kader S, Abelson JS, et al. Disparities in the Operative Experience Between Female and Male General SurgeryResidents: A Multi-institutional Study From the US ROPE Consortium. Ann Surg. 2023 Jul 1;278(1):1-7. doi: 10.1097/SLA.0000000000005847. Epub 2023 Mar 30.

# Support for Resolution of the Discrepancy

**TABLE 2.** Multivariable Linear Regression Comparing Operative Volume for Male and Female Graduates

| | Unadjusted estimates | | | Adjusted estimates | | |
|---|---|---|---|---|---|---|
| | Female | Male | *P* | Female | Male | *P* |
| Total cases | 1164 (1143–1184) | 1181 (1171–1191) | <0.01* | 1197 (1171–1223) | 1206 (1189–1223) | 0.04* |
| Total surgeon chief | 271 (263–279) | 272 (268–276) | 0.71 | 289 (278–299) | 287 (280–294) | 0.03* |
| Total surgeon junior | 846 (823–865) | 862 (853–871) | <0.01* | 866 (843–888) | 875 (860–890) | 0.01* |
| Total TA | 46 (42–49) | 48 (46–49) | 0.06 | 42 (38–47) | 44 (41–47) | 0.04* |

Data are reported as parameter estimates (95% CI) and are adjusted for an individual program, IMG status, completion of dedicated research, and pursuing a fellowship.
*$P < 0.05$.




Winer LK, Kader S, Abelson JS, et al. Disparities in the Operative Experience Between Female and Male General Surgery Residents: A Multi-institutional Study From the US ROPE Consortium. Ann Surg. 2023 Jul 1;278(1):1-7. doi: 10.1097/SLA.0000000000005847. Epub 2023 Mar 30.

# Autonomy

# Autonomy

- a pathway of progressive independence, beginning with skill development and progressing to independent decision-making with a goal of readiness for independent practice by the end of surgical training

- Influenced by bias
  - Implicit
  - Unintentional gender bias

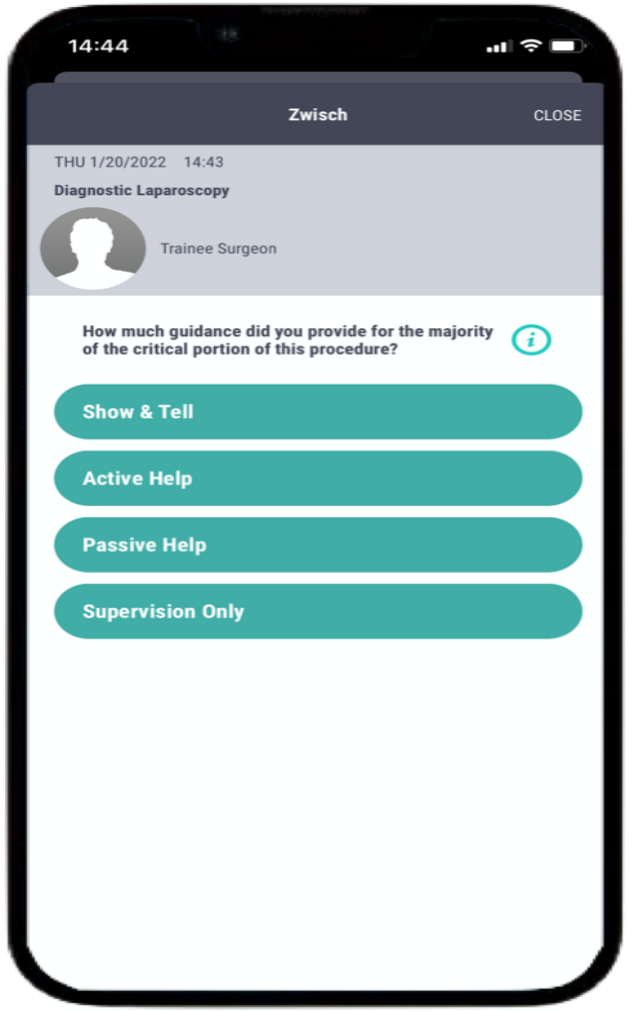
- Zwisch Scale: Show and Tell > Active Help > Passive Help > Supervision Only

George BC, Teitelbaum EN, Meyerson SL, et al. Reliability, validity, and feasibility of the Zwisch scale for the assessment of intraoperative performance. J Surg Educ. 2014; 71(6):e90–e96. https://doi.org/10.1016/j.jsurg.2014.06.018.

# Systematic Evaluation of Surgical Learning

- The Society for Improving Medical Professional Learning **(SIMPL)** is a 501(c)(3) non-profit international consortium of training programs working to implement a more evidence-based educational system.

- The three SIMPL questions are answered by both the trainee and faculty instructor, giving a comparative view of trainee progress.
  - Autonomy: 4 point
  - Performance
    - 9-point scale (1 = lacks basic surgical skills, 5 = performs basic steps, 9 = guides operation independently)
  - Case Complexity



# Overall Autonomy Trends

- *VA National Surgical Quality Improvement Program (VASQIP) - 2004 to 2019 demonstrating a 62% decline in the surgeries primarily performed by residents across all surgical specialties*
- *In 2004, 44.3% of index urologic surgeries in the VA system were performed with the resident as the lead surgeon; 2019 dropped to 24.9%*

Table 1. Percentage of cases with urology resident as primary surgeon by surgical procedure.

| RP (%) | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TURP | 31.2 | 31.4 | 29.5 | 27.3 | 25.0 | 25.6 | 26.2 | 25.9 | 28.5 | 26.6 | 25.8 | 26.8 | 26.0 | 23.6 | 21.2 | 18.1 |
| TURBT (SMALL) | 31.5 | 36.4 | 29.6 | 30.2 | 27.5 | 27.4 | 26.8 | 27.1 | 28.7 | 25.2 | 28.3 | 26.3 | 24.8 | 23.3 | 21.4 | 23.3 |
| TURBT (MEDIUM) | 35.4 | 29.5 | 32.4 | 26.0 | 27.0 | 25.8 | 26.7 | 29.4 | 30.4 | 28.8 | 28.0 | 27.4 | 27.5 | 25.8 | 23.1 | 22.9 |
| TURBT (LARGE) | 33.3 | 32.8 | 29.0 | 26.2 | 27.8 | 28.4 | 25.5 | 26.3 | 29.2 | 28.3 | 29.6 | 30.2 | 25.6 | 28.7 | 21.4 | 12.2 |
| GLL | 12.3 | 19.2 | 29.4 | 29.2 | 29.1 | 21.6 | 22.8 | 27.4 | 21.0 | 17.2 | 19.5 | 12.6 | 14.7 | 10.8 | 12.2 | 9.6 |
| HYDROCELE | 30.8 | 28.3 | 26.0 | 21.3 | 20.9 | 21.2 | 19.6 | 20.4 | 19.2 | 18.2 | 19.2 | 16.7 | 17.4 | 13.7 | 15.7 | 9.5 |
| URETERAL STENT | 43.8 | 21.9 | 29.8 | 20.8 | 25.2 | 33.8 | 19.7 | 26.3 | 22.4 | 22.2 | 30.0 | 26.0 | 27.7 | 18.2 | 13.4 | 17.7 |

Anjaria DJ, Kunac A, McFarlane JL, Oliver JB. A 15-year analysis of surgical resident operative autonomy across all surgical specialties in veterans affairs hospitals. JAMA Surg. 2022;157(1):76–8.
Hingu J, Nguyen A, Jain K, Anjaria D, Oliver J, Sadeghi-Nejad H. MP10-03: surgical autonomy of urology residents within the veterans affairs healthcare system. J Urol. 2022;207(Supplement 5):e146.
Nguyen AT, Anjaria DJ, Sadeghi-Nejad H. Advancing Urology Resident Surgical Autonomy. Curr Urol Rep. 2023 Jun;24(6):253-260. doi: 10.1007/s11934-023-01152-x. Epub 2023 Mar 14.

# Autonomy in General Surgery Training

Program, faculty, and resident participation

| | Male residents | Female residents | Total |
|---|---|---|---|
| Program demographics | | | |
| Number of programs | | | 14 |
| Participating residents per program | 16.9 ± 6.9 (6–29) | 12.4 ± 5.9 (3–21) | 29.4 ± 12.0 (11–48) |
| Participating faculty per program | 26.8 ± 15.2 (4–62) | 10.5 ± 3.6 (5–16) | 37.4 ± 17.4 (10–75) |
| Cases evaluated per program | | | 636 ± 621 (46–2,343) |
| Faculty demographics | | | |
| Number of faculty | 377 | 147 | 524 |
| Cases performed by faculty (*n* [%] of total cases) | 6,957 (78.2%) | 1,943 (21.8%) | 8,900 (100%) |
| Cases evaluated by faculty (*n* [%] of cases performed) | 4,566 (65.6%) | 1,301 (67.0%) | 5,867 (65.9%) |
| Cases evaluated per faculty | 18 ± 24 (1–216) | 13 ± 20 (1–174) | 17 ± 23 (1–216) |
| Number of faculty who did not respond to at least 1 evaluation request (*n* [%] of faculty) | 110 (29.2%) | 46 (31.3%) | 156 (30.0%) |
| Resident demographics | | | |
| Number of residents | 238 | 174 | 412 |
| Cases performed by residents (*n* [%] of total cases) | 5,458 (61.3%) | 3,442 (38.7%) | 8,900 (100%) |
| Cases evaluated by residents (*n* [%] of cases performed) | 5,062 (92.7%) | 3,078 (89.4%) | 8,040 (90.3%) |
| Cases evaluated per resident | 23 ± 27 (1–184) | 20 ± 25 (1–170) | 22 ± 26 (1–184) |
| Number of residents who did not respond to at least 1 evaluation request (*n* [%] of residents) | 11 (4.6%)* | 18 (10.3%) | 29 (7.0%) |

Data are means ± standard deviation (range), unless otherwise indicated.

* $P < 0.001$ male residents versus female residents.

Meyerson SL, Sternbach JM, Zwischenberger JB, Bender EM. The Effect of Gender on Resident Autonomy in the Operating room. J Surg Educ. 2017 Nov-Dec;74(6):e111-e118. doi: 10.1016/j.jsurg.2017.06.014. Epub 2017 Jun 29.

# Gender Disparity in Case Logs

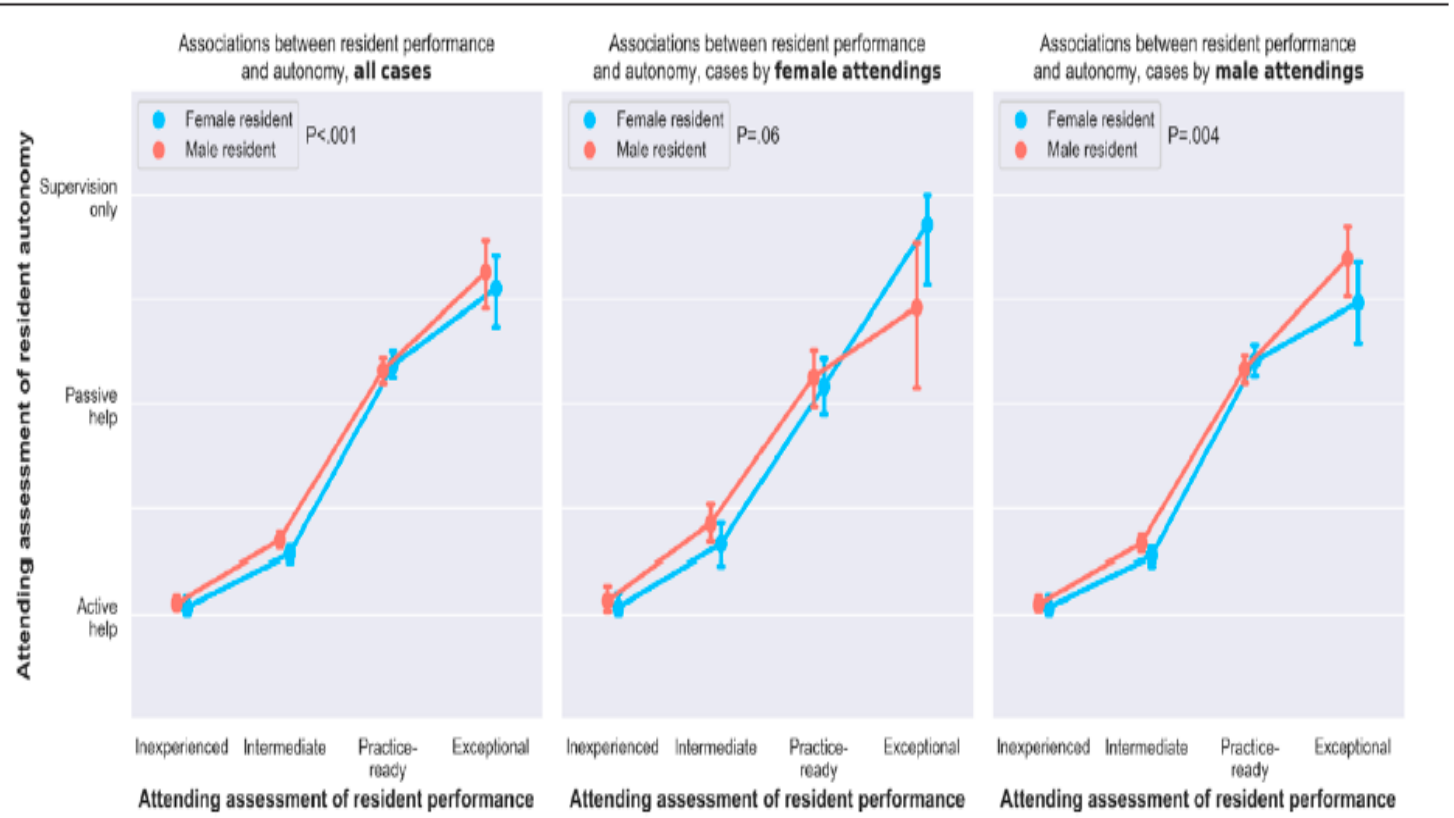
**Table II**
Estimates of coefficients in a hierarchical logistic regression analysis of factors contributing to autonomy granted to residents in the operating room

| | Attending surgeons' perceptions | | Residents' perceptions | |
|---|---|---|---|---|
| | Parameter estimate (confidence interval) | Statistical significance | Parameter estimate (confidence interval) | Statistical significance |
| Level of training | | | | |
| PGY 1 | Reference | | Reference | |
| PGY 2 | 1.47 (1.26–1.68) | $P < .001$ | 1.33 (1.10–1.55) | $P < .001$ |
| PGY 3 | 1.57 (1.38–1.76) | $P < .001$ | 1.56 (1.36–1.77) | $P < .001$ |
| PGY 4 | 2.44 (2.25–2.63) | $P < .001$ | 2.40 (2.21–2.60) | $P < .001$ |
| PGY 5 | 2.82 (2.62–3.02) | $P < .001$ | 2.67 (2.46–2.89) | $P = .002$ |
| Patient-related case complexity | | | | |
| Easiest one third | Reference | | Reference | |
| Average | −0.57 (−0.73 to −0.42) | $P < .001$ | −0.40 (−0.57 to −0.23) | $P < .001$ |
| Hardest one third | −1.34 (−1.52 to −1.17) | $P < .001$ | −0.88 (−1.07 to −0.69) | $P < .001$ |
| Case difficulty | | | | |
| Advanced | Reference | | Reference | |
| Core | 1.25 (1.09–1.40) | $P < .001$ | 1.23 (1.06–1.40) | $P < .001$ |
| Resident sex | | | | |
| Female | Reference | | Reference | |
| Male | 0.26 (0.15–0.37) | $P < .001$ | 0.30 (0.18–0.42) | $P < .001$ |
| Attending faculty sex | | | | |
| Female | Reference | | Reference | |
| Male | −0.77 | $P = .25$ | −0.09 | $P = .18$ |

The analysis of attending faculties' perception uses evaluation data submitted by attending faculty based on their perspective of the autonomy granted in the operation. The analysis of the residents' perception used evaluation data submitted by residents based on their perspective of the autonomy they received.
*PGY*, postgraduate year.

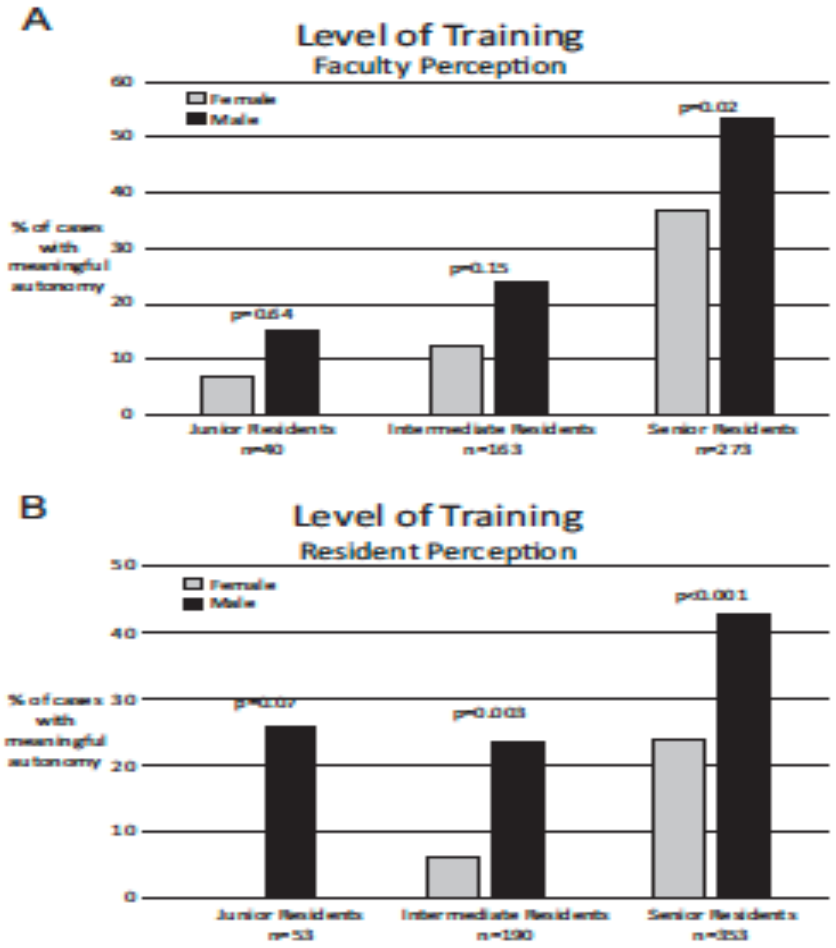
# Mismatch between autonomy and performance

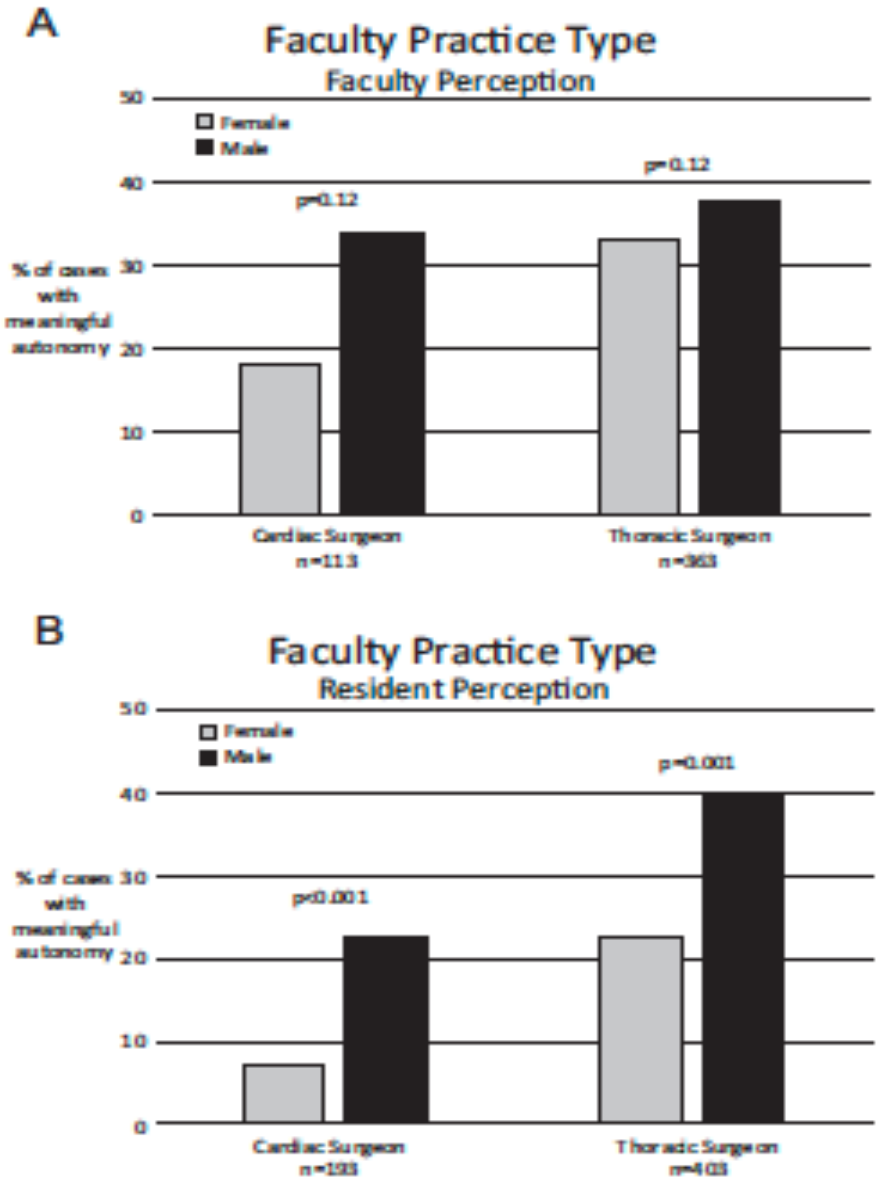
- SIMPL dataset from 54 general surgery residency programs from 2016-2021
- Male residents given more autonomy when adjusted for attending rated performance




Filiberto AC, Abbott KL, Shickel B, George BC, Cochran AL, Sarosi GA Jr, Upchurch GR Jr, Loftus TJ. Resident Operative Autonomy and Attending Verbal Feedback Differ by Resident and Attending Gender. Ann Surg Open. 2023 Feb 2;4(1):e256.

# Thoracic Surgery



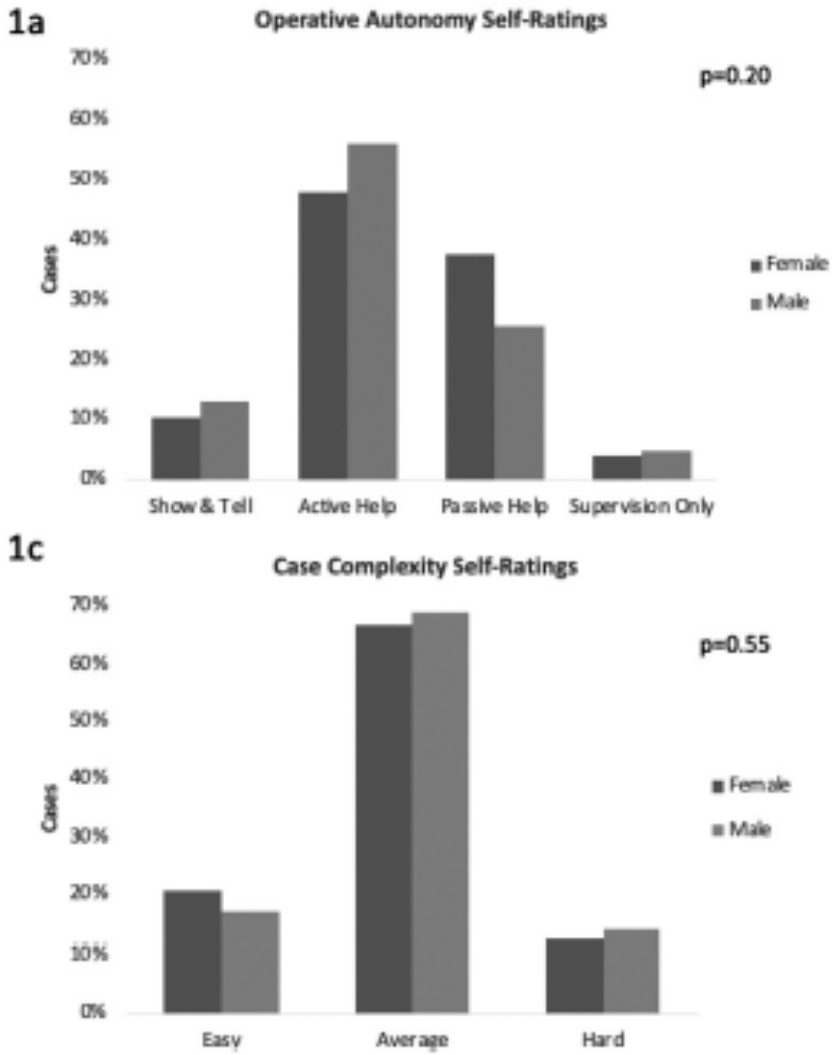




Miller BL, Azari D, Gerber RC, Radwin R, Le BV. Evidence That Female Urologists and Urology Trainees Tend to Underrate Surgical Skills on Self-Assessment. J Surg Res. 2020 Oct;254:255-260.

# What about Urology?

**TABLE.** SIMPL Participant Demographics

| Rater's Sex | Female | Male | p Value |
|---|---|---|---|
| *Faculty demographics* | | | |
| Number of faculty | 6 | 14 | |
| Cases evaluated by faculty | 76 | 164 | |
| Median cases evaluated per faculty (IQR) | 5 (3-13) | 5.5 (2-9) | 0.65 |
| *Resident demographics* | | | |
| Number of residents | 4 | 14 | |
| Cases evaluated by residents | 48 | 228 | |
| Median cases evaluated per resident (IQR) | 8 (6-18) | 7 (3-17) | 0.67 |
| Surgery complexity per resident: Median (IQR) | | | |
| Low-complexity procedures | 1.5 (0.5-4.5) | 1 (0-2) | 0.66 |
| Medium-complexity procedures | 5.5 (5-11) | 5 (2-11) | 0.67 |
| High-complexity procedures | 1 (0-3) | 0 (0-2) | 0.82 |




Olumolade OO, Rollins PD, Daignault-Newton S, George BC, Kraft KH. Closing the Gap: Evaluation of Gender Disparities in Urology Resident Operative Autonomy and Performance. J Surg Educ. 2022 Mar-Apr;79(2):524-530.

# Self-Assessment

# Self-Assessment

- **Self-assessment may influence:**
  - Surgical log role designation
  - Projection of confidence with procedure >> Initial decision-making by faculty regarding expected skill level and degree of autonomy
  - Gender differences in confidence and risk-taking behaviors
    - Socialization?
    - Hormonal?

*Bucholz EM, Sue GR, Yeo H, Roman SA, Bell RH Jr, Sosa JA. Our trainees' confidence: results from a national survey of 4136 US general surgery residents. Arch Surg. 2011;146(8):907–14.*

# Example from Plastic Su

- Case evaluation data from 3 plastic surgery programs: Johns Hopkins, UNC & Baylor Scott and White
- OEA (Operative Entrustability Assessment) Scoring System for >8000 cases: Resident and Attending

OEA scoring system used for resident self-assessments and attending surgeon assessments of resident operative performance.

| Numerical Score | Text Anchor | Long Definition |
|---|---|---|
| Level 1 | Demonstrative Guidance | The attending will need to perform the entire surgery with the resident assisting and observing. |
| Level 2 | Physical Guidance | The attending will be able to position the resident as the operator and the attending as the assistant to perform the surgery. The resident can be led motion by motion through the surgery. |
| Level 3 | Verbal Guidance | The attending will be able to discuss the case with or instruct the resident as the operator, but the resident will be able to mark and perform the surgery with the attending verbally assisting, advising, and correcting as necessary. |
| Level 4 | Supervisory Guidance | The attending will need to be present for the case to provide minor guidance if needed or requested; the resident will be able to perform the entire surgery. |
| Level 5 | Consultatory Guidance | The resident would be capable of performing the operation alone (guidance by the attending is not needed) or may lead a more junior resident through the surgery. |

**Table 2**

Unadjusted analysis of male and female residents' self-assessed operative performance compared to attending physicians' assessments.

| Male Residents (n = 48) | # of assessments (%) | Mean | Delta | 95% CI | P-value |
|---|---|---|---|---|---|
| Self-Assessment | n = 6751 (83%) | 3.57 | 0.09 | 3.55–3.60 | P < 0.001 |
| Attending Assessment | | 3.48 | | 3.46–3.51 | |
| **Female Residents (n = 16)** | **# of assessments (%)** | **Mean** | **Delta** | **95% CI** | **P-value** |
| Self-Assessment | n = 1398 (17%) | 2.85 | −0.30 | 2.80–2.91 | P < 0.001 |
| Attending Assessment | | 3.15 | | 3.08–3.20 | |

CI=Confidence interval.

Cooney CM, Aravind P, Lifchez SD, Hultman CS, Weber RA, Brooke S, Cooney DS. Differences in operative self-assessment between male and female plastic surgery residents: A survey of 8,149 cases. Am J Surg. 2021 Apr;221(4):799-803.

**Table 1 – Demographics of study sample.**

| Experience level | Female ($n = 17$) | Male ($n = 20$) |
|---|---|---|
| Attending | 5 | 5 |
| Senior resident (PGY 4-5) | 4 | 6 |
| Junior resident (PGY 1-3) | 2 | 3 |
| Medical student | 6 | 4 |
| Retired | 0 | 2 |

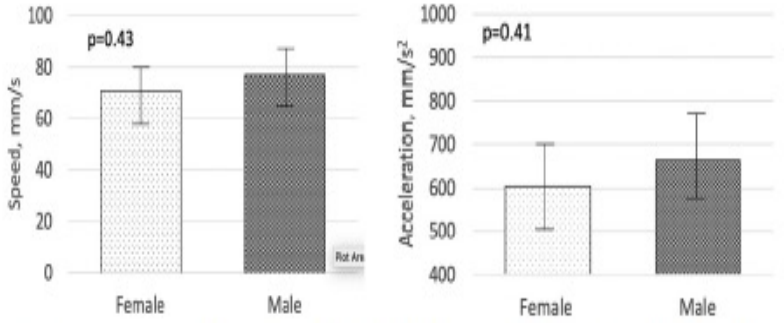



**Fig. 2 – Computer motion analysis of simple interrupted suturing task by gender.**

**Table 2 – Mean individual difference of self and expert assessment scores (ΔSAS-EAS).**

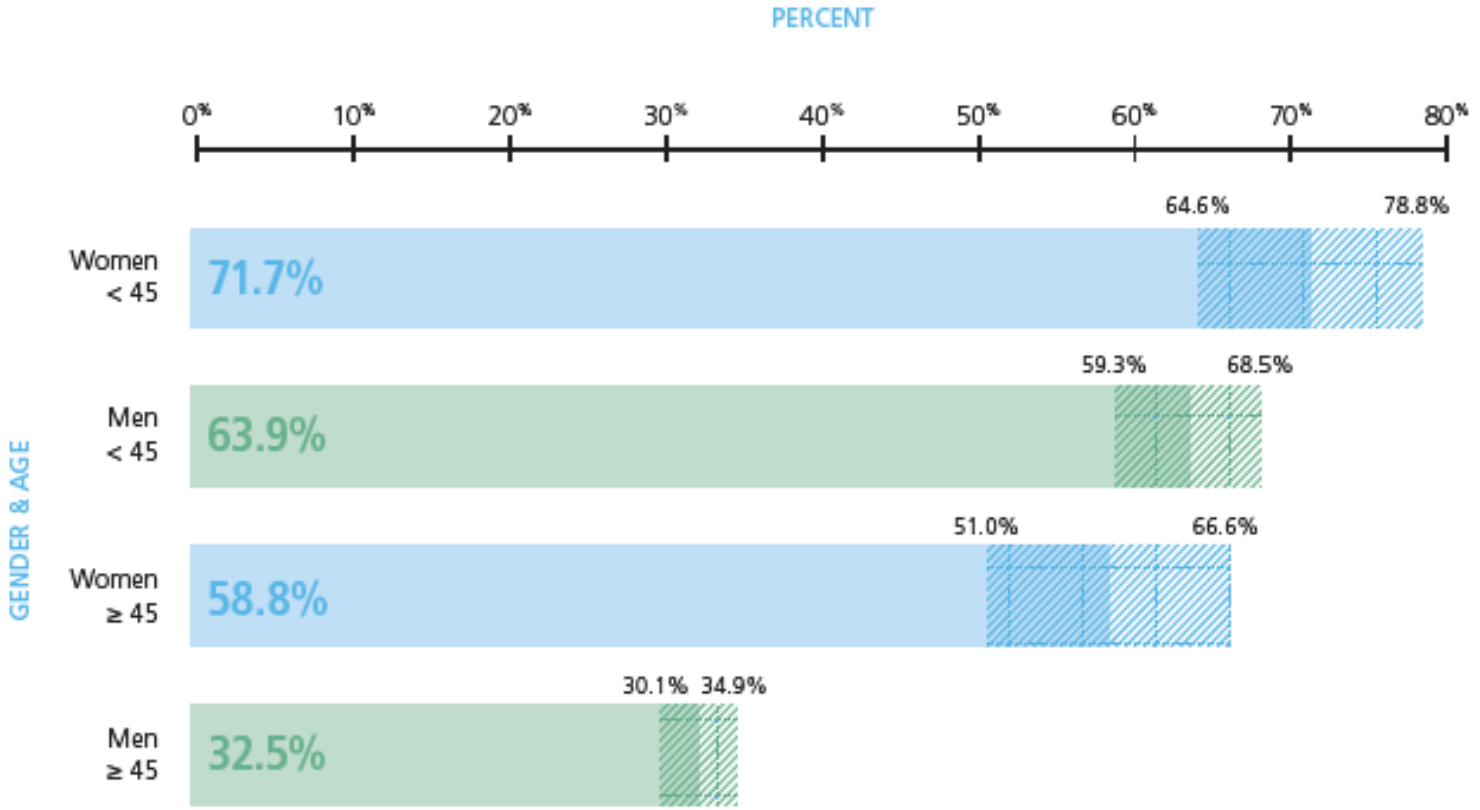
| Gender, experience level | Economy of motion, mean ± SEM | Fluidity of motion, mean ± SEM |
|---|---|---|
| Female | −1.1 ± 0.38 ($P = 0.01$) | −1.3 ± 0.39 ($P < 0.01$) |
| Male | −0.16 ± 0.36 ($P = 0.63$) | −0.09 ± 0.41 ($P = 0.82$) |
| Attending | −0.11 ± 0.65 ($P = 0.87$) | −0.26 ± 0.74 ($P = 0.73$) |
| Resident | −0.81 ± 0.40 ($P = 0.06$) | −1.2 ± 0.42 ($P = 0.01$) |
| Medical student | −0.73 ± 0.50 ($P = 0.18$) | −0.27 ± 0.50 ($P = 0.61$) |

P-value role versus motion economy = 0.72; P-value role versus fluidity of motion = 0.52.
P-value sex versus motion economy = 0.09; P-value sex versus fluidity of motion = 0.04.

Miller BL, Azari D, Gerber RC, Radwin R, Le BV. Evidence That Female Urologists and Urology Trainees Tend to Underrate Surgical Skills on Self-Assessment. J Surg Res. 2020 Oct;254:255-260.

# FIGURE 3-1

## Percentage of Practicing Urologists With Completed Fellowship Training (by Gender and Age)*




Data source: Weighted samples from the 2022 AUA Annual Census.

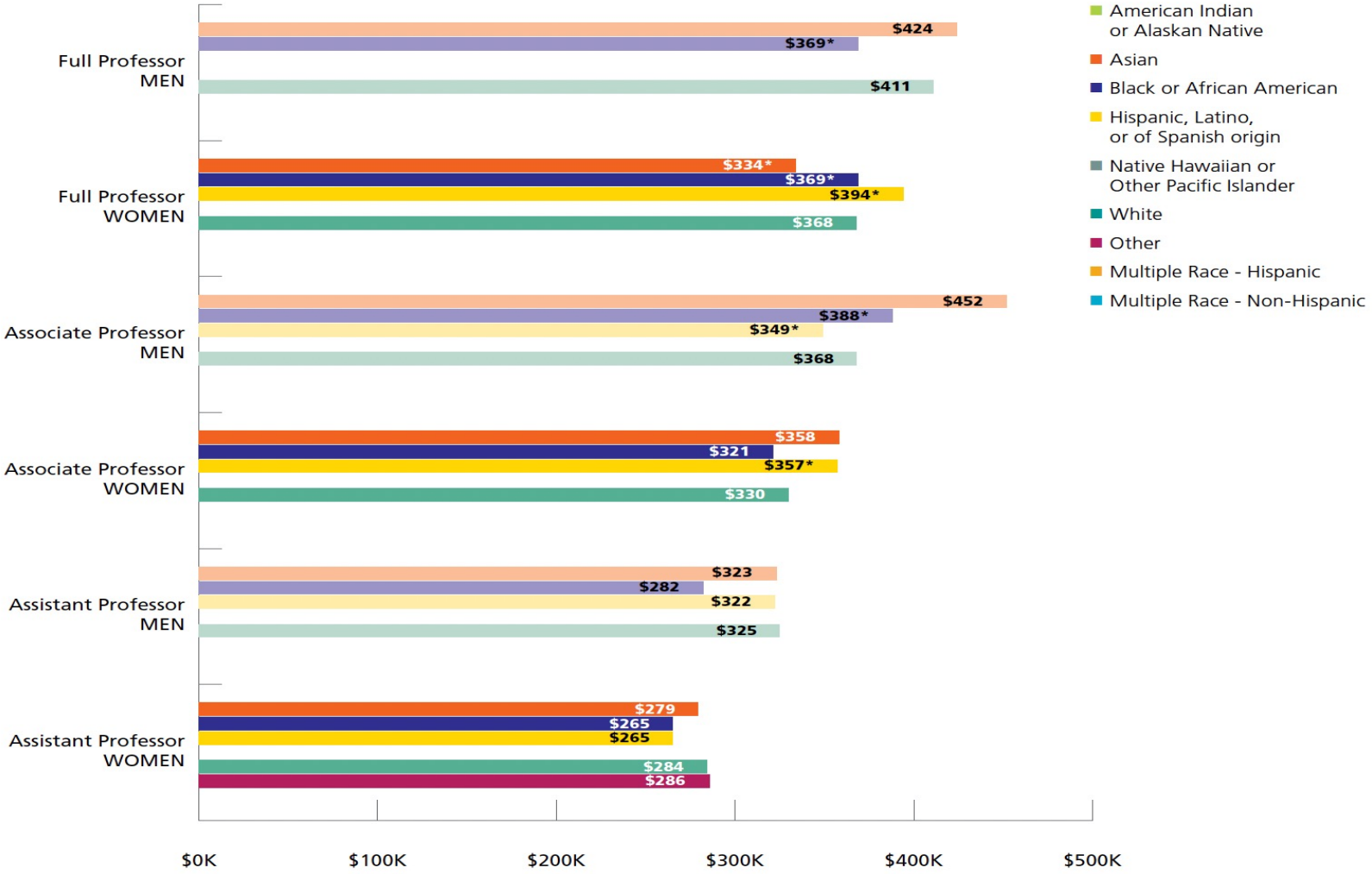
Fellowship training is defined as participation in a fellowship program with a duration of one year or longer. *Bold numbers are point estimates. The dashed bars represent upper and lower 90% confidence limits.

## Primary Practice Setting by Gender

| Primary Practice Setting | Male Practicing Urologists Represented | | | Female Practicing Urologists Represented | | |
|---|---|---|---|---|---|---|
| | Number | Percent (%) | +/- MOE (%) | Number | Percent (%) | +/- MOE (%) |
| Private Practices | 6,682 | 54.4 | 2.4 | 480 | 31.8 | 5.2 |
| Academic Medical Centers | 3,210 | 26.1 | 2.1 | 682 | 45.2 | 5.7 |
| Public and Private Hospitals | 2,008 | 16.4 | 1.8 | 275 | 18.2 | 4.7 |
| Other Settings^ | 381 | 3.1 | * | 72 | 4.8 | * |
| **Total** | **12,281** | **100.0** | | **1,509** | **100.0** | |

(Data source: Weighted samples from the 2021 AUA Annual Census.) Sums from numbers and percentages may contrast with calculated totals due to intrinsic rounding errors. ^ Other settings include federal, state or local government, industry (pharmaceuticals, EHR vendors, device manufacturers, etc.). *The estimated value should be used with caution due to small samples.

**FIGURE 33**. Median compensation for OB/GYN faculty with MD degrees by race/ethnicity, gender, and rank.



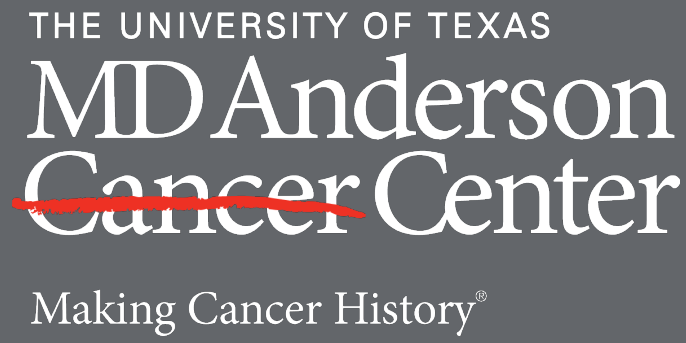

*Source: FY 2020 AAMC Faculty Salary Survey.*
Note: Data are not shown where groups had fewer than 10 individuals.*Sample size 10-19 people. Dark shading, women; light shading, men.
**REFER TO TABLE A.18 FOR SAMPLE SIZES.**

# Conclusions

- **There is evidence for gender-based disparity in:**
  - Residency case volume
  - Case type distribution
  - Autonomy
  - Feedback

- **Further efforts to standardize training is warranted**
  - Programmatic self-evaluation
    - Reasons for case type imbalances exist but should be explained
      - Trainee Subspecialty Interest
  - Faculty education
    - Formal instruction in evaluating key surgical procedures
    - Analysis of unintentional bias
  - Resident feedback
    - Reconciliation of self-assessment and actual skill level

# The next generation…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