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The Future is Now: APPs & Clinic Procedures

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- Financial: none
- AI content creation: none

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Learning Objectives

- Discuss current state of urology APP procedures and procedure training.

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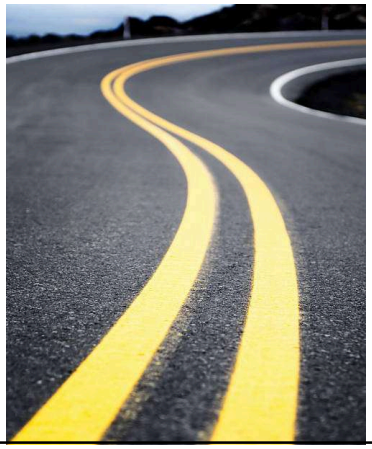
The Future is Now: APPs & Clinic Procedures

- Where is that Yellow Line?
- What is the “yellow line?”
- What do we do when we find it?



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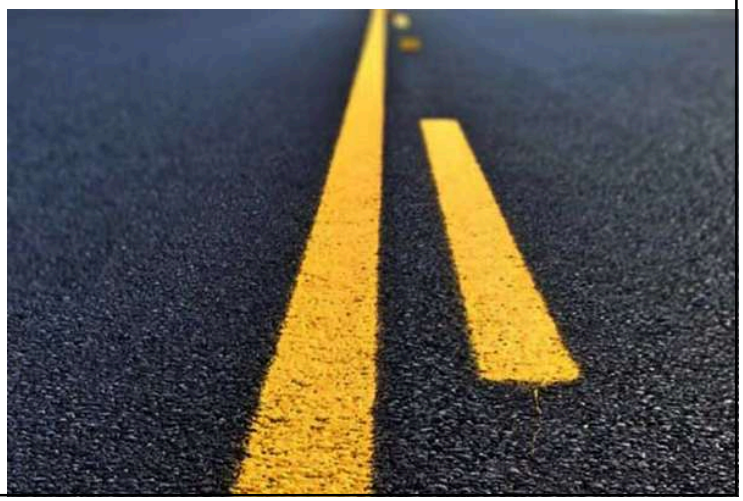
Yellow Lines?

- Caution
- Warning



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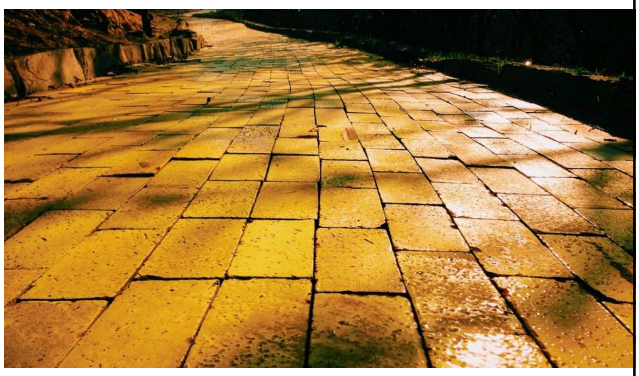
APP Procedures

- Outcome data?
- Safety data?

Yellow (Brick) Roads?

- "[Symbolizes] the journey of life, representing personal growth, self-discovery, and the pursuit of dreams, with challenges, lessons, and hope along the way."



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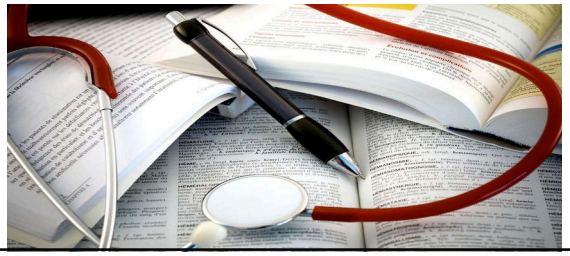
PubMed search (03/01/2026) …

- "Advanced Practice Providers" and "Urology"
  - 66 results; 2015 – March 2026
    - 5 mentioned procedures in title



PubMed search (03/01/2026) …

- "Advanced Practice Provider" and "Cystoscopy"
  - 8 results
- "Advanced Practice Provider" and "Biopsy"
  - 15 results

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Aging US Population

- Projected US population growth 2020 – 2060
  - 333 million to 405 million; 22% increase
- Projected US population ≥ 65 yrs old
  - 2020: 56.1 million (17% of US population)
  - 2040: 80.8 million (22% of US population)
  - 2060: 94.7 million (23% of US population)

Projected Age Groups and Sex Composition of the Population: Main Projections Series for the United States, 2017-2060. U.S. Census Bureau, Population Division: Washington, DC. Source: U.S. Census Bureau, Population Division. Revised Release Date: September 2018.

Active Practicing Urologists

- Active practicing urologists (2024): 12,090
  - Urologists ≥ 55 yr old: 47.4%
- Mean planned or actual age at retirement: 67 yrs
  - 49% plan to retire ≤ 65 yrs old

The State of the Urology Workforce and Practice in the United States 2024. Retrieved on (03/08/2026) from https://www.auanet.org/research-and-data/aua-census/census-results.
Gaither TW, Awad MA, Fang R, et al. The Near-future Impact of Retirement on the Urologic Workforce: Results From the American Urological Association Census. Urology. 2016 Aug;94:85-9.

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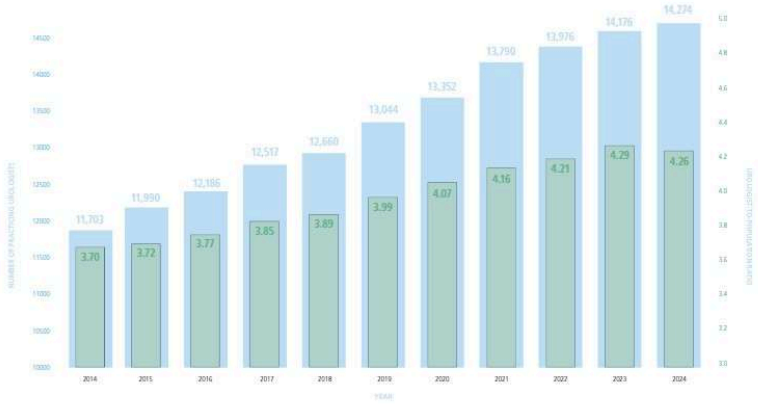
Number of Practicing Urologists and Urologist-to-Population Ratio (per 100,000 Population) From 2014 to 2024



Data sources: National Provider Identifier 09/2024 file, ABU certification records from the ABMS Directory of Board-Certified Medical Specialists and U.S. Census Bureau U.S. population files.
Blue: Number of practicing urologists; Green: Urologist-to-population ratio (per 100,000 population).

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Practicing Urologists Who Work Directly With at Least One APP

Number of APPs	Practicing Urologists Represented		
	Number	Percent	+/- MOE (%)
None	2,215	15.9	1.7
At least one	11,693	84.1	1.7
1-2	3,154	22.7	2.0
3-4	2,467	17.7	1.8
5-9	3,258	23.4	2.0
≥ 10	2,814	20.2	1.8
Total reported	**13,908**	**100.0**	
Not reported	366		
Total	**14,274**		

Data source: Weighted samples from the 2024 AUA Annual Census.
APPs include physician assistants (PAs), nurse practitioners (NPs) and advanced practice nurses (APNs).
Working directly with APPs means working with at least one PA, NP or APN in the urologists' primary practices or medical teams.

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Percentage of Practicing Urologists Who Work Directly With at Least One APP by Practice Setting*

Data source: Weighted samples from the 2024 AUA Annual Census.
*Bold numbers are point estimates. The dashed bars represent upper and lower 90% confidence limits. Working directly with APPs means working with at least one PA, NP or APN in the urologists' primary practices or medical teams.
^Other settings include community health centers, HMOs and managed care organizations.

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Current Urologists in Training

- Urology Residency (2026): 417 matched
  - Over a 5-yr period, ~ 2085 urologists trained

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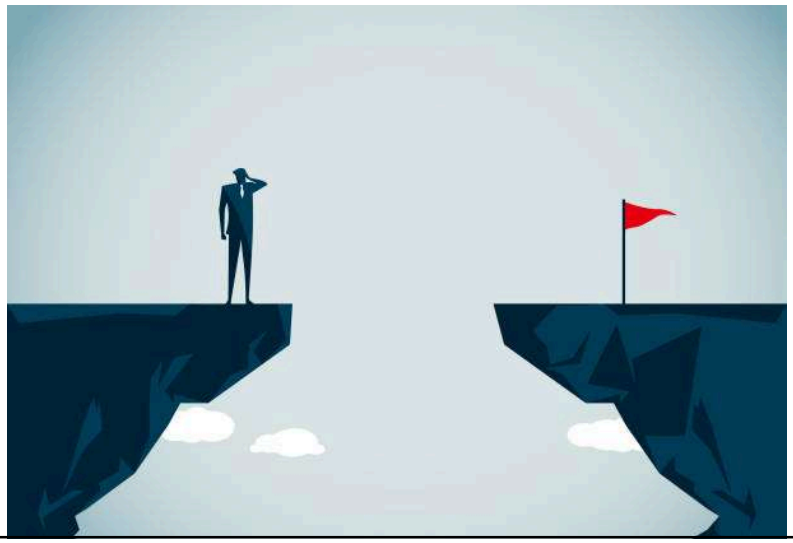
Supply vs. Demand



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Urology APPs

- Physician associates (PA)
  - NCCPA: 2177 (2024)
  - UAPA:
  - AUA:
- Nurse practitioners (NP)
  - AANP: 51 (2024)
  - SUNA: 488 (2024)
  - CUNP: 214 (2024)
  - AUA: 3338 (2014)

Urologist Toolkit

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Urology APP Procedures

- APPs self-reported performing proc: 25 – 81%
  - Intermediate – High complexity proc: 63%
  - Private practice less likely to perform complex procedures independently vs. academic practice.

Table 5.
Percentage of APPs reporting procedures performed independently

	APPs Performing Procedures (%)
Intermediate complexity:	
Percutaneous tibial nerve stimulation	31
Luteinizing hormone-releasing hormone antagonist insertion	28
Priapism injection treatment	21
Cystoscopy for stent removal	18
Implant insertion (eg TESTOPEL®, VANTAS®)	18
Hydrocele aspiration	13
Cystoscopy for difficult catheter placement	12
Penile duplex study	7
Transrectal ultrasound (without biopsy)	6
Scrotal ultrasound	4
Penile Doppler ultrasound	4
High complexity:	
Diagnostic cystoscopy or for Ca surveillance	8
Transrectal ultrasound guided biopsy	6
XIAFLEX® injections	5
Circumcision	2
Cystoscopy with bladder/prostate Botox® injection	2
Cystoscopy with bladder biopsy	2
Vasectomy	1

Langston JP, Orcutt VL, Smith AB, et al. Advanced practice providers in U.S. Urology: A National Survey of Demographics and Clinical Roles. Urology Practice. 2017 Sept;4:418-424.

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Urology APP Procedures

- APP Procedures submitted to Medicare
  - 2010 – 2020
  - 149,727 total procedures (↑ 424%)

Hyman MJ, Modi PK. The Growth of Advanced Practice Providers in Urology Procedural Care: Evidence from Public and Private Health Insurers. Urology. 2022 Oct;168:110-115.

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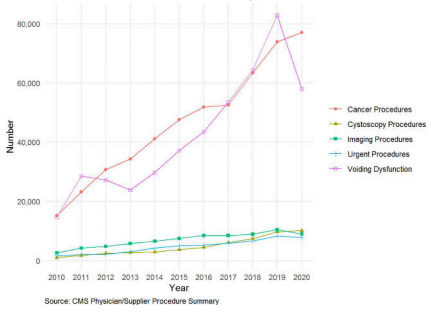
APP Procedures: Medicare

- Number of urologic procedure claims submitted by APPs
  - Cancer
    - 77,000 proc.
    - ↑ 385%
  - Cystoscopy
    - 10,100 proc.
    - ↑ 810%
  - Imaging
    - 9000 proc.
    - ↑ 297%
  - Urgent
    - 7900 proc.
    - ↑ 387%
  - Voiding dysfxn
    - 57,000 proc.
    - ↑ 462%



Hyman MJ, Modi PK. The Growth of Advanced Practice Providers in Urology Procedural Care: Evidence from Public and Private Health Insurers. Urology. 2022 Oct;168:110-115.

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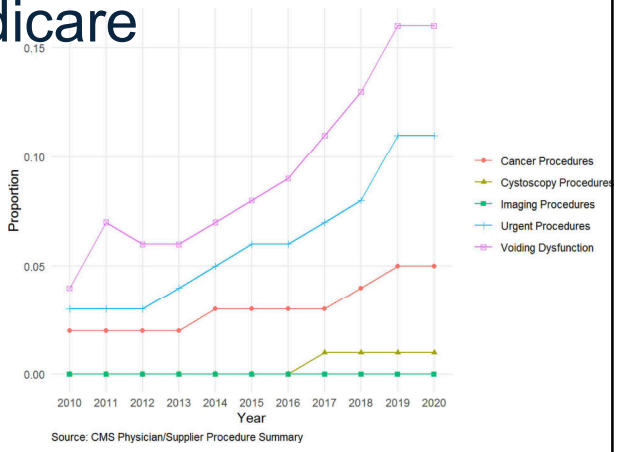
APP Procedures: Medicare

- Proportion of urologic procedure claims submitted by APPs
  - Voiding dysfxn: 16% (↑ 300%)
  - Urgent: 11% (↑ 267%)
  - Cancer: 5% (↑ 150%)
  - Cysto: 1%
  - Imaging: 0%



Source: CMS Physician/Supplier Procedure Summary

Hyman MJ, Modi PK. The Growth of Advanced Practice Providers in Urology Procedural Care: Evidence from Public and Private Health Insurers. Urology. 2022 Oct;168:110-115.

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Procedure Group	HCPCS/CPT® Codes	Common Urologic Procedure
Cancer Procedures	55700	Transrectal prostate biopsy
	55876	Transrectal ultrasound for fiducial seed placement
	51720	Bladder instillations
	96401, 96402	Injection and intravenous infusion of chemotherapy
Cystoscopy Procedures	52000	Cystoscopy, diagnostic
	52001	Cystoscopy, clot evacuation
	52204	Cystoscopy, bladder biopsy
	52287	Cystoscopy, injection for chemodenervation of the bladder
	52310	Cystoscopy, stent removal
Imaging Procedures	76870	Ultrasound, scrotal
	76770, 76775	Ultrasound, renal
	93980, 93981	Ultrasound, penile doppler
	76872	Ultrasound, transrectal
Urgent Procedures	55100, 54700, 56405	Abscess drainage
	51703	Complicated Foley catheter placement
	54220	Priapism injection/irrigation treatment
	54235	Intracavernosal injections for erectile dysfunction
Voiding Dysfunction	51725-51729	Cystometrogram
	64566	Percutaneous tibial nerve stimulation
	95971, 95972	Electronic analysis of implanted neurostimulator pulse generator system
	90901, 90911	Pelvic biofeedback

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APP Hematuria evaluation

- Retrospective claims data review (2014 – 2020)
- Hematuria dx urology evaluations: 8601
  - Physician 1st eval: 6914 (97.2%)
  - APP 1st eval: 1687 (2.8%)
    - NP: 1015 (60.1%)
    - PA: 672 (39.8%)

Hyman MJ, Skolarus TA, Litwack K, et al. Outcomes of Hematuria Evaluation by Advanced Practice Providers and Urologists. Urology. 2023 Aug;178:67-75.

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APP Hematuria evaluation

- Unadjusted data outcomes
  - APPs: ~ 2 wk longer time to cysto compared to physicians
    - Does not account for APP cystos vs referral to physician cystos
  - Time to bladder bx: No difference
  - Time to bladder cancer dx: No difference

Hyman MJ, Skolarus TA, Litwack K, et al. Outcomes of Hematuria Evaluation by Advanced Practice Providers and Urologists. Urology. 2023 Aug;178:67-75.

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APP Cystoscopy Utilization

- Retrospective claims data review (2015 – 2020)
- Microscopic hematuria: 34,470
  - Physician 1st eval: 97.2%
  - APP 1st eval: 2.8%
    - NP: 65.1%
    - PA: 34.9%
- Gross hematuria: 17,328
  - Physician 1st eval: 97.5%
  - APP 1st eval: 2.5%
    - NP: 52.0%
    - PA: 48.0%

Hyman MJ, Skolarus TA, Cabral J, et al. Utilization and Timing of Cystoscopy for Hematuria Evaluation by Advanced Practice Providers and Urologists. Urology. 2024 Jun;188:80-86.

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APP Cystoscopy Utilization

- Microscopic hematuria cysto w/in 6-mo
  - Physician: 38.8%
  - APP: 27%
- Days to cysto (mean days; range)
  - Physician: 21 d; 11 – 36 d
  - APP: 23 d; 13 – 42 d

Hyman MJ, Skolarus TA, Cabral J, et al. Utilization and Timing of Cystoscopy for Hematuria Evaluation by Advanced Practice Providers and Urologists. Urology. 2024 Jun;188:80-86.

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APP Cystoscopy Utilization

- Gross hematuria cysto w/in 6-mo
  - Physician: 55.3%
  - APP: 49%
- Days to cysto (mean days; range)
  - Physician: 16 d; 7 – 29 d
  - APP: 25 d; 14 – 45 d

Hyman MJ, Skolarus TA, Cabral J, et al. Utilization and Timing of Cystoscopy for Hematuria Evaluation by Advanced Practice Providers and Urologists. Urology. 2024 Jun;188:80-86.

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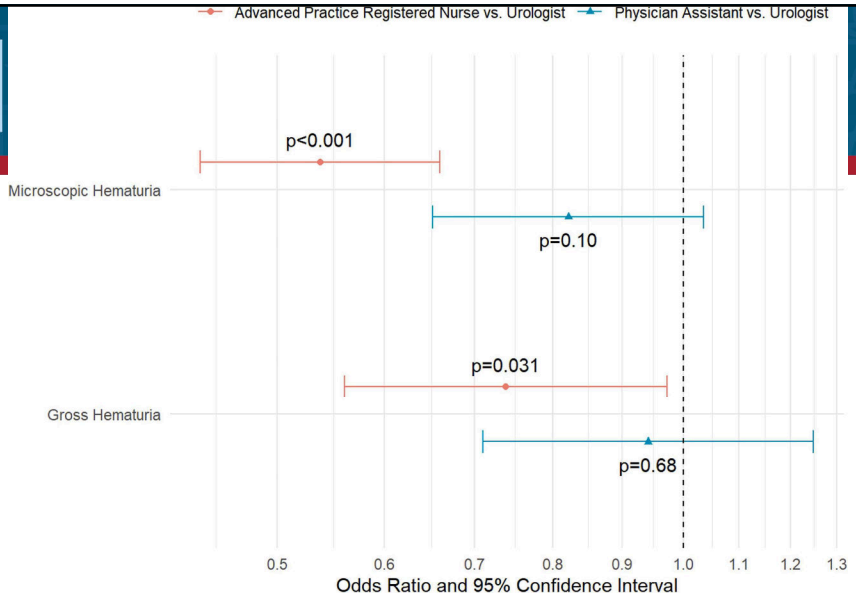

Figure 1. Multivariable logistic regression model estimates of whether a patient initially evaluated for hematuria by a urology advanced practice provider rather than a urologist receives a cystoscopy.

Hyman MJ, Skolarus TA, Cabral J, et al. Utilization and Timing of Cystoscopy for Hematuria Evaluation by Advanced Practice Providers and Urologists. Urology. 2024 Jun;188:80-86.

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APP Cystoscopy Utilization

- APP microscopic hematuria evaluation (*N* = 960)
  - Physician cysto: 83.4%
  - APP cysto: 6.2%
  - Other: 10.4%

Hyman MJ, Skolarus TA, Cabral J, et al. Utilization and Timing of Cystoscopy for Hematuria Evaluation by Advanced Practice Providers and Urologists. Urology. 2024 Jun;188:80-86.

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APP Cystoscopy Utilization

- APP gross hematuria evaluation (*N* = 431)
  - Physician cysto: 85.3%
  - APP cysto: 4.7%
  - Other: 10.0%

Hyman MJ, Skolarus TA, Cabral J, et al. Utilization and Timing of Cystoscopy for Hematuria Evaluation by Advanced Practice Providers and Urologists. Urology. 2024 Jun;188:80-86.

APP Prostate Biopsy

- Retrospective review PCa AS (2000 – 2019)
- 2341 pts; 10,350 visits
  - Attending urologist: 8537 visits
  - APP: 1813 visits
  - Institution AS protocol

Clements MB, Lin X, Gmelich C, et al. Assessing Quality and Safety of an Advanced Practice Provider-led Active Surveillance Clinic for Men with Prostate Cancer. Urol Pract. 2021 Sep;8(5):535-540.

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APP Prostate Biopsy

- Rates of complications, by provider type

	APP	Urologist
Biopsy cases	153	1425
Infection (%)	1 (0.7)	22 (1.5)
Urinary retention (%)	0 (0)	3 (0.2)
Bleeding (%)	0 (0)	3 (0.2)

Clements MB, Lin X, Gmelich C, et al. Assessing Quality and Safety of an Advanced Practice Provider-led Active Surveillance Clinic for Men with Prostate Cancer. Urol Pract. 2021 Sep;8(5):535-540.

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Now what?

- Find a niche or need w/in your group's practice
  - Delay to cysto?
  - Delay to prostate bx?
  - Growing bladder cancer and/or prostate cancer surveillance population?
- Resource or space utilization
  - Unused/ under-utilized procedure room (physician OR day(s)/ days off)?
- ROI
  - If I add #____ procedures/ (day/ wk/ mo) x wRVU x $ = ___?

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Now what?

- Discuss w/ supervising/ collaborating physician
- Find an advocate/ champion

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Now what?

- Proposal
  - Procedure: _____
  - Prep/ homework
  - Training timeline
  - Acknowledge risks & downside
  - Upsell benefits
    - Quality metrics, pt satisfaction
    - Revenue

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Urology APP Cysto Training Prep

- Core Curriculum:
  - Bladder - Anatomy & Physiology | Urology Core Curriculum
  - Penis and Female Urethra - Anatomy & Physiology | Urology Core Curriculum
  - Hematuria - Consults & Emergencies | Urology Core Curriculum
  - Bladder Neoplasms: Non-Muscle Invasive Bladder Cancer - Oncology - Adult | Urology Core Curriculum

- Guidelines & Statements:
  - Microhematuria: AUA/SUFU Guideline - American Urological Association
  - Treatment of Non-Metastatic Muscle-Invasive Bladder Cancer: AUA/ASCO/ASTRO/SUO Guideline - American Urological Association
  - Urologic Procedures and Antimicrobial Prophylaxis (2019) - American Urological Association

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Urology APP Cysto Training Prep

- Journal Articles:
  - Quallich S, *et al*. Standardized office cystoscopy training for advanced practice providers in urology. *Urol Pract* 2020; 7: 228.

Supplementary Appendix 4.
Cystoscopy and stent removal skills checklists

Specific Action	No	Yes	N/A
Previously demonstrated ability to perform all steps for basic flexible cystoscopy			
Identifies ureteral orifice(s) with ureteral stent(s)			
Advances flexible forceps/ grasper through tract, secures stent with forceps/ grasper, avoids bladder mucosa			
Withdraws cystoscope, forceps/ grasper, and stent simultaneously			
Discontinues procedure if meets resistance while attempting to remove the stent			
Inspects ureteral stent to ensure it was removed in its entirety			
Prophylactic antibiotic in accordance with AUA guidelines or local policy			
Overall assembly, cystoscopy, & stent removal time	min		
Overall procedure & management	Poor 1 2 3 4 5 Excellent		

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APP Procedure Course Training Options

- AUA2026: Advanced Cystoscopy Training for APPs
- AUA Fund
- UAPA Annual Meeting: Cystoscopy course
- SUNA: Cystoscopy course

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APP Procedure Course Training Options

- AUA Fundamentals in Urology, Hands-on Skills Training
  - Cleveland, OH; Aug. 15 – 16, 2026
    - Priapism
    - Catheters
    - Bladder ultrasound
    - POC Ultrasound
    - Cystoscopy

AUAUniversity

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Cysto Additional Resources

- *Atlas of Bladder Pathology*; R. Bruce Bracken, Bruce MacKay (1991).
- *Diagnostic Cystoscopy: The Cystoscopist Reference*; Bradley C. Tenny, Michael O'Neill (2022).
- * *Atlas of Cystoscopy*; Jan Schonebeck (1984).
- * *Sugarman's Cystoscopy Atlas: Cystoscopy Made Easy*; Sigmund R. Sugarman (2010).

* Out of print

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APP Prostate Biopsy Training Prep

- AUA Core Curriculum:
  - Magnetic Resonance Imaging (MRI) - Interventional Urology | Urology Core Curriculum
  - Prostate and Seminal Vesicle - Anatomy & Physiology | Urology Core Curriculum
  - Prostate Cancer Screening, Diagnosis and Risk Stratification - Oncology - Adult | Urology Core Curriculum
  - Ultrasound - Interventional Urology | Urology Core Curriculum

- Guidelines & Statements:
  - Early Detection of Prostate Cancer: AUA/SUO Guideline (2026) - American Urological Association
  - Urologic Procedures and Antimicrobial Prophylaxis (2019) - American Urological Association

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APP Prostate Biopsy Training Prep

- AUA University:
  - Advancing Diagnostic Excellence and Health Equity: The Role of PSA Screening in Early Detection of Prostate Cancer (2026)
  - Advanced Practice Provider Core Curriculum: Smarter Screening for Prostate Cancer (2024)
  - Prostate Cancer Diagnosis: AUA Guidelines on use of PSA Biomarkers, MRI and Biopsy Techniques Webcast (2024) | AUA University
  - Infectious Complications Following Prostate Biopsy: Strategies for Reducing Infections and Reducing Health Care Costs Podcast (2023) | AUA University
  - Update Series (2016) Lesson 13: The Emerging Role of Image Targeting in Contemporary Prostate Biopsy | AUA University

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Future directions

- Outcome data
  - Quantity
  - Quality

- Cysto
  - Hematuria w/u
  - Bladder cancer surveillance
  - Bladder chemodenervation
- Prostate bx/ MRI fusion bx
  - Elevated PSA w/u
  - Active surveillance

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Future directions

- Update APP primary and/or secondary NPI taxonomy codes
  - Specialty & sub-specialty practice

Medicare

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Thank you

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- Hyman MJ, Modi PK. The Growth of Advanced Practice Providers in Urology Procedural Care: Evidence from Public and Private Health Insurers. *Urology*. 2022 Oct;168:110-115.
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- Hyman MJ, Skolarus TA, Litwack K, *et al*. Outcomes of Hematuria Evaluation by Advanced Practice Providers and Urologists. *Urology*. 2023 Aug;178:67-75.
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