

CUA 2023 Annual Meeting Abstracts – Poster Session 8: Training/Education, Technology

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MP 8.1

Development of a synchronous motion-tracking and video capture tool for flexible ureteroscopy

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Introduction: Hand/instrument motion-tracking in surgical simulation provides valuable data to improve psychomotor skills and can serve as a formative evaluation tool. While motion analysis has been well-studied in laparoscopic surgery, it has been poorly studied in endoscopic surgery. Very few studies look at motion-tracking for flexible ureteroscopy (fURS), a common surgical procedure that requires hand dexterity and 3D spatial awareness. To address this gap, we designed a synchronized motion-tracking and video capture system for fURS capable of collecting objective metrics for use in surgical skills training.

Methods: A single-use flexible ureteroscope was used to design and test our system. Motion tracking of the ureteroscope was performed using the Polhemus Patriot platform, inertial measurement units (IMUs), and an optical sensor. Specifically, the position (x, y, z) and orientation (roll, pitch, yaw) of the ureteroscope handle, deflection of the ureteroscope lever, and translation of the scope insertion point were collected. Video capture of the operator's hands was collected with a Raspberry Pi camera, and the recording of the endoscopic view was collected from the video tower. All peripherals were controlled by a Raspberry Pi 4 and synchronized to its system clock.

Results: Our system demonstrated good accuracy in detecting translation of the ureteroscope in the x- and y-axes, and yaw, pitch, and roll of the ureteroscope at discrete orientations of 0, ± 30 , ± 60 , and ± 90 degrees. Unique to fURS, the deflection of the lever was captured by the difference in IMU static accelerations with good accuracy. The optical sensor detected the translation of the ureteroscope at the insertion point with an average error of 5.51% when traversing distances of 25, 50, and 100 mm a total of 10 times each.

Conclusions: We successfully developed a system capable of collecting motion-analysis parameters and capturing videos unique to fURS. Future studies will focus on establishing the construct validity of this tool.

Acknowledgements: The authors would like to thank Unity Health Toronto for funding the study through the Keenan Research Summer Student (KRSS) Program.

MP 8.2

POCUS: Usage and accuracy within the division of urology

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Introduction: The aim of this study was to evaluate the usage and precision of point-of-care ultrasonography (POCUS) within the division of urology. POCUS has been acknowledged as a valuable tool for improving diagnostic accuracy and patient outcomes in urology.^{1,2} A recent study by Uy et al confirmed its feasibility and value for urology residents in clinical practice. This study assesses the use and precision of POCUS in the division of urology, with a specific focus on its urological applications and its ability to enhance diagnostic precision. Through data analysis, this study provides valuable insights for urologists on the practical utility of POCUS in clinical practice and contributes to the growing body of literature on POCUS in urology.

Methods: A prospective study was conducted to evaluate the usage and accuracy of POCUS in the division of urology. Data was collected from POCUS users between April 4, 2022, and January 1, 2023 (ongoing), including indication for POCUS, POCUS findings, and correlation with the final diagnosis/gold standard. A corollary qualitative survey was conducted among urologists and residents to gather insights on the advantages, disadvantages, and barriers of integrating POCUS into practice.

Results: Thirty-three patients underwent POCUS examination, the majority for suspected hydronephrosis (26%, n=9). Other indications included urinary retention, testicular mass, testicular torsion, cryptorchidism, renal mass, eFAST exams, confirmation of percutaneous nephrostomy tube placement, and scrotal hematomas. POCUS findings were concordant with final diagnosis in 85% of cases, with an average exam time of 1–5 minutes. Potential utility for POCUS in suprapubic tube insertions was noted by users, but no recorded uses were found. Residents (67%, n=22) were the most common users, followed by staff (24%, n=8), and students (9%, n=3); 80% of surveyed urologists and residents felt comfortable using POCUS, but reported barriers such as lack of time, cost, and practicality, particularly for procedures.

Conclusions: Our study demonstrates that POCUS is an accurate and useful tool for evaluating patients in the division of urology, particularly for suspected hydronephrosis. The majority of POCUS findings were concordant with the gold standard and the average exam time was 1–5 minutes. Barriers to uptake identified in the study include lack of time and cost. Further research is needed to evaluate the cost-effectiveness and impact on patient outcomes of incorporating POCUS into routine urological practice.

Acknowledgements: The authors would like to thank Alberta Health Services Surgery Strategic Network - Facilitation Funding.

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MP 8.3

Assessment of the economic relevance of single-use digital flexible ureteroscopes: A systematic review

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Introduction: This systematic review assesses the economic relevance of single-use flexible digital ureteroscopes (SUDFU). To reduce breakage related to flexible digital reusable ureteroscopes (fURS), we aimed to determine if this could represent a cost-effective device to implement in our high-volume tertiary center, Centre hospitalier universitaire de Québec (CHU de Québec).

Methods: Two independent evaluators conducted a literature review on MEDLINE and EMBASE until September 19, 2018. We searched for practical clinical guides, systematic reviews, randomized clinical trials, and observational studies regarding the cost of single-use in comparison with the reusables flexible digital or optical ureteroscopes. Conference summaries, advertisements, and editorial documents

were excluded. Systematic reviews and guidelines were assessed for methodological quality by using standardized grids (R-AMSTAR and AGREE-II). Original studies were analyzed according to local customized grids. A governmental tool called CAPS (Critical Appraisal Skills Program) enabled the assessment of the economic aspects in the literature. Data regarding number of ureteroscopies performed, number of flURS available, and number and clinical context of breakages were collected between May 28, 2017, and May 27, 2018. Then, we conducted a local economic evaluation by cost minimization to determine the direct costs related to SUDFU and flURS in our center. By generating different flURS breakage reduction scenarios, we aimed to demonstrate the budgetary impact that SUDFU introduction would have in our center.

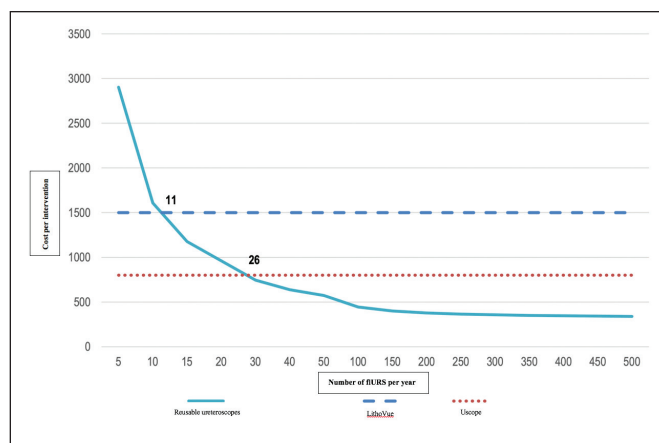
Results: A total of 357 economic studies on SUDFU were analyzed for eligibility. After revision, five documents were included.¹⁻⁵ Data on flURS showed a breakage rate from 6.4–13.2% and a mean number of completed cases before breakage from 7.5–14.4. Globally, the five economic analyses suggest that the cost per intervention is higher with SUDFU than flURS (Figure 1, Table 1). Our local data demonstrated a similar breakage rate and mean number of interventions before breakage (6.4% and 11.8, respectively). According to our local number of interventions and total costs per year, we estimated the annual number of ureteroscopies for which SUDFU would become cost-effective was 11 with a LithoVue™ device and 26 with a Uscope device (Tables 2, 3). Furthermore, we managed to illustrate, in different scenarios, how selective use of SUDFU can reduce annual costs by avoiding breakages.

Conclusions: Our economic analysis indicates that the mean cost per intervention with a SUDFU is generally higher than with a flURS in high-volume centers; however, we believe selective use of SUDFU for targeted high-risk interventions could reduce flURS breakage rates and annual repair costs.

Acknowledgements: This study was financed by the operating budget of the UETMIS (Unité d'évaluation des technologies et des modes d'intervention en santé). This study was accepted for presentation at CUA 2020 Annual Meeting. Unfortunately, the event was cancelled due to the COVID-19 pandemic.

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MP 8.3. Figure 1. Estimation of the mean cost per intervention according to the number of ureteroscopies realized per year comparing five flURS in CHU de Québec to a SUDFU (LithoVue™ or Uscope).

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5. Ozimek T, Schneider MH, Hupe MC, et al. Retrospective cost analysis of a single-center reusable flexible ureterorenoscopy program: A comparative cost simulation of disposable flURS as an alternative. *J Endourol* 2017;31:1226-30. <https://doi.org/10.1089/end.2017.0427>

MP 8.3. Table 1. Estimations of mean costs per intervention with the use of a flURS according to study results

Authors (year)	flURS							Total mean cost per intervention (SCAD) ¹	
	Total purchase costs (\$ CA) ¹	Number of ureteroscopes	Number of cases	Mean cost per intervention (SCA) ¹				flURS	LithoVue™
				Purchase	Repair	Reprocessing-sterilization	Others		
Martin et al (2017)	84 716	4	160	530	1 059	64	N/A	1 652	1 986
Taguchi et al (2018)	NR	12	~1 000 ⁵	154	1 268	142	2 144 (operating room)	3 707	3 777 ⁶
Ozimek et al (2017)	77 717	10	423	183	373	221	N/A	779	1 548 ²
Mager et al (2018)	69 9032 93 2033	6	68	1 021 ² 1 370 ³	434 ² 794 ³	143	N/A	1 604 ² 2 308 ³	1 721 ² 4 211 ³
Hennessey et al (2018)	24 792	1	28	886 ⁴	653	25	N/A	1 154 ⁴	1 128 ² 1 156 ³

¹Conversion into Canadian dollar (\$ CAD) according to the conversion rate of Bank of Canada into force in November 13, 2018 (\$1 USD = \$1.3241 CAD). Costs are rounded to the nearest dollar. ²Costs of a ureteroscope according to the negotiated price. ³Costs of a ureteroscope according to the manufacturer's suggested price. ⁴Estimation realized according to available data in the study. ⁵Non-reported activity data on a 3-year period (n=331 during the last year). ⁶Purchase: \$1986 CAD, operating room: \$1786 CAD, recycling: \$5 CAD.

MP 8.3. Table 2. Scenarios comparing annual costs according to the usage proportion of a LithoVue™ model (SUFDU) and the rate of avoided breakages

LithoVue™	Number of flexible digital ureteroscopies		Total annual costs according to the level of breakage reduction				
	Reusable (fURS)	Single-use (SUFDU)	0%	25%	50%	75%	100%
0%	328	0	115 799	115 799	115 799	115 799	115 799
5%	312	16	135 256	112 543	101 063	67 117	53 511
10%	295	33	154 714	133 196	110 236	90 160	68 642
15%	279	49	174 171	153 849	119 409	113 204	92 882
20%	262	66	193 629	174 502	128 582	136 248	117 121
30%	230	98	213 086	215 808	199 071	182 335	165 599
40%	197	131	271 459	257 113	242 768	228 432	214 078
50%	164	164	310 373	298 419	286 465	274 510	262 556

MP 8.3. Table 3. Scenarios comparing annual costs according to the usage proportion of a Uscope model (SUFDU) and the rate of avoided breakages

Uscope	Number of flexible digital ureteroscopies		Total annual costs according to the level of breakage reduction				
	Reusable (fURS)	Single-use (SUFDU)	0%	25%	50%	75%	100%
0%	328	0	115 799	115 799	115 799	115 799	115 799
5%	312	16	123 776	101 063	78 350	55 637	42 031
10%	295	33	131 754	110 236	88 718	67 200	45 682
15%	279	49	139 731	119 409	99 086	78 764	58 442
20%	262	66	147 709	128 582	109 455	90 328	71 201
30%	230	98	155 686	146 928	130 191	113 455	96 719
40%	197	131	163 664	165 273	150 928	136 583	122 238
50%	164	164	171 641	183 619	171 665	159 710	147 756

MP 8.4

Assessing DiallySnake efficacy: A novel minimally invasive tool to restore peritoneal dialysis catheter patency

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Introduction: Peritoneal dialysis (PD) catheter obstructions from intraluminal fibrin plugs (IFPs) are common and potentially life-threatening emergencies. Current bedside techniques for unobstructing catheters are generally unsuccessful. A large majority of these patients require admission, general anesthetic, and surgical laparoscopic catheter manipulation. In this study, we aimed to create a safe and effective tool to remove IFPs in PD catheters at the bedside.

Methods: In consultation with surgeons, nephrologists, and engineering consultants, we created the DiallySnake, a novel tool that can navigate the lumen of obstructed PD catheters to remove IFPs at the bedside. The tool was tested ex-vivo on IFP model materials and ex-vivo on obstructed, surgically extracted PD catheters. Testing was performed by expert surgeons on a rig that mimicked natural lie of the catheter in-vivo. Demographic characteristics, IFP length and qualitative assessment, number of attempts required to achieve patency, ease

of manipulation of the tool, and damage to the PD catheter and DiallySnake tool were recorded.

Results: Properties analysis determined the DiallySnake prototype can withstand upwards of 30 N of force. In 50 model IFPs, the DiallySnake showed a success rate of 92% (n=46) for complete patency within five attempts. In eight extracted PD catheters, the DiallySnake showed a success rate of 87.5% (n=7) for complete patency within five attempts. Average length of IFP was 8.3 cm with a range from 4.3–11.4 cm. Surgically extracted IFPs were qualitatively assessed by an endourologist as soft (n=4), moderate (n=3), and hard (n=1). No evidence of damage to DiallySnake or PD catheter was observed.

Conclusions: On preliminary ex-vivo testing, the DiallySnake appears to be a useful tool for removing IFPs in obstructing PD catheters, with the benefit of avoiding a general anesthetic in this comorbid patient population.

Acknowledgements: This project was funded by the St. Michael's Hospital Surgical Grant from the Department of Surgery.

MP 8.5

Is continuous bladder irrigation as accurate and adjustable as you think? A comparative analysis of flow rate through Y-type tubing

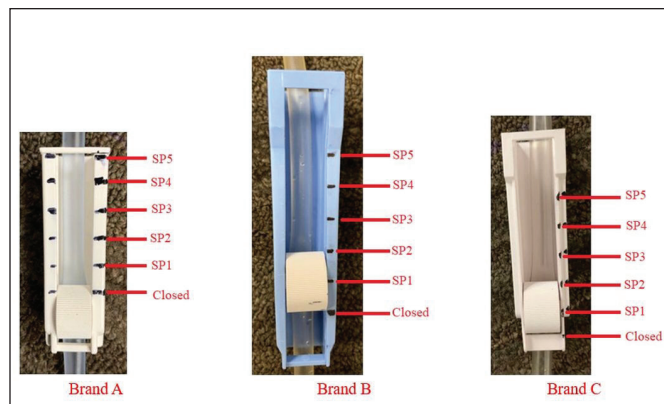
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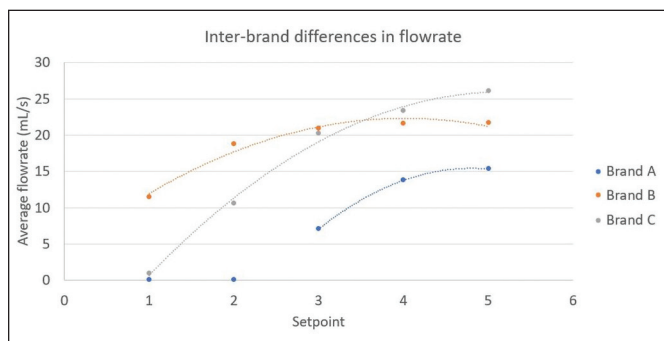
Introduction: Maintaining an appropriate flow rate (FR) during continuous bladder irrigation (CBI) is important in avoiding adverse events and promoting healing; however, controlling FR is not standardized, and consensus among healthcare providers is lacking. Furthermore, inter-brand design differences complicate the development of standardized methods. We investigated the differences in FR between three commonly used brands of Y-type tubing and discuss their implications.

Methods: A 3 L saline bag was hung on an IV pole retrofitted with weight sensors to determine fluid FR. The range of the affixed roller clamp was measured and divided into five equal setpoints (SP) (Figure 1). The roller wheel (RW) was cycled between SPs and the closed position in 10-second intervals until all were tested. We conducted three trials for each brand and averaged them to determine FR at each SP.

Results: Figure 2 shows significant inter-brand differences. Brand A had no flow until SP3, whereas brand B reaches 50% of max FR at SP1. Maximum FRs ranged from 15–26 mL/s. At lower SPs, inter-brand FR variance was greater compared to higher SPs in brands B and C. Inter-brand range was significantly different too, as brand C has five discernible FRs but brand B plateaus around



MP 8.5. Figure 1. Image of the affixed roller clamps of each brand tested. The length of available adjustment from the closed position was measured and divided into 5 equal sections.



MP 8.5. Figure 2. A scatterplot showing average flowrates from 3 trials at each setpoint for 3 commonly used brands of Y-type tubing. A non-linear relationship is evident for all 3 brands. Note: The flowrate at the first 2 setpoints from brand A was at or near 0 each time and have thus been excluded from the line of best fit.

21 mL/s at SP3 and has only three adjustments. In all three brands, a non-linear relationship exists for FR. Intra-brand FR variance was minimal (not shown).

Conclusions: Our data show a high level of inconsistency in FR between brands of Y-type tubing. The relative position of the RW is an unreliable predictor of FR, as it does not scale linearly and can be problematic, as it may not have the intended changes. Furthermore, adjustability of FR between brands varies greatly. These suggest that standardized guidelines cannot be generalized for different brands if relying on the RW for control. This may be concerning, as the RW is the sole control point to regulate CBI. Adjusting based on the drip chamber may be more accurate but this is yet to be tested.

MP 8.6

UroBOT: A national survey of Canadian urology residents on robot-assisted surgery

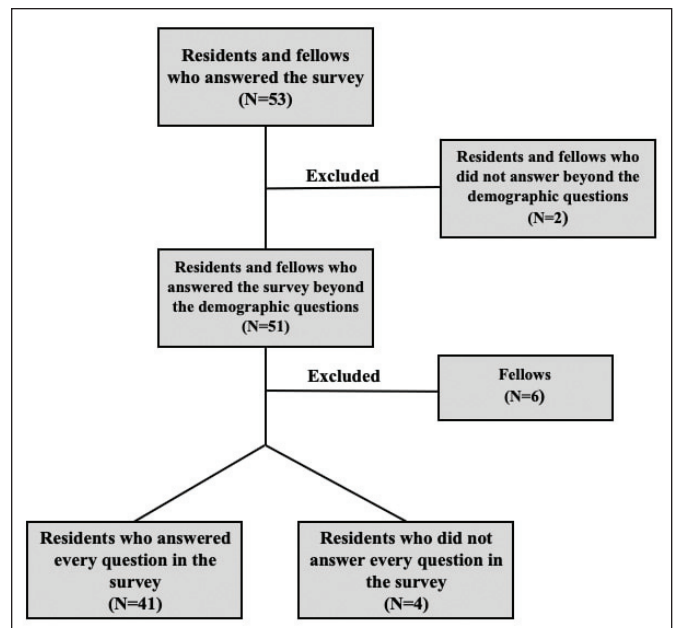
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Introduction: Robot-assisted surgery (RAS) has a positive impact on the quality of care given to patients. Its increasing adoption in Canadian urology practice also influences the surgical training of residents and fellows. Currently, the lack of clear objectives makes RAS education challenging. The main objective of our study was to highlight how urology trainees perceive the importance of RAS and the standardization of its training.

Methods: In 2021, we conducted a survey of all the residents and fellows enrolled in a Canadian urology program. The questions assessed their opinion on the importance of RAS and on their robotic surgery training.

Results: The response rate was 29% (Figure 1). The majority of participants (67%) wished they would have better exposure to RAS during their surgical training. Only 7% of respondents reported that their program had clear criteria



MP 8.6. Figure 1. Study flowchart.

to help them progress through the steps of RAS, and most trainees (81%) felt that their residency program should provide them with a formal RAS training program. Most (89%) of them believed the program should be standardized throughout the Canadian urology programs. According to the participants, RAS training should begin as early as R1–R3 on robot simulators (95%) and during R1–R3 (88%) or R4–R6 (12%) on real patients. Seventy-six percent of respondents believe that RAS will become a core skill required by the Royal College in the future, although 32% fear it will hinder their ability to learn other important techniques, such as open surgery.

Conclusions: Our study revealed that although most respondents are interested in RAS, their training lacks standardization. Moreover, the potential integration of RAS as a core skill of the Royal College faces some important challenges, mostly due to the perceived lack of time to learn a new surgical technique.

MP 8.7

Introducing the Canadian Urology Student Interest Group (CUSIG): Initial experience from a national webinar with recently matched Canadian urology residents for medical students

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Introduction: In 2022, the Canadian Urology Student Interest Group (CUSIG) was created to serve as a national hub for Canadian medical students interested in urology. To launch the CUSIG, a first-of-its-kind, nationwide, virtual, post-match talk with recently matched urology residents was organized for medical students. The goals of this event were to 1) enable medical students to gain insight from matched residents about the unique CaRMS 2022 process and; 2) understand the current student perspective on urology and the matching process. Participants were sent a survey following the event to meet the second goal. We report the survey findings of this first event and introduce the CUSIG.

Methods: This study was granted an exception from ethics approval from the Ethics Office at the University of Saskatchewan. CUSIG hosted a post-CaRMS match event on July 28, 2022 with five incoming residents from the Universities of Toronto, Western, Dalhousie, Sherbrooke, and Montreal to share their perspectives on the CaRMS 2022 process. They also discussed a unique topic specific to their application experience (going unmatched, parallel planning, taking a gap year, applying to French universities, matching without a home program). The event was advertised on social media, through email, and through local urology and surgical interest group representatives from 13 Canadian medical schools. Following the event, students were asked to complete an online survey that consisted of 25 questions with short-answer and five-point Likert scale items.

Results: Fifty-seven people registered for the event, 33 attended, and 16 filled out the questionnaire (response rate of 48%). All attendees were between 20 and 29 years old, and were expecting to graduate between 2022 and 2026. Half (50%) of the attendees were female, and over 50% of the attendees were from schools in Quebec. Although the implications of this study are limited by the small number of respondents, the participants all support the creation of CUSIG and highlighted areas for future initiatives, such as urology mentorship, education, and increasing knowledge on the CaRMS process. It also highlighted that students feel under-supported regarding their urology knowledge and training at the medical-school level, which is something CUSIG can advocate for.

Conclusions: Students who filled out the post-event survey felt that CUSIG was an initiative they supported and there are a number of areas CUSIG hopes to target in the future to aid students in their pursuit of a career in urology.

Acknowledgements: This abstract is based on a paper that was published in the May 2023 issue of CUAJ.

MP 8.8

Biases in residency match interviews: 3-year comparison and how urology stacks up

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Introduction: Despite the development of the National Resident Matching Program code of conduct, "illegal or coercive" interview questions were still being asked of applicants in recent years. This study sought to examine the prevalence of those topics comparatively in the last three interview cycles, particularly given the switch to a virtual platform during COVID-19 social distancing restrictions, and whether this impacted applicants' ranking of that program or how that program would rank them.

Methods: Residency applicants in the U.S. were contacted at the completion of the last three interview seasons (prior to receiving their match results) to complete a survey. Respondents (2019–2020: N=136, n=79 urology; 2020–2021: N=92, n=55 urology; 2021–2022: N=117, n=79 urology) were asked about demographics, applications, and the prevalence of inappropriate topics they either volunteered themselves or were asked by interviewers directly.

Results: Applicants reported that sensitive topics were discussed in their interviews >50% of the time. Although fewer questions were explicitly asked from 2019–2020 (44.4%) to 2020–2021 (38.4%) to 2021–2022 (31.0%), Urology applicants received significantly more 'illegal' questions compared to non-urology applicants across all three cycles (p<0.01) (Figure 1). Even when not asked explicit 'illegal' questions, many applicants volunteered that information themselves, although this remained steady and slightly above 50% across all three cycles. Applicants were typically asked about race/background and marital status/children. This did not impact how applicants rated the program but felt that this would impact how programs ranked them (p=0.002). Illegal questions were overwhelmingly asked by senior faculty (p<0.001).

Conclusions: 'Illegal' and 'coercive' questions were still asked of applicants in the last three interview cycles and these questions impacted how applicants felt the program would rank them. Work is still needed to promote equity and diversity, as well as applicant comfort, during the match process.

MP 8.9

Evaluation of Canadian urology residency and fellowship program websites

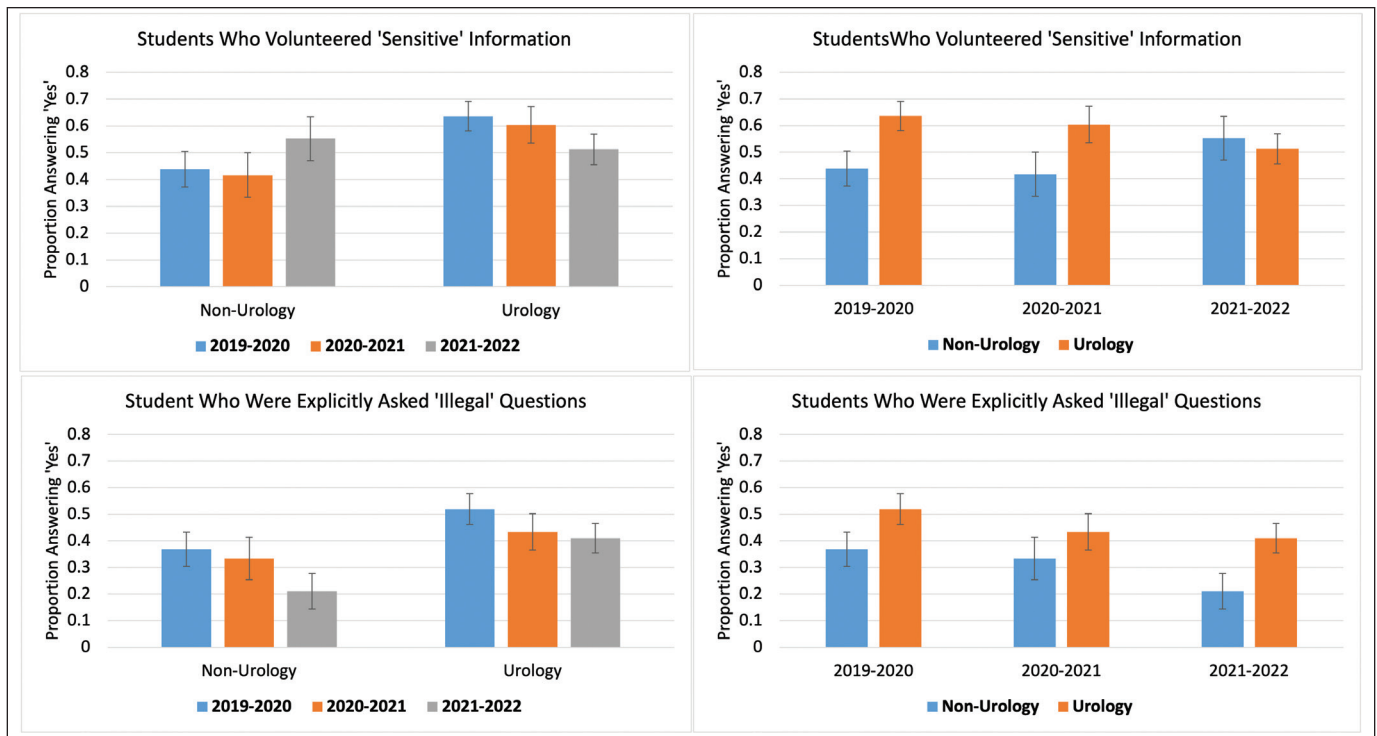
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Introduction: There is growing use of online resources in the postgraduate medical education application process to provide applicants with program-specific details and offerings, thus allowing for informed decision-making. Given the variability and non-standardized electronic training descriptions and objectives, our goal was to assess the availability of program information through program websites for both residency and fellowship urology programs across Canada.

Methods: Using the Canadian Residency Matching Service (CaRMS) and the Canadian Urological Association (CUA) websites, we compiled a list of all Canadian urology residency and fellowship programs. We reviewed all programs' website using a 40-item tool based on seven subcategories, including education, application process, faculty information, trainee/fellow information, research and extracurricular activities, wellness, and both benefits and career planning (Table 1). Each website was reviewed by two trained reviewers. Any inter-reviewer discrepancy was resolved by a third-party reviewer.

Results: Among 13 Canadian urology residency programs, 48% of the criteria evaluated were met. When reviewing specific criteria, none of the residency program websites reported information on work hours, surgical caseload statistics (i.e., number of certain procedures performed), or equity, diversity, and inclu-



MP 8.8. Figure 1. Study results.

sion/community initiatives. Among 23 Canadian urology fellowship programs, six programs did not have websites, and the remaining 17 program websites met 20% of the criteria evaluated. Scores were highest for the application process subcategory, while scores were lowest for the wellness and benefits and career planning subcategories among both residency and fellowship programs.

Conclusions: With growing reliance and dependence on web resources to access residency and fellowship program information, there is a clear need to standardize and improve Canadian training websites for prospective applicants. **Acknowledgements:** The authors thank Drs. Mehr Jain and Faisal Khosa for their guidance in this project.

MP 8.10

The learning styles of graduating Canadian urology residents

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Introduction: The Kolb learning theory emphasizes that differences in the way people learn has to do with the way they perceive and process an experience. This led to the development of a learning style inventory with the latest version in the form of the validated Kolb's Experiential Learning Profile (KELP). Identifying the learning style of urology residents may help in the development of teaching curricula that are best suited to knowledge and skill acquisition. The objective of this study was to characterize the learning styles of graduating Canadian urology residents.

Methods: The Kolb KELP was administered to all graduating Canadian urological residents attending QUEST for the years 2021 (n=35) and 2022 (n=29). Project participation was 100%. All participants received a report at the conclusion of the course. Participants' preferred learning phase (acting, thinking, reflecting, experiencing) and a specific learning style (deciding, analyzing, thinking, acting, initiating, balancing, reflecting, experiencing, imagining) were identified for all residents. Results for 2021 and 2022 cohorts were combined and reported as percentage of residents identified per learning phase and style.

Results: In aggregate, the most common preferred learning phase for graduates were acting and thinking² (24/64 participants, 37.5%, each), followed by reflecting (11/64, 17.2%) and experiencing (5/64, 7.8%). Further, of the nine specific

learning substyles, the most common among graduates included deciding (14/64, 21.9%), analyzing and thinking (10/64, 15.6%, each), acting and initiating (8/64, 12.5%, each), balancing (7/64, 10.9%), reflecting (3/64, 4.7%), and experiencing and imagining (2/64, 3.1%, each).

Conclusions: Graduating Canadian urology residents vary in their preferred learning styles, but the majority seem to learn by acting and thinking. KOLB's model would suggest that urology residents learn by doing some abstract conceptualization followed by active experimentation. This lays the groundwork for future studies correlating learning style to exam performance, and identifying predictors of successful completion of residency.

MP 8.11

Industry payments to American editorial board members of major urology journals: An analysis of the Open Payments database

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Introduction: Industry relationships are common in academic medicine and play an important role in health research; however, they are potential conflicts of interest and could jeopardize the judgements and actions of those involved. The impact of industry payments is arguably more consequential among editorial board (EB) members, given their essential role in determining what research is published; however, no research has been conducted on the financial relationships existing between industry and the members of urological journal EB. As such, we sought to characterize industry payments to EB members of major urological journals.

MP 8.9. Table 1. Urology program scoring criteria

Education program
Program description
Curriculum
Rotation schedule
Call schedule
Work hours
Evaluations
Journal club, grand rounds, simulations
Training site description
Surgical statistics caseload
Simulation programs
Application process
Program director name
Number of fellows accepted
Contact email
Application requirements
Deadline and important dates
Selection criteria
Faculty
Faculty list
Faculty photo
Faculty biography
Faculty publications
Faculty contact
Trainees
List
Photo
Bio med school
Contact
Alumni list
Alumni current positions
Research/extracurricular activities
Research opportunities
List of current research projects
Past research projects
Research support resources available
Equity, diversity, inclusion (EDI)/community initiatives

MP 8.9. Table 1 (cont'd). Urology program scoring criteria

Wellness
Mental health/support resources
Resident wellness days team activities
Event calendar
Benefits and career planning
Salary
Vacation
Maternal leave mentioned
Paternal leave mentioned
Career planning resources

Methods: We identified 2020 American EB members of major urological journals (European Urology, Journal of Urology, European Urology Focus, and BJU International). Demographic information of the EB members was extracted from a web search. We used the Open Payments database to identify industry payments received by EB members between 2015 and 2021. The Open Payments database is an American database and as such only captures payments to American healthcare workers. This timeframe was selected as industry payments have been shown to have long-lasting effects. Extracted payments included research payments, associated research funding, ownership and investment interests, and general payments. Univariable linear regression models were used to determine if gender, academic rank, research productivity, and subspecialty were associated with greater payments.

Results: We included 114 American EB members out of 512 EB members of major urological journals. All EB members included in this analysis were physicians; 102 (90%) were men and 72 (63%) were full professors, with 63 (55%) subspecialized in urologic oncology. The median number of research documents was 248 (IQR 130, 427) and the median h-index was 43.5 (IQR 26, 60). A total of \$53 552 937 in industry payments were paid to the included EB members between 2015 and 2021. General payments, research payments, associated research funding, and ownership and investment interests represent \$9 421 390, \$770 976, \$43 022 911, and \$337 660, respectively. Of all the demographic information collected, subspecialty was the only one found to be associated with industry payments. The highest-paying subspecialties are genitourinary medical oncology (n=3) and radiation oncology (n=4), which have median total payments of \$1 588 966 and \$750 197, respectively.

Conclusions: Conflicts of interest are prevalent among urology EB members. EB members received more industry payments than their non-EB member colleagues. Further research should seek to determine the temporal trends and impacts of these financial ties.

MP 8.12
Assessing “spin” in urology randomized controlled trials with statistically non-significant primary outcomes

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Introduction: “Spin” refers to a form of language manipulation that positively reflects negative findings or downplays potential harms. Spin has been reported in randomized controlled trials of other surgical specialties, which can lead to the recommendation of subpar or ineffective treatments. The goal of this study was

to characterize spin strategies and severity in statistically non-significant urology randomized controlled trials.

Methods: A comprehensive search of MEDLINE and Embase for the top five urology journals, major urology subspecialty journals, and high-impact non-urology journals from 2019–2021 was conducted. Statistically non-significant randomized controlled trials with a defined primary outcome were included. Screening, data extraction, and spin assessment were performed in duplicate by two independent reviewers.

Results: From the database search of 4339 studies, 46 trials were included for analysis. Spin was identified in 35 studies (76%), with the majority of abstracts (n=26, 57%) and main texts (n=35, 76%) containing some level of spin. "Obscuring the statistical non-significance of the primary outcome and focusing on statistically significant secondary results" was the most frequently used strategy in abstracts, while "other" strategies not previously defined were the most commonly used strategies in main texts. Moderate or high spin severity was identified in 21 (46%) abstract and 22 (48%) main text conclusions.

Conclusions: Overall, our results suggest that 76% of statistically non-significant urology randomized controlled trials contained some level of spin. Readers and writers should be aware of common spin strategies when interpreting non-significant results and critically appraise the significance of results when making decisions for clinical practice.

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UP 8.1

Kolb's experiential learning theory for learner module in the management of lower urinary tract symptoms using uroflowmetry

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Introduction: Office-based urology practice forms a significant portion of any urological program. Medical schools' curricula may contain exposure to hospital surgical operating rooms but little of office-based practice procedures. As more procedures become office-based, learners' preparation in techniques and competency is imperative. Between May 25, 2022, and September 30, 2022, a module was developed and implemented for lower urinary tract symptoms (LUTS), uroflowmetry, and ultrasound residual based on Kolb's experiential learning model. As part of an office-based urology curriculum, we asked ourselves whether it is adaptable.

Methods: The module was developed based on a literature review and needs assessment. Volunteer learners were recruited. Consent to participate and confidentiality agreements were obtained. Various conditions of the lower urinary tract were categorized, subjects identified and consented. Participants were scheduled to a learning experience and cycle through multiple times. The cycle of experience was as follows: concrete experience-observation by the learner of direct care by faculty; reflective observation-faculty-facilitated reflection, learning contracts, and feedback; abstract conceptualization (i.e., discuss other diagnoses and management strategies based on experience); and active experimentation-hands-on practice with real patient scenarios. Feedback from volunteer learners and patients was obtained orally and/or online.

Results: There were four volunteer learner participants scheduled in three months. Patient encounter scenarios were BPH, hematuria, incontinence, dysuria, nocturia, and overactive bladder. Learning experience included: performing and interpreting uroflows and ultrasound; digital rectal exams; obtaining consent and informed consent process; and IPSS and urinary diary. Learners were guided to acquire skills useful for their future careers. Faculty-learner relationship was built, as learners made their choices and faculty encouraged them to create, identify resources, and devise strategies to achieve their objectives. Limitations included the fact that this was a pilot study, the small number of participants, the bias of having only one faculty, and limited ultrasound.

Conclusions: Kolb's experiential learning theory, despite limitations, is useful for a learner module in an office-based urology curriculum. It is recommended for trial in well-established and new urology programs.

UP 8.2

Identifying the best catheter and wire combination for complex catheterization in an in vitro model

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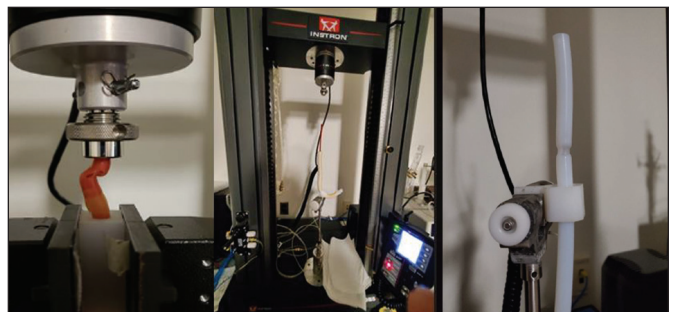
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Introduction: Male urinary catheterization is commonly performed by a wide range of medical professionals. There is an absence of literature on what the best combination of wire and catheter is when complex catheterization is required. The primary aim of this study was to investigate the physical properties of select commercially available catheters and to identify the best catheter and wire combinations for catheterization.

Methods: We studied four commercially available catheters and five guidewires for the purpose of this project. These included Rosch's 100% Silicone straight Tip (CS), Dover's Silicone Coated Latex Straight Tip (YS), Bardex's Council Latex Straight Tip (RS) and Latex Coude Tip (RC), Boston Scientific's Zebra straight, ZIPwire and Amplatz Super stiff, Medtronic's PTFE Straight tip fixed, and Cook Medical's Roadrunner. All catheters were size 20 F and wires were 0.038 for the purpose of this study. A simulated urethra was created using polyvinyl chloride plastic coated with polytetrafluoroethylene. An experimental setup designed in-house was used to study the physical properties of the catheters (Figure 1). Catheters were closely assessed to identify wall thicknesses, outside diameters, and cross-sectional area in the body of the catheter. Buckling, gliding, and crossing properties, as well as torque response of catheters, were identified in several experimental setups. A weighted decision matrix, WDM, was used to identify the best catheters for each of the experiments.

Results: The CS catheter was noted to have a thinner wall than other catheters (16 mm² vs. 22–23 mm²), yielding a larger inner lumen. Aggregating data from all tests in a WDM model (weighted at 35% cross, 30% glide, 17.5% torque, and 17.5% buckling test results) yielded that the YS catheter outperformed other catheters in simple catheterization and over guidewires. When used over a guidewire, the YS with the Boston Scientific's Zebra guidewire yielded the best force characteristics.

Conclusions: A combination of a silicone-coated, straight-tip catheter with a Zebra guidewire seems to have superior mechanical force characteristics in an experimental lower urinary tract catheterization model. Further material and clinical research are needed to validate these findings.



UP 8.2. Figure 1.

UP 8.3

Training for transperineal prostate biopsy using an access device combined with an augmented reality headset

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Introduction: Skills in transperineal prostate biopsy using an access system can be obtained by first practicing on a prostate phantom. These training sessions often take place in large hands-on workshops where individual instruction is limited. We introduce a remote training platform (RTP) using augmented reality (AR), where one-on-one training can be accomplished remotely.

Methods: An AR headset was developed with a line-of-sight webcam that contained the following features: 1) a see-through optic displaying live images projected from the ultrasound unit while the webcam captured the images from the proctor's and student's hands; and 2) a telecommunication platform that allowed the simultaneous transmission of the US image above the clinician's hands. Both trainer and student wore an AR headset. The system allowed both trainer and student to see each other's workflow. The trainer taught from the Perineologic booth, while the student learned at the Viomerse booth during the 2022 AUA annual meeting.

Results: The trainer demonstrated how to set up the prostate biopsy access device at his station while the student observed. The student then performed the setup while the trainer watched and provided additional instructions. Control was returned to the trainer, who demonstrated how prostate imaging using a linear array probe differed from a transrectal end-fire probe. The trainer then showed the student how to move the probe with the access device attached



UP 8.3. Figure 1. The student performs a transperineal access prostate biopsy. The images represent the student's workflow and include the US images. This information was being telecommunicated to the proctor, who provided real-time feedback.

so the biopsy needle would reach all regions of the prostate. After the student practiced this maneuver, control was returned to the trainer, who demonstrated the biopsy procedure. The student then took over while the trainer observed and provided additional comments (Figure 1).

Conclusions: The trainer successfully performed one-on-one remote training in transperineal prostate biopsy using the RTP. The RTP will need to be tested in patients to fully realize the potential of remote training.

UP 8.4

Misinformation in urology: What is the extent?

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Introduction: Misinformation is known as the spread of false information regardless of the intent and disrupts trust between patients, physicians, and healthcare systems. More people are using online resources, which contributes to the spread of misinformation. The objective of this study was to assess where patients gather information prior to their consultation and their perceptions of the reliability of the information.

Methods: Prior to their urological consultation, patients consented and were enrolled to complete a questionnaire regarding search strategies and perceptions of misinformation. Demographic, online search strategies, and misinformation questions were used to evaluate patient perceptions about general misinformation and the reliability of online information. Likert questions were evaluated on their original five-point scale by Chi-squared goodness of fit test using R software (v 4.0.3). P-values <0.05 were considered statistically significant.

Results: To date, we have enrolled 314 patients. Overall, 55.1% of patients indicated they searched up their condition online; however, 39.2% and 27.7% of respondents agreed and strongly agreed, respectively, to misinformation being a big concern when searching for health information (p<0.05). Only 59.9% of patients discussed with friends, and those that did not chose not wanting to (65.1%) as their top choice; however, 27.4% of respondents were embarrassed to do so. A total of 8.9% of patients chose not to discuss with their partner and 56.6% reported they did not want to as one of the reasons. Similarly, 38.9% of respondents were embarrassed to do so. Finally, 38.2% and 12.4% of patients agreed and strongly agreed, respectively, that learning information prior to your doctor's appointment affects their relationship with the physician (p<0.05).

Conclusions: As information continues to grow and become readily accessible, so too will misinformation. Further research is required to assist patients in identifying reliable health information.

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UP 8.5

A quantitative analysis of qualitative research in the urological literature

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Introduction: Qualitative research is infrequently used in the clinical sciences but is an important research methodology to explore patient experiences, healthcare behaviors, and any phenomena that are challenging to characterize numerically.¹ The aim of this study was to evaluate the frequency of qualitative research across urological publications.

Methods: We exported all journal titles in the Journal Citation Reports (JCR) database in the category of Urology & Nephrology of indexed (SCIE) and emerging sources (ESCI) journals. Journals were included if they were primarily related to urology and eliminated if they were nephrology journals or primarily review-focused. We ran a Boolean search in the Medline database for SCIE and Google Scholar for unindexed ESCI journals for each journal with the search string: "Journal Title" AND qualitative research OR interview, excluding commentaries, editorials, and systematic reviews. The total number of articles within each journal, excluding commentaries, editorials, and reviews, was obtained and used as a denominator. Articles were screened for qualitative original research including focus groups, unstructured interviews, and narrative assessment of

participant experiences. Data were analyzed in SPSS 26 using unpaired t-tests and ANOVA and presented as mean (standard deviation).

Results: Forty-one urology journals were identified in the indexed database and 18 urology journals were identified from emerging sources. After database search, 222 qualitative original research papers were identified across all indexed urology sources and 48 across all emerging sources. This represented an average percentage across all original research publications in urology journals of 0.32% (0.72) for indexed sources and 0.62% (1.61) for emerging sources (Table 1). There was no difference across JCR journal impact quartile in percentage of qualitative publications ($F_{3,37}=1.082$, $p=0.37$), and no correlation between journal impact factor and amount of qualitative research ($r=-0.15$, $p=0.35$). The indexed journals with percentage of qualitative publications greater than 1% included Sexual Medicine (3.85%), Bladder Cancer (2.4%), and Aging Male (1.2%).

Conclusions: Qualitative research is underrepresented in urological publications, making up less than 0.5% of all publications in indexed sources. Journals most frequently publishing qualitative research in urology include sexual medicine journals and oncological publications. This study provides important insight into the gaps in the urological literature with respect to qualitative research and suggests that further studies in urology using qualitative methodology are an important opportunity for urological research.

Reference:

1. Shival K, Harker K, Roudsari B, et al. Is qualitative research second class science? A quantitative longitudinal examination of qualitative research in medical journals. *PLoS One* 2011;6:e16937. <https://doi.org/10.1371/journal.pone.0016937>

UP 8. Table 1. Total and percentage of qualitative articles published in urological journals

	Indexed sources	Emerging sources	p
Average number of qualitative articles per journal	5.4	2.7	0.11
Average number of articles per journal (denominator)	3969.2	858.8	0.03
Qualitative articles (%)	0.32	0.62	0.06
Range of qualitative articles (%)	0–3.85	0–6.7	n/a