nova scotia health

DALHOUSIE UNIVERSITY

Department of Urology

RESEARCH DAY

APRIL 7 & 8

2025

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KEYNOTE SPEAKER

Melissa R. Kaufman, MD, PhD, FACS

Dr. Kaufman is a professor, Patricia and Rodes Hart Endowed Chair of Urologic Surgery, and Chief of the Division of Reconstructive Urology and Pelvic Health at Vanderbilt Medical Center. Her practice focuses on female and male voiding dysfunction and incontinence, cancer survivorship, pelvic organ prolapse, neurourology, transitional care for congenital urologic conditions, urologic prosthetics, and transgender surgery, as well as reconstructive surgery for urethral stricture, fistula, and trauma.

She currently serves as the global principal investigator for a pivotal phase 3 clinical trial to pioneer the first application of autologous cell therapy for urologic indications. Additionally, she is the national principal investigator for the Artificial Urinary Sphincter Clinical Outcomes trial. Dr. Kaufman received her BA from Washington University–St. Louis and PhD in microbial genetics at the University of Tennessee. Following postdoctoral research at Stanford and completion of medical school in her home state of Arkansas, she began her urology residency at Vanderbilt in 2002. She completed fellowship training in both male reconstruction and female pelvic medicine and reconstructive surgery in 2009 at Vanderbilt.

Dr. Kaufman serves on the board of the Society of Urologic Prosthetic Surgeons and was a founding member of the Women in Prosthetic Urology. She has dedicated substantial effort on behalf of the AUA membership, with service on the Practice Guidelines Committee, Core Curriculum Committee, and Medical Student Urological Curriculum Committee. She currently serves as the Guideline Panel Chair for Genitourinary Syndrome of Menopause. She was named the 2019 AUA Young Urologist of the Year. She is additionally an Associate Editor for the Journal of Urology and for Neurourology and Urodynamics. She is a past-President of the Society of Women in Urology. Dr. Kaufman was honored as the 2017 recipient of the Zimskind Award from the Society for Urodynamics, Female Pelvic Medicine, and Urogenital Reconstruction for outstanding contributions within 10 years of completion of training.

DAY 1 RESEARCH PROGRAM

April 7, 2025

4:30 PM – 5:30 PM

Keynote Presentation

From slings to stem cells: A story of urinary sphincter regeneration

Dr. Melissa Kaufman

JOIN IN-PERSON

Weather Watch Room
5th Floor, Dickson Building
VG Site

JOIN ONLINE

https://us02web.zoom.us/j/89111268911?pwd=UCdazlc3rvnEZBc2Dw5r0eQP1CbhaW.1

Meeting ID: 891 1126 8911
Passcode: 653290

DAY 2 RESEARCH PRORGAM

April 8, 2025

7:30 AM – 12:30 PM

JOIN IN-PERSON

Weather Watch Room
5th Floor, Dickson Building
VG Site

JOIN ONLINE

https://us02web.zoom.us/j/83879240766?pwd=RpjgfD2Yz2brzMh56oQMvvaqvgoKfB.1

Meeting ID: 838 7924 0766
Passcode: 208363

Time	Presenter	Topic
7:30 – 8:00 AM	Welcome & Breakfast	
8:00 – 9:00 AM	Dr. Melissa Kaufman	**Keynote Presentation** Optimizing current strategies and new innovations in overactive bladder treatment
9:10 – 9:17 AM	Dr. Liam Power	Spermatogenic recovery following bilateral orchidopexy in adults with undescended testicles
9:18 – 9:25 AM	Dr. Rebecca Power	Prognostic significance of tumor weight at time of transurethral resection of bladder tumor for non-muscle invasive bladder cancer
9:26 – 9:33 AM	Sareen Singh	Gender differences in authorship of Canadian Urological Association guidelines
9:34 – 9:41 AM	Dr. Martha Foley	Impact of preoperative magnetic resonance imaging on radical prostatectomy margin status: A retrospective cohort study
9:42 – 9:49 AM	Dr. Wyatt MacNevin	Evaluation of ChatGPT's performance on answering pediatric urology questions based on association guidelines
10:00 – 10:07 AM	Nick Dawe	Twenty-year retrospective analysis of open versus laparoscopic dismembered pyeloplasty and trends in perioperative pain management at a single institution

10:08 – 10:15 AM	Dr. Budoor Salman	Improved self-reported urinary and sexual function do not mediate the relationship between the delivery timing of the Prostate Cancer-Patient Empowerment Program (PC-PEP) and mental health: Secondary RCT analysis
10:16 – 10:23 AM	Dr. Keiran Moore	Urologic conditions and adherence to monitoring in spina bifida patients over 40 years of age
10:24 – 10:31 AM	Andrea Jacob	Adherence to the 2021 Canadian Urological Association androgen deprivation therapy guidelines for bone health management in patients with advanced prostate cancer: a provincial study
10:31 – 10:45 AM	**Break**	
10:46 – 10:53 AM	Mario Jones	Ovarian-type cancer in the male: a case of paratesticular serous papillary carcinoma
10:54 – 11:01 AM	Dr. Rebecca Power	Impact of adherence to physical activity on patient weight while participating in the Prostate Cancer Patient Empowerment Program randomized controlled trial
11:02 – 11:09 AM	Ben Thompson	The yield of magnetic resonance imaging – transrectal ultrasound fusion prostate biopsy in men with suspected prostate cancer
11:10 – 11:17 AM	Dr. Liam Power	Diuresis renography scans in patients with hydroureteronephrosis: does the region of interest impact results?
11:18 – 11:25 AM	Dr. Emily Chedrawe	Mediation analysis of adherence to pelvic floor muscle training and weekly self-monitoring on urinary symptoms in men with localized prostate cancer: A secondary analysis of the prostate cancer-patient empowerment program (PC-PEP) randomized controlled trial
11:26 – 11:33 AM	Mansa Agbaku	Reimagining urology education: revision of the CanUUC curriculum through the lens of EDIA
11:34 – 11:41 AM	Dr. Stacy de Lima	A novel immunohistochemical approach correlates proteinase activated receptor (PAR) 1 cleavage state with increasing grade in urothelial carcinoma
11:42 – 11:49 AM	Dr. Kaveh Masoumi-Ravandi	Impact of warming irrigation fluids on hypothermia during HoLEP surgery: A quality improvement study
11:50 – 11:57 AM	Nick Dawe	Comparative analysis of vascular hitch and dismembered pyeloplasty in children with UPJO associated with crossing vessels
11:58 – 12:05 PM	Dr. Wyatt MacNevin	One size does not fit all: A cross-sectional study addressing practitioner discourse in the role of physiotherapy for women with pelvic floor disorders
12:06 – 12:30 PM	Awards & Closing	

ABTRACTS

Spermatogenic recovery following bilateral orchidopexy in adults with undescended testicles

Liam Power[1], Kiera Liblik[2], Daniel T. Keefe[1, 3], Jesse Ory[1]

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Introduction: Undescended testicles (UDT) can cause male infertility, and up to 89% of adults with untreated bilateral UDT will be diagnosed with non-obstructive azoospermia (NOA).
Options for these males are limited, and the majority of published data involves orchidopexy and delayed microTESE. With longer follow up, we hypothesized that there could be potential spermatogenic recovery in ejaculated specimens. We report the largest series to date of spermatogenic recovery in azoospermic men, and improvement of semen parameters in severely oligospermic men with bilateral UDT.

Methods: This is a case series of four adult males with bilateral UDT and NOA or severe oligozoospermia who underwent bilateral orchidopexy. Testicular ultrasound and semen analyses were done regularly after orchidopexy to monitor for potential improvement. The patients were evaluated and treated collaboratively by a male fertility urologist and a pediatric urologist.

Results: Four males with bilateral UDT were included. All patients had a karyotype of 46 XY, were negative for Y chromosome microdeletion, and had bilateral inguinal testicles. The average age at the time of orchidopexy was 20.3 years (SD=1.0). Postoperative semen analyses (SA) were done at a mean follow up of 14.7 months. One patient improved from azoospermia have improved to cryptozoospermia and another from severe oligozoospermia to oligozoospermia post-operatively. A single patient has had 2 follow-up SA, and went from azoospermia to severe oligozoospermia with 2 motile sperm at initial follow-up, and 200 000/mL on repeat. The 4th patient's SA is pending his first follow-up. FSH decreased postoperatively by an average of 5.1 IU/L (SD=8.51). Post-op testicular volumes increased by an average of 1.11cc (SD=2.19) at an average of 11.3 months follow up.

Conclusions: We report the largest series of spermatogenic recovery after bilateral orchidopexy in adult males with UDT. This provides new options and allows a more broad conversation for men who discover cryptorchidism later in life. With long enough follow up, recovery may mean these men can avoid microTESE and potentially introduce more reproductive options. Further patient accruement, and ongoing follow-up with repeat SA will better elucidate the degree and durability of spermatogenic recovery for these patients.

Prognostic significance of tumor weight at time of transurethral resection of bladder tumor for non-muscle invasive bladder cancer

Rebecca J. Power[1], Andrea Kokorovic[1]

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Introduction: Non-muscle invasive bladder cancer (NMIBC) represents seventy percent of new cases of bladder cancer. Tumor size is a well-known prognosticator for NMIBC, however tumor size is difficult to quantify, and the size measurement is commonly based on visual inspection by the surgeon. A more objective method of estimating tumor size may be a weight measurement. The objective of this study is to determine whether tumor weight at the time of transurethral resection of bladder tumour (TURBT) is a predictor of recurrence and progression for patients with NMIBC.

Methods: This is a retrospective chart review of medical charts held at Nova Scotia Health Authority (NSHA) whom have undergone an initial TURBT and have been diagnosed with Ta or T1 urothelial carcinoma of the bladder between 2010 and 2020. Inclusion criteria required the presence of tumor resection weight documented in the pathology report. Patients were excluded if they had non-urothelial carcinoma, variant histology, pathological stage T2 or higher, evidence of metastasis or tumour weight not provided. Data collected included demographic, tumour characteristics, pathological report details, adjuvant therapies, timing of recurrence and current status of disease information. Statistical analysis was completed using SPSS.

Results: During the collection period, 2740 TURBT were completed, identifying 1606 individual patients. Of these, 261 patients were randomized to be examined further, with 123 diagnosed with NMIBC and 36 meeting full inclusion criteria with complete data available. Among these patients, 29 (80.5%) were male, 15 (41.6%) had T1 pathology, and 21 (58.3%) had Ta pathology. A total of 16 patients (44.4%) received BCG treatment. Disease recurrence occurred in 13 patients, with 8 experiencing an upstage in pathology. The mean tumour weight across all patients was 4.84g ± 8.05. Patients with recurrence had a mean tumour weight of 6.33g ± 10.71, compared to 4.44g ± 7.02 in those without recurrence. This difference was not statistically significant ($p = 0.55$). Patients with upstaged pathology had a higher mean tumour weight of 9.75g ± 12.74 compared to 0.90g ± 0.22 in those without upstaged pathology ($p = 0.09$).

Conclusions: Tumour weight may have some association with disease progression in patients with NMIBC, this study found no significant correlation between tumour weight and recurrence. However, a trend was observed indicating that patients with upstaged pathology may have heavier tumour specimens. Further research with larger sample sizes and more comprehensive data is recommended to determine whether tumour weight can serve as a reliable prognostic marker for NMIBC recurrence and progression.

Gender differences in authorship of Canadian Urological Association guidelines

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Introduction: Women are underrepresented in urology compared to other medical specialties in Canada, particularly within academic leadership. Whether this disparity extends to authorship of Canadian Urological Association (CUA) guidelines is unknown. This study aimed to analyze gender differences and trends in CUA guideline authorship.

Methods: We searched the Canadian Urological Association Journal from March 2007 to August 2024 for all versions of eligible guidelines, best practice reports, and consensus statements. Two independent reviewers extracted data in duplicate. Authors appearing in multiple guidelines were counted more than once. We analyzed author characteristics by gender using the Chi-square test and assessed authorship over time using the Cochran-Armitage test for trend.

Results: There were 1172 non-unique authors across 112 guidelines, of whom 750 (64%) were urologists. Women represented 15.5% of all authors and 7.5% of urologist authors. Focusing only on urologists, women were more likely to be first authors and to be included on functional, pediatric, and endourology guidelines than men. Within Canada, Quebec had the highest percentage of women urologist authors at 11.4%. The proportion of women authors, first authors, and last authors among urologists did not change significantly over time. Men and women urologists had similar rates of repeated authorship (56.7% vs. 51.7%, p=0.61), though men were more likely to appear on ≥5 guideline panels (23.6% vs. 6.9%, p=0.04).

Conclusions: CUA guideline authorship is dominated by men, with limited progress in the participation of women over the past 18 years. CUA guideline panels play a pivotal role in shaping the standard of urological care. In addition, guideline authorship represents a significant academic opportunity. Further work to minimize this gender disparity is needed to ensure our guidelines better reflect the diversity of Canadian urologists, urology trainees, and patients.

Impact of preoperative magnetic resonance imaging on radical prostatectomy margin status: A retrospective cohort study

Martha Foley[1], Ricardo Rendon[1], Rodney Breau[2], Jonathan Izawa[3], Fred Saad[4], Alan So[5], Bobby Shayegan[6], Ross Mason[1]

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Introduction: Positive surgical margins (PSMs) after radical prostatectomy are associated with inferior oncologic outcomes. Although preoperative prostate magnetic resonance imaging (MRI) is increasingly used in the management of prostate cancer to guide diagnosis and treatment decisions, the role of MRI on influencing PSM rates remains unclear. This study examined the impact of preoperative MRI on PSM in men with high-risk prostate cancer.

Methods: This retrospective, multicenter cohort study used a National Canadian Prostate Cancer database of patients who underwent radical prostatectomies from January 2005 to December 2016. Patients with high-risk disease were identified. Descriptive statistics and logistic regression analyses were conducted to assess the association between preoperative MRI use and PSM.

Results: A total cohort of 636 patients were identified with complete data, 34% (n=214) of whom had a preoperative MRI. PSM was present in 30% (n=76) among those with a preoperative MRI and 70% (n=175) in the non-MRI group (p = 0.08). Logistic regression analysis showed no significant association between preoperative MRI and presence of PSM (Odds ratio: 0.77, 95% CI: 0.55-1.09, p = 0.14).

Conclusions: Our work demonstrated that use of preoperative MRI in high-risk prostate cancer patients did not impact PSM rates. Though no significant difference was observed, we posit that this may be explained by preoperative MRI improving patient selection thereby potentially avoiding cases where PSM may be more likely. As access to MRI technology continues to improve, further work is needed to delineate how use of MRI technology aids in the management of prostate cancer.

Evaluation of ChatGPT's performance on answering pediatric urology questions based on association guidelines

Wyatt MacNevin[1], Nicholas Dawe[2], Laura Harkness[2], Budoor Salman[1], Daniel T. Keefe[1, 3]

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Introduction: With the advent of natural language processing models, like ChatGPT, patients now have access to an artificial intelligence (AI) supported means for specific and comprehensive medical-based information. Studies have examined the ability of ChatGPT to provide accurate and complete responses to clinically-focused questions, although ChatGPT's ability to successfully answer common pediatric urology-based questions remains unexplored. Furthermore, the concordance of ChatGPT's answers with various association guidelines has yet to be analyzed.

Methods: A list of common pediatric urology questions was developed in association with publicly-available guidelines and resources based on materials from the Canadian Urological Association (CUA), American Urological Association (AUA), and the European Association of Urology (EAU). Question topics included: phimosis, cryptorchidism, acute scrotum, hypospadias, vesicoureteral reflux (VUR), and urolithiasis. Each question was assigned a difficulty of "Easy", "Medium", or "Difficult", and were defined as "Definition-based" or "General Knowledge". Questions were administered individually using 3 separate chat functions and responses were recorded and graded for comprehensiveness and accuracy using a Likert scale. Descriptive statistics and analysis of variance was used for statistical analysis.

Results: ChatGPT performed best in the domain of phimosis (mean ± standard deviation: 2.32/3.00 ± 0.57) and VUR (2.11/3.00 ± 0.63) and worse in the domain of acute scrotal pathology (1.90/3.00 ± 0.58) and cryptorchidism (1.92/3.00 ± 0.56) ($F(17,225) = 1.503$, $p = 0.031$). ChatGPT's appropriateness was 70.4% (n = 19/27), 55.6% (n = 15/27), and 74.1% (n = 20/27) based on CUA, AUA, and EAU references, respectively. ChatGPT performed better when answering "Easy" questions (2.31/3.00 ± 0.09) compared to "Medium" (1.92/3.00 ± 0.07, $p = 0.003$) and "Difficult" questions (1.86/3.00 ± 0.101, $p = 0.003$). Definition-based questions had significantly greater comprehensiveness scores across all guidelines ($F(5,255) = 17.68$, $p = 0.0001$). ChatGPT was more accurate and in concordance with EAU-based information (2.10 ± 0.41) compared to AUA (1.95 ± 0.41) ($F(86,696) = 1.388$, $p = 0.04$) (Figure 1).

Conclusions: ChatGPT was able to answer common pediatric urology questions with high levels of appropriateness and comprehensiveness. ChatGPT performed best in the area of phimosis and VUR but performed worst when answering questions on acute scrotal pathology. While ChatGPT performed well across all question domains, ChatGPT performed best when referenced to EUA-based resources when compared to AUA.

Twenty-year retrospective analysis of open versus laparoscopic dismembered pyeloplasty and trends in perioperative pain management at a single institution

Nick Dawe[1], Liam Power[2], Wyatt MacNevin[2], Mandy Rickard[3], Rodrigo Romao[3], Armando Lorenzo[3], Daniel Keefe[2, 4]

[1]Faculty of Medicine, Dalhousie University, Halifax, Canada; [2]Department of Urology, Dalhousie University, Halifax, Canada; [3]Division of Urology, Hospital for Sick Children, Toronto, Canada; [4]Division of Pediatric Urology, IWK Health Centre, Halifax, Canada

Introduction: Laparoscopic pyeloplasty (LP) is increasingly used as a minimally invasive alternative to open pyeloplasty (OP) for treating ureteropelvic junction obstruction (UPJO). However, it remains controversial which approach is preferred in the pediatric population. This study compares outcomes of OP versus LP over 20 years at a single institution, while also analyzing trends in perioperative pain management during this period.

Methods: All patients aged 0–18 years who underwent dismembered pyeloplasty (DP) from 2003–2023 were included in this study. Baseline data included age, sex, laterality, and surgical approach. Outcomes assessed were perioperative pain management strategies, length of stay, operative time, and change in anteroposterior diameter (APD) of the renal pelvis. Statistical analyses were conducted using SPSS version 29.

Results: A total of 68 procedures were analyzed, with 24 (35%) performed laparoscopically and 44 (65%) openly. Patient demographics are displayed in Table 1. Success and complications rates were similar between LP and OP. Laparoscopic pyeloplasty had significantly longer operative times (245+/-45 vs. 150+/-42 minutes, $p<0.001$) but shorter hospital stays (2+/-1.1 vs. 3.8+/-1.2 days, $p<0.001$) compared to OP. Continuous opioid infusion was required in 82% of OP patients versus 8% of LP patients ($p<0.001$). From 2003–2023, there was a significant reduction in opioid infusions ($p<0.001$) and increased dexamethasone use ($p=0.009$), though no significant changes were noted for the number of oral/IV bolus opioid doses, ketorolac, or regional blocks. Reduction in APD was significantly greater after LP than OP (66.9+/-25.1% vs. 27.3+/-78.4%, $p=0.002$).

Conclusions: Laparoscopic pyeloplasty offers shorter hospital stays, less opioid use, and greater APD reduction compared to OP, while maintaining similar success and complication rates. These results add to the growing body of evidence supporting LP as a viable option for pediatric UPJO treatment.

Improved self-reported urinary and sexual function do not mediate the relationship between the delivery timing of the Prostate Cancer-Patient Empowerment Program (PC-PEP) and mental health: Secondary RCT analysis

Budoor Salman[1], Gabriela Ilie[1, 2, 3], Ross Mason[1], Ricardo A. Rendon[1], Andrea Kokorovic[1], Cody MacDonald[1, 2], Nikhilesh Patil[3], David Bowes[3], Greg Bailly[1], Derek Wilke[3], Robert Rutledge[3]

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Introduction: Prostate cancer patients commonly experience significant psychological distress, often exacerbated by complications from treatment. The Prostate Cancer Patient Empowerment Program (PC-PEP), a six-month comprehensive lifestyle and self-management intervention, has demonstrated efficacy in reducing psychological distress and improving urinary and sexual health. This secondary analysis explores whether improvements in urinary incontinence, urinary obstruction, and sexual function symptoms mediate the observed reduction in psychological distress among patients who received the intervention early or late (pre- or post-active treatment).

Methods: In a randomized controlled trial, 128 patients diagnosed with localized prostate cancer were randomly assigned to receive either PC-PEP with standard care (n = 66) or standard care alone (n = 62) for six months, at 6 months the standard care group received the intervention for 6 months. Here we compare the impact of the delivery timing of the intervention: early vs. late on the mental health outcome, assessed using the Kessler Psychological Distress Scale (K10). Mediator outcomes were symptoms of urinary and sexual function reported through the Expanded Prostate Cancer Index Composite (EPIC) at baseline, 6 and 12-months. Mediation analyses were conducted using Hayes' PROCESS macro (model 4). Covariates included baseline psychological distress, EPIC scores, age, relationship status, prescribed medications for depression or anxiety, time from randomization to treatment, treatment modality (surgery vs. radiation), and Charlson Comorbidity Index. Indirect effects were estimated using bootstrapping with 5,000 resamples.

Results: Urinary incontinence and obstruction symptoms significantly improved in the early intervention group compared to the late group ($\beta = -13.84$, $p < .001$; $\beta = -6.65$, $p = 0.002$, respectively). However, neither urinary incontinence nor obstruction mediated the effect of group assignment on mental health outcomes at intervention end (indirect effects: 0.75, 95% CI [-0.07, 1.93]; 0.75, 95% CI [-0.31, 2.19], respectively). Sexual function symptoms did not differ significantly between groups ($\beta = 1.20$, $p = 0.75$) for the full sample and was not a significant mediator of mental health outcomes (indirect effect = -0.005, 95% CI [-0.23, 0.26], $p > 0.05$). Direct effects of intervention timing on K10 scores were also non-significant ($\beta = -1.98$ to 1.59, $p > 0.10$). The statistical significance of these findings remained unchanged when stratified analyses were performed by treatment modality (radical prostatectomy versus radiation therapy).

Conclusions: Improvements in EPIC domains, including urinary and sexual function symptoms, did not mediate the relationship between receiving the PC-PEP intervention and improved mental health outcomes in prostate cancer patients. These findings highlight that while PC-PEP significantly improves urinary and sexual health domains, these improvements alone are not the mechanism through which the program enhances mental health. Clinicians should consider additional factors beyond urinary and sexual symptoms to optimize mental health in their prostate cancer patients. Future research should explore alternative mediators and over a longer time to improve our understanding of the mental health benefits from PC-PEP.

Urologic conditions and adherence to monitoring in spina bifida patients over 40 years of age

Stewart Whalen[1], Kieran Moore[1], Dawn MacLellan[1, 2], Dan Keefe[1, 2], Ashley Cox[1]

[1]Department of Urology, Dalhousie University, Halifax, Canada; [2]Division of Pediatric Urology, Department of Surgery, IWK Health Centre, Halifax, Canada

Introduction: Spina bifida (SB) is associated with several chronic urological conditions. Advances in treatment and surveillance protocols have greatly increased life expectancy in this population. The objective of this study was to examine urologic issues and adherence to screening recommendations in adult SB patients.

Methods: We conducted a retrospective chart review of SB patients aged 40 years and above. Patients were identified using the dedicated adult multidisciplinary SB clinic at Nova Scotia Health in Halifax, Nova Scotia, Canada. Descriptive statistics were used.

Results: Fifty-five patients were identified. Patients were predominately female (66%) with a median age of 51 (IQR 47-56). The vast majority had a diagnosis of myelomeningocele (91%), with 76% having undergone a ventriculoperitoneal (VP) shunt. Clean intermittent catheterization (CIC) was the most common method of bladder management, and 40% of patients used antimuscarinic medications. Chronic kidney disease was an uncommon finding (9%). Four deaths were reported, of which, three were secondary to urologic causes. Most patients had upper tract imaging (82%) and measurement of serum creatinine (84%) within one year of most recent follow-up. Urodynamic studies (UDS) were performed infrequently, with only 29% undergoing UDS within five years of most recent follow-up.

Conclusions: Adult SB patients represent an increasingly complex patient population. Most patients manage their bladders with CIC into adulthood and many continue to use antimuscarinic agents. While CKD is uncommon, urological issues continue to account for a high percentage of patient deaths. Adherence to surveillance protocols based on guideline recommendations is challenging. Continued evaluation of long-term outcomes in this patient population is important to gain an understanding of the natural history of lower urinary tract dysfunction (NLUTD) in patients with spina bifida.

Adherence to the 2021 Canadian Urological Association androgen deprivation therapy guidelines for bone health management in patients with advanced prostate cancer: A provincial study

Andrea Jacob[1], Liette Connor[2], Krystal Caldwell[2], Andrea Kokorovic[2], Ross Mason[2], Ricardo Rendon[2]

[1]Faculty of Medicine, Dalhousie University, Halifax, Canada; [2]Department of Urology, Dalhousie University, Halifax, Canada

Introduction: Long term use of androgen deprivation therapy (ADT) in men with advanced prostate cancer (PCa) can lead to decreased bone mineral density (BMD) and greater fracture risk. The Canadian Urological Association (CUA) guideline recommends baseline evaluation and monitoring of bone health (BH) with BMD scans. The study aimed to determine adherence to CUA guidelines by physicians provincially for BH.

Methods: Using the provincial Drug Information System to identify PCa patients who filled an ADT prescription from 2020-2024 for at least 24 months, a retrospective chart review was conducted. Electronic medical records were accessed to determine characteristics such as patient age, ADT prescriber, duration of ADT, and frequency of BMD scans.

Results: We identified 712 patients, of whom 214 (30%) had a BMD scan. Uro-oncologists (UO) were the leading ADT prescribers who ordered BMD scans in 60% of their patients, followed by radiation oncologists (RO), 31%, medical oncologists (MO), 30%, non-oncology academic urologists (AU) 20% and community urologists (CU), 22%, respectively. Only 47% of scans were ordered within 12 months of ADT initiation, as per guidelines. BMD scans ordered within 12 months by specialty were UO (55%), RO (52%), MO (57%), AU (40%) and CU (26%). Only 19% of patients had follow-up (FU) BMD scans. Specialty distribution was MO (35%), RO (31%), and UO (16%). Of all FU scans, 63% met guideline recommendations with adherence rates as follows: MO (100%), UO (50%), RO (44%). Baseline scan results showed 58% low, 27% moderate, and 12% high risk. Among low-risk patients who had a FU scan, 57% progressed to moderate or high risk.

Conclusions: Adherence to the CUA guidelines is poor across specialties provincially as BMD screening is often overlooked among providers. Advanced PCa patients on ADT with BMD initially classified as low risk, frequently (57%) progress to moderate or high risk. Further adherence with greater education and creation of clinical tools should be implemented to bridge the gap.

Ovarian-type cancer in the male: A case of paratesticular serous papillary carcinoma

Mario Jones[1], Jeffrey McKay[2]

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Introduction: Paratesticular serous papillary carcinoma (PSPC) is a rare malignancy that arises from the remnants of the paramesonephric (Müllerian) ducts and is histologically analogous to ovarian epithelial cancer. The diagnosis is challenging due to its nonspecific clinical symptoms and imaging that, in the indolent stages, suggests benign hydrocoele. We present a case of an 84-year-old male with a greater-than-10-year history of a misdiagnosed scrotal mass that was later found to be PSPC.

Methods: The patient had had a mass in his right testicle since he was a teenager and had been followed for over 10 years for a right-side testicular hydrocoele of moderate size with a small calcific focus. Serial imaging over the ensuing years showed persistence of the non-mobile calcific focus but no changes in the testicular mass to suggest malignancy. Our patient presented with shortness of breath due to metastatic spread causing pleural effusions. PSPC is typically diagnosed at an advanced stage due to its indolent growth and lack of specific clinical symptoms. Surgical resection with radical orchiectomy is the primary treatment for PSPC.

Results: Epithelial ovarian cancer is the most common gonadal malignancy in females but is exceedingly rare in males. Notably, 83% of males retain the paramesonephric-derived appendix testis into adulthood and this is the source of our patient's tumour. There is no literature to guide the treatment of PSPC, but given its histologic similarity to ovarian epithelial cancer, surgery and adjuvant therapy with paclitaxel and carboplatin have been used.

Conclusions: This case highlights the possibility of an ovarian-type tumour in males, the paucity of evidence around optimal medical management, and the importance of a high index of suspicion for PSPC in patients with a scrotal mass and persistent calcific focus, even if initial imaging suggests a benign condition such as hydrocele. Due to its latent natural history, this tumour can be discounted as a benign hydrocoele until it is large and has developed metastatic potential.

Impact of adherence to physical activity on patient weight while participating in the Prostate Cancer Patient Empowerment Program randomized controlled trial

Rebecca J. Power[1], Gabriela Ilie[1, 2, 3], Ricardo A. Rendon[1], Ross Mason[1], Andrea Kokorovic[1], Cody MacDonald[1, 2], Nikhilesh Patil[3], David Bowes[3], Greg Bailly[1], Derek Wilke[3], Rob Rutledge[3]

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Introduction: Patients receiving curative treatment for localised prostate cancer often face complications impacting quality of life. The Prostate Cancer Patient Empowerment Program (PC-PEP) is a 6-month intervention that includes dietary advice, physical activity, stress management, pelvic floor muscle training and intimacy components. PC-PEP has been shown to help patients lose weight compared to standard care, the specific underlying mechanisms remain to be fully explored. The objective is to examine the effects of participants physical activity levels and weekly self-monitoring survey adherence on weight loss for early versus delayed intervention groups.

Methods: Participants were randomly assigned to an early intervention group, starting PC-PEP before their curative-intent treatment (0 to 6 months, n=66) or a waitlist control late intervention (PC-PEP from 6 to 12 months, n=62). Data was collected at baseline, 6, and 12 months via a patient reported questionnaire. Participants completed weekly self-monitoring surveys during the intervention period. A linear mixed model evaluated the relationship between average weekly adherence (minutes of strength training and aerobic activity) and weight loss post intervention. The PROCESS macro for SPSS assessed mediation effects of group (early vs late) on weight loss through participant activity levels during the intervention. Covariates included pre-intervention weight, time from randomization to treatment, age, Charlson comorbidity index, and treatment modality, relationship status, and prescribed medication for depression or anxiety.

Results: No significant differences were observed in mean weekly aerobic activity between the Early Group (230.5 minutes) and the Late Group (207.3 minutes; p = 0.502), or in strength activity (72.93 vs. 69.68 minutes; p = 0.740) throughout the intervention. Mediation analysis demonstrated that there was no significant effect of group (early versus late) on post-intervention weight loss through mean weekly aerobic activity (Effect = -0.055, 95% BootCI [-0.641, 0.493]) nor mean weekly strength activity (Effect = 0.009, 95% BootCI [-0.-0.495, 0.462].

Conclusions: The timing of the intervention did not significantly influence participants' adherence to aerobic or strength activities. Despite the emphasis on physical activity in PC-PEP, neither mean weekly aerobic nor strength activity significantly mediated the relationship between intervention timing and weight loss. These results suggest other factors (e.g., diet, self-monitoring, compliance, etc.) or the combination of other factors in the intervention may play a more critical role. This underscores the comprehensive nature of PC-PEP, which appears to support weight loss through a multifaceted approach beyond physical activity, helping patients achieve their goals through additional mechanisms embedded within the program.

The yield of magnetic resonance imaging – transrectal ultrasound fusion prostate biopsy in men with suspected prostate cancer

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Introduction: The primary objective of this study was to determine the positive predictive value (PPV) of magnetic resonance imaging – transrectal ultrasound (MRI-TRUS) fusion prostate biopsies at our institution, and to identify factors associated with a positive biopsy.

Methods: With institutional Research Ethics Board approval, we evaluated all MRI-TRUS fusion prostate biopsies at our institution from September 2022-July 2024. A true positive biopsy was defined as ISUP>1. PPVs were calculated overall and compared amongst the following subgroups (Fisher's test): PI-RADS 3-5; reporting radiologist (n=7); lesion size (<7mm,7-14 mm,>14 mm); lesion location (peripheral zone vs. anterior transition zone vs. posterior transition zone); ultrasound correlate (present/absent); prostate size (<60cc vs. ≥60cc); interval from MRI to biopsy (<6 months or not); and biopsy operator (two radiologists). A multivariable logistic regression (GLMM) was performed, predicting positive biopsy with these factors as fixed effects and reporting radiologist as random effect.

Results: 224 patients (mean age, 67+/-7 years) with 317 lesions underwent biopsy. PPV was 180/317 (56.8%) overall and for PI-RADS 3-5, 18/46 (39.1%), 65/133 (48.9%), and 97/138 (70.3%), respectively (p=0.03). Significant differences in proportion of true positives were also found with reporting radiologist (p=0.002), lesion size (p=0.004), lesion location (p=0.02), ultrasound correlate (p<0.0001), and time interval (p=0.02). There was no association with prostate size (p=0.29) or biopsy operator (p=0.26). In GLMM analysis, higher PI-RADS score, presence of an ultrasound correlate, and timely interval to biopsy were associated with true positive biopsies (Table 1).

Conclusions: The yield for fusion prostate biopsies at our institution is high. A positive biopsy is associated with higher PIRADS score, presence of an ultrasound correlate, and timely access to fusion biopsy after prostate MRI.

Diuresis renography scans in patients with hydroureteronephrosis: Does the region of interest impact results?

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Introduction: According to the "well-tempered renogram" the kidney and entire dilated portion of the urinary tract should be encompassed in the region of interest (ROI). There is a paucity of literature comparing relevant outputs of diuretic renography in patients with HUN if the ROI includes only the kidney and renal pelvis (KRP) vs. if it includes the kidney, renal pelvis, and dilated ureter (KRPU).

Methods: This is an ongoing retrospective study analyzing diuretic renography scans of patients with HUN at the IWK Health Centre. Scans were reprocessed by nuclear medicine technologists to compare results between ROIs of KRP versus KRPU.

Results: To date, MAG3 Renal Lasix scans have been reprocessed and reviewed for 24 patients at our institution, corresponding to 46 kidneys (24 right, and 22 left) with documented HUN. Split function did not differ significantly when calculated for KRP or KRPU, regardless of kidney laterality (Right: KRP 55.1% v. KRPU 52.9%, p=0.056; Left: KRP 49.0% v. KRPU 51.3%, p=0.055). T1/2, did not differ significantly for right-sided kidneys, but was significant on the left (KRP=15.8min v. KRPU=18.0min, p=0.022). Despite this, the proportions of non-obstructed, indeterminant, and obstructed kidneys did not differ significantly comparing T1/2 between KRP to KRPU (X2=1.0, p=0.61).

Conclusions: Our early data suggests that for pediatric patients with HUN, there is no significant clinical impact on the on the results of MAG3 renal Lasix scans regardless between ROIs of KRP versus KRPU. Accrual of further data, including clinical outcomes will help to better understand the role of the "well-tempered renogram" in HUN.

Mediation analysis of adherence to pelvic floor muscle training and weekly self-monitoring on urinary symptoms in men with localized prostate cancer: A secondary analysis of the prostate cancer-patient empowerment program (PC-PEP) randomized controlled trial

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Introduction: Patients receiving curative treatment for localized prostate cancer often face urinary complications that affect quality of life. The Prostate Cancer Patient Empowerment Program (PC-PEP) is a 6-month intervention including Pelvic Floor Muscle Training (PFMT) along with stress management, dietary guidance, physical exercise, and intimacy support. While previous research has demonstrated that early initiation of PC-PEP can improve urinary outcomes, the influence of participant adherence to PFMT and self-monitoring on these outcomes remains unclear. This study evaluates both the direct effects of adherence to PFMT and the mediating role of weekly self-monitoring on the association between timing of the PC-PEP delivery (early vs. late) and urinary outcomes.

Methods: In a randomized controlled trial, 128 patients diagnosed with localized prostate cancer were randomly assigned to receive either PC-PEP with standard care (n=66) (early group) or standard care alone (n=62) for six months, at 6 months the standard care group received the intervention for 6 months (late group). Here we compare the impact of the delivery timing of the intervention: early vs. late on urinary outcomes assessed with the Expanded Prostate Cancer Index Composite (EPIC) administered via on-line surveys. Weekly self-monitoring compliance surveys were administered during the intervention period to track adherence. Linear mixed models were employed to examine the associations between average weekly PFMT duration, self-monitoring survey completion rates, and urinary symptoms post-intervention. Mediation and moderated mediation analyses were conducted using the PROCESS macro. Covariates included baseline urinary scores, time from randomization to treatment, age, Charlson comorbidity index, and treatment modality.

Results: There were no significant differences in average weekly PFMT duration between the early and late intervention groups. However, adherence to weekly self-monitoring surveys was significantly higher in the early intervention group ($P<0.001$), with a mean completion rate of 98.8% compared to 64.1% in the late group. Average weekly PFMT duration was significantly associated with improved urinary continence symptoms ($F = 6.78$, $p = 0.011$), whereas self-monitoring survey completion rate was not significantly associated with urinary outcomes ($F = 1.103$, $p = 0.366$). No significant interaction effect was found between intervention group and average weekly PFMT duration ($p = 0.704$), indicating a consistent benefit across both groups. Mediation analysis revealed that adherence to self-monitoring surveys partially mediated the relationship between intervention timing and urinary continence symptoms (indirect effect = 4.12, 95% CI = 0.12–9.08). Treatment modality did not significantly modify the mediation effect.

Conclusions: This study highlights that early intervention in PC-PEP is associated with higher adherence to self-monitoring surveys. While PFMT adherence emerged as a key predictor of improved urinary symptoms, the findings underscore the importance of early engagement and consistent self-monitoring. Our results suggest that the PC-PEP's unique approach—emphasizing early initiation and participant accountability—plays a critical role in enhancing urinary rehabilitation in prostate cancer care. Incorporating these components into standard care could significantly improve patient outcomes.

Reimagining urology education: Revision of the CanUUC curriculum through the lens of EDIA

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Background: In 2011, the Canadian Urological Association (CUA) introduced the Canadian Urological Association Undergraduate Urology Curriculum (CanUUC), an online resource covering twelve key urology topics to support medical students. Recently, the CUA has committed to advancing equity, diversity, inclusion, and accessibility (EDIA) principles to improve care for all Canadians. This project aims to revise the CanUUC modules to ensure the curriculum aligns with these values.

Methods: Criteria for EDIA were developed by group consensus, inspired by similar work at Dalhousie University aimed at improving inclusivity in undergraduate medical education. CanUUC materials (slideshows, videos, quizzes, and podcasts) are reviewed using a multi-reviewer process to assess inclusivity, biases, stereotypes, and accessibility. Content is updated to integrate EDIA principles, such as inclusive language, updated imagery, improved text readability, and more representative cases and examples.

Results: Anticipated outcomes include enhanced representation of diverse perspectives, improved accessibility, and a curriculum that promotes a more equitable learning experience.

Conclusions: Students access a range of co-curricular learning opportunities beyond their program's formal curriculum, and medical specialty societies are active in providing co-curricular materials. This project advances the CUA's commitment to inclusivity by integrating EDIA principles into educational content. The revised curriculum will foster a more representative and supportive learning environment for medical students, aligning with modern educational standards and serving as a benchmark for inclusivity in medical education. This project demonstrates the feasibility and impact of collaborative efforts between students, curriculum developers, and specialty societies in addressing educational disparities through review and revision of co-curricular learning materials.

A novel immunohistochemical approach correlates proteinase activated receptor (PAR) 1 cleavage state with increasing grade in urothelial carcinoma

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Introduction: It has been well demonstrated that proteinases and their inhibitors change upon initiation and progression in urothelial carcinoma (UC). However, this information has not yet led to clinically actionable cellular target(s). One potential group of cell surface receptors involved in integrating these proteolytic signals is proteinase activated receptors (PARs), with PAR1 having been demonstrated to play an integral role in a number of cancers including prostate, breast, and colon. Our group had previously demonstrated that UC cell lines express functional PAR1 and that signaling through these receptors can drive migration and invasion. PARs are unique in that they contain their own activating ligand which remains inactive due to a small peptide that is cleaved by proteinases to initiate activation. We hypothesized that utilizing antibodies that could target internal vs external receptor components we could exploit the unique activation mechanism of PARs to not only identify receptor expression but also receptor activation status and predicted that worse grades of disease would be correlated with increasing expression of activated receptors.

Methods: We constructed a tissue microarray out of cell lines with known PAR expression and activity to test targeted commercially available antibodies. Once validated the stains were used on patient derived urothelial tissue in patients who had undergone cystectomy.

Results: Through this work we were able to validate the concept that utilizing antibodies that target internal vs external sites of the PAR we could identify not only expression level but also cleavage status. Specifically, we identified two antibodies that could reliably identify PAR1 receptor expression and cleavage. After the proof of concept with cell lines the antibody assay was used on patient derived tissue where it was found that with increasing stages of UC there was decreasing expression of PAR1 but that the proportion of cleaved receptors increases. Moreover, when comparing male to female patients it was determined that although tumours from both sexes express the same amount of PAR1 that tumours from females expressed more of the cleaved version of this receptor.

Conclusions: PAR1 expression decreases with increasing grade of UC, however, more of the receptor is expressed in a cleaved state.

Impact of warming irrigation fluids on hypothermia during HoLEP surgery: A quality improvement study

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Introduction: Hypothermia during surgery is associated with adverse outcomes and was anecdotally observed following the introduction of holmium laser enucleation of the prostate (HoLEP) for benign prostatic hyperplasia at our centre. While the impact of intraoperative temperature management has been extensively studied in transurethral resection of the prostate (TURP) procedures, similar investigations specific to HoLEP are lacking. This quality improvement study assessed whether warming irrigation fluids during HoLEP reduces the incidence and severity of intraoperative hypothermia compared to room temperature fluids.

Methods: We retrospectively analyzed data from patients who underwent HoLEP with either room temperature (prior to June 2024) or warmed irrigation fluids (June 2024 onwards) at the Queen Elizabeth II Health Sciences Centre. Baseline characteristics, including age, BMI, comorbidities, and preoperative temperatures, were compared using chi-squared tests for categorical variables and T-tests for continuous variables, assessing for differences in lowest intraoperative temperatures and severity of hypothermia as primary outcomes.

Results: The analysis included 17 patients in the room temperature group and 11 in the warmed group. No significant baseline difference was observed in age (p=0.23) or BMI (p=0.66) between the two groups. Mean preoperative temperatures were 36.5°C and 36.7°C for the room temperature and warmed fluids group, respectively (p=0.62). Mean lowest intraoperative temperature was 35.1°C and 35.6°C for the room temperature and warmed fluids group, respectively. No significant difference in mean lowest intraoperative temperatures was observed (p=0.136). Median temperatures were similarly aligned. Severity of hypothermia also showed no significant differences (p=0.63). Mean operative time was 120 and 115 minutes for the room temperature and warmed fluids group, respectively (p=0.75). Mean time under anesthesia were also comparable, with 145 and 140 minutes in the room temperature and warmed fluids group, respectively (p=0.80). Mean time in PACU was 90 and 85 minutes for the room temperature and warmed fluids group, respectively (p=0.70). Incidence of hypothermia in PACU was similar between groups (p=0.63). Mean prostate size was 60 and 55 grams in the room temperature and warmed fluids group, respectively (p=0.65).

Conclusions: Although the mean and median intraoperative temperature was higher in the warmed fluids group, using warmed irrigation fluids during HoLEP did not significantly reduce the incidence or severity of hypothermia compared to room temperature fluids. However, this study is limited by its small sample size. Expanding the numbers in each cohort may enhance the robustness of the findings and provide a more definitive conclusion, helping determine if similar results are replicated in larger and more diverse patient populations.

Comparative analysis of vascular hitch and dismembered pyeloplasty in children with UPJO associated with crossing vessels

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Introduction: The vascular hitch (VH) procedure is an alternative to pyeloplasty in patients with ureteropelvic junction obstruction (UPJO) associated with crossing vessels (CV). This study aims to compare the outcomes of VH to dismembered pyeloplasty in pediatric patients.

Methods: We included patients <18 years from 2 centres with UPJO caused by CV. Demographics, severity of hydronephrosis (HN) [pre- and post-operative anteroposterior diameter of the renal pelvis (APD)], peri-operative clinical data, length of stay, post-operative readmissions, and reintervention were collected.

Results: 81 patients were included (25 pyeloplasty and 56 VH); all procedures were performed laparoscopically. Age at time of surgery and laterality was similar between groups. Follow-up was longer for the pyeloplasty group (20 mos, IQR 16-29 vs. 10 mos, IQR 3-19 for VH). Pre-operative APD was 30.5mm (IQR 25-43.5) and 26mm (IQR 16-40.5) for pyeloplasty and VH, respectively. All patients undergoing VH were discharged on the day of surgery; most children undergoing pyeloplasty stayed in hospital for at least one night. Most patients experienced improvement of HN with no significant difference in APD reduction at follow-up visits between the two groups. Clinical symptoms of UPJO were present in 91% of VH patients pre-operatively and 16% post-operatively ($p<0.001$); no patients developed new symptoms post-operatively that were absent pre-operatively. There was a higher rate of return to ED in the pyeloplasty group (20%) compared to the VH group (1.79%, $p=0.013$). Only one reintervention was reported during follow-up in the VH group (pyeloplasty).

Conclusions: This demonstrates that VH and pyeloplasty have similar success rates however, VH is associated with lower perioperative morbidity in children with UPJO secondary to CV. Ongoing long-term efficacy needs to be studied but, in select cases, the VH procedure is a viable alternative to dismembered pyeloplasty.

One size does not fit all: A cross-sectional study addressing practitioner discourse in the role of physiotherapy for women with pelvic floor disorders

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Introduction: Physiotherapy is an evidence-based, conservative treatment for pelvic floor disorders (PFD) in women and gender-diverse persons. Guidelines recommend consideration of conservative management options including pelvic floor muscle training (PFMT) as a first line strategy. The role of PFMT is expanding in Canada, however, disparities exist in the opinions of urogynaecologists, urologists, and physiotherapists (PTs) regarding the importance, function, and role that PFMT plays in the PFD management. The objective of this study was to assess differences in perspectives and knowledge among urogynaecologists, urologists, and female health PTs on the role of PFMT in managing PFDs.

Methods: A cross-sectional survey was distributed to urologists, urogynaecologists and physiotherapists practicing in Nova Scotia, Canada from May-June 2023. The questionnaire explored clinical practice and practitioner opinions on physiotherapy regimens and care expectations. Descriptive statistics were analyzed and Kruskal-Wallis H test was used to compare responses between specialties. Bonferroni correction was used to correct for multiple comparisons.

Results: Respondents (n = 84) included 14 urologists, 11 urogynecologists and 27 PTs (61.9% response rate). Urologists were less likely than PTs ($p = 0.001$) and urogynecologists ($p = 0.003$) to value the importance of PFMT for urinary incontinence. Urologists were less likely than PTs ($p = 0.03$) and urogynecologists ($p = 0.02$) to view PFMT as important for treating prolapse. Urologists were also less likely than PTs to say that PFMT has an importance for treating pain ($p = 0.04$) and sexual dysfunction ($p = 0.05$). There was varied knowledge between the 3 groups on adjuncts of PFMT such as vaginal cones, electrical stimulation and transcutaneous stimulation.

Conclusions: There are discrepancies in knowledge of treatment options and efficacy between health care providers treating female PFDs. Urologists were less aware of the role for PFMT as a conservative treatment option and did not feel as strongly that PFMT was helpful for this population when compared to PTs and urogynecologists. Although all 3 groups of health care practitioners provide care for women with PFDs, there was varied knowledge on what constitutes techniques and tools for care. Enhancing provider education may improve understanding, patient counseling, and access to this evidence-based treatment modality.

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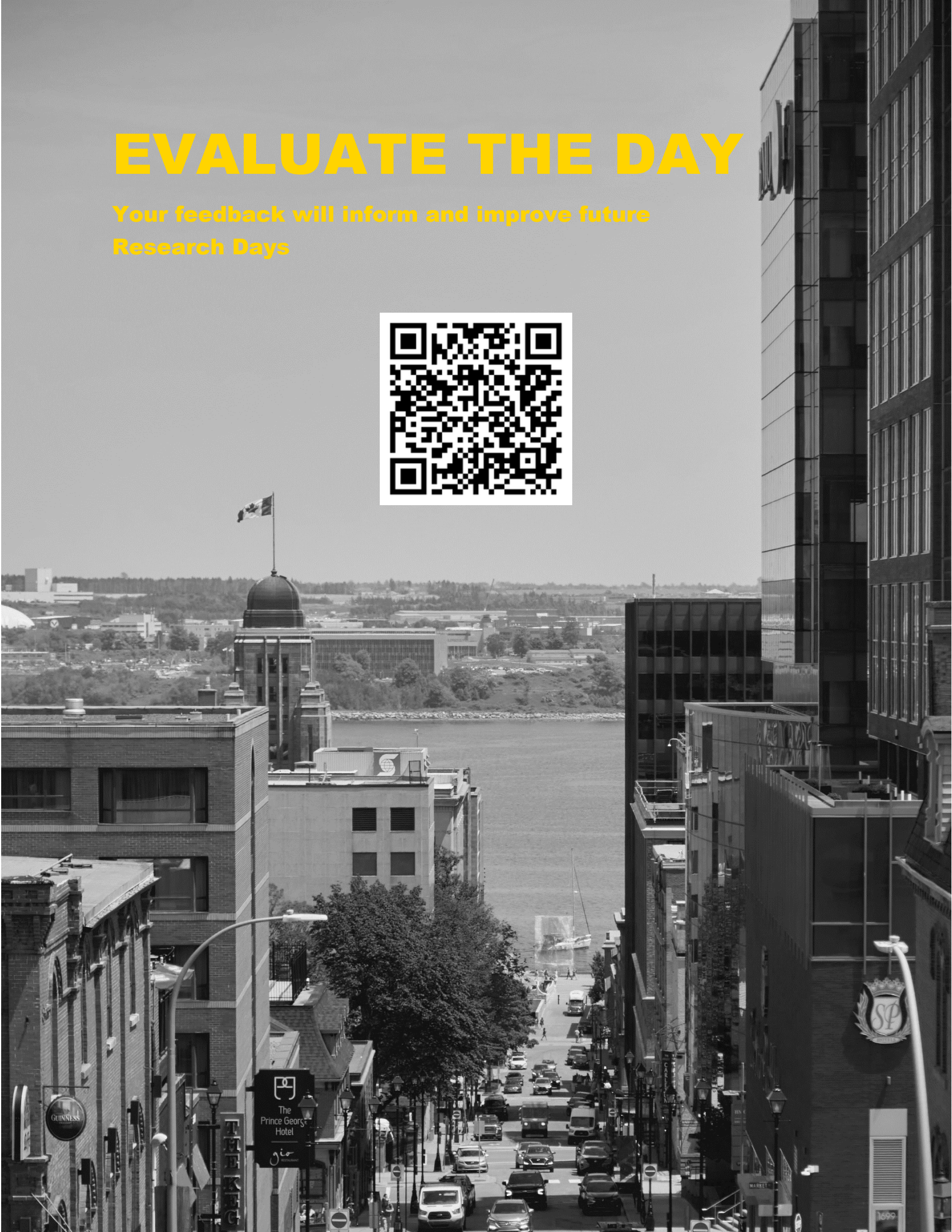

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