Poster Session 10: Health Equity, Basic Science, New Technology

Sunday, June 29, 2025 • 07:00–08:30

Cite as: *Can Urol Assoc J* 2025;19(6Suppl1):S96-102. http://dx.doi.org/10.5489/cuaj.9268

MP 10.1

Impact of marginalization on access to robotic prostatectomy in Ontario, Canada: A retrospective, population-based cohort

Rano Matta[1], Sarah Neu[1], Amanda E. Hird[1], Janine Xu[3], Tharsiya Martin[3], Amber Hunter[3], Girish S. Kulkarni[1], Paul Karanicolas[2], Natalie Coburn[2], Robert K. Nam[1], Sender Herschorn[1], Frances C. Wright[2]

[1]Division of Urology, Department of Surgery, University of Toronto, Toronto, Canada; [2]Department of Surgery, University of Toronto, Toronto, Canada; [3]Ontario Health, Toronto, Canada

Introduction: In Ontario, Canada (population 14.7 million), robotic-assisted radical prostatectomies (RARP) are predominantly performed in larger academic centers and urban hospitals, potentially leading to disparities in access across the province. Given the concentration of RARP resources in these centers, patients from rural or marginalized communities may face increased travel burdens and reduced availability of RARP, impacting equitable access to prostate cancer surgery, despite a universal publicly insured health system. This study assessed the impact of socioeconomic marginalization on access to RARP vs. open radical prostatectomy (ORP) for localized prostate cancer in Ontario, Canada, from April 1, 2017, to March 31, 2024.

Methods: This retrospective cohort study included all Ontario patients who underwent Quality Based Procedures-funded radical prostatectomy for localized prostate cancer during the study period. Patient socioeconomic status was assessed using the 2021 Ontario Marginalization Index, which includes income, education, housing, and family structure. This database is based on Canadian census dissemination areas — small geographic units averaging 400–700 people. Other equity-related outcomes included neighborhood income quintiles, rurality, and distance from home to hospital.

Results: We identified 6645 RARP cases and 8428 ORP cases, with RARP representing 35.1% of cases in 2017, increasing to 56.2% by 2023. The median distance traveled to hospital was 23.1 km for RARP cases (IQR 8–58) and 11.9 km for ORP (IQR 5–30). RARP cases waited longer, on average, for surgery (mean 73 days, SD 51) compared to ORP (mean 42 days, SD 32), with only 57% of RARP cases within their wait time target as compared to 81% of ORP patients. Both RARP and ORP were similarly distributed among patients residing in urban (87%) and rural (13%) areas. A gradient was observed by material resource marginalization quintiles (Q); patients in higher-marginalization neighborhoods had reduced RARP access (27% in Q1 vs. 14% in Q5), whereas ORP showed less disparity (24% in Q1 vs. 15% in Q5). Similarly, RARP access was higher in affluent areas (30% in highest-income quintile vs. 14% in lowest), while ORP varied less by income (24% highest vs. 15% lowest).

Conclusions: This study found fewer RARP procedures among patients residing in highly marginalized and low-income neighborhoods, suggesting a disparity in access to RARP, despite improving access to RARP across the province. Further research is needed to explore the intersectional factors that may contribute to this gradient and its impact on clinical outcomes.

Acknowledgements: Funded by Ontario Health.

MP 10.2

Gender differences in authorship of Canadian Urological Association guidelines

Sareen Singh[1], Olivia C. MacIntyre[1], Ashley Cox[2]

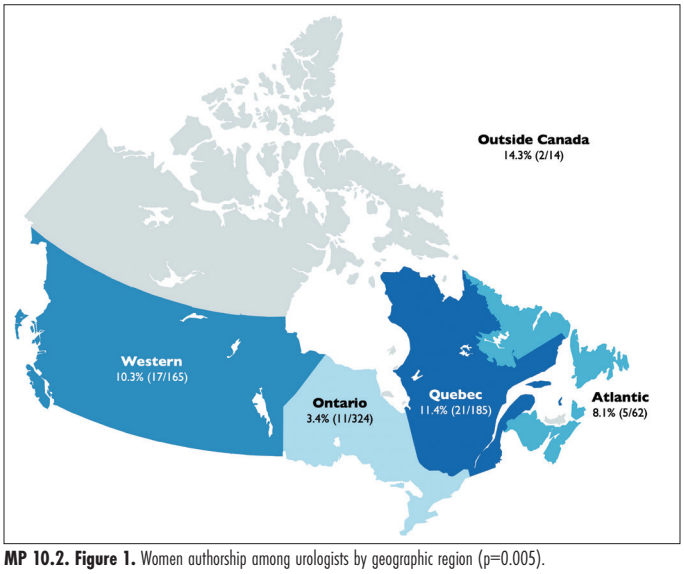
[1]Faculty of Medicine, Dalhousie University, Halifax, Canada; [2]Department of Urology, Dalhousie University, Halifax, Canada

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-squared 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 (Table 1). Within Canada, Quebec had the highest percentage of women urologist authors at 11.4% (Figure 1). 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 urologic 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.



MP 10.2. Figure 1. Women authorship among urologists by geographic region (p=0.005).

MP 10.2. Table 1. Characteristics of urologist authors overall and by gender

Characteristic	All urologists n=750	Men n=694	Women n=56	p
Author type				<0.001
First	99 (13.2)	82 (11.8)	17 (30.4)	
Middle	576 (76.8)	540 (77.8)	36 (64.3)	
Last	75 (10.0)	72 (10.4)	3 (5.4)	
Academic degree				0.13
MD	432 (57.6)	406 (58.5)	26 (46.4)	
MD + Master's	272 (36.3)	248 (35.7)	24 (42.9)	
MD + PhD	46 (6.1)	40 (5.8)	6 (10.7)	
Province				<0.001
Alberta	54 (7.2)	52 (7.5)	2 (3.6)	
British Columbia	82 (10.9)	76 (11.0)	6 (10.7)	
Manitoba	22 (2.9)	14 (2.0)	8 (14.3)	
New Brunswick	4 (0.5)	4 (0.6)	0 (0)	
Newfoundland and Labrador	4 (0.5)	4 (0.6)	0 (0)	
Nova Scotia	54 (7.2)	49 (7.1)	5 (8.9)	
Ontario	324 (43.2)	313 (45.1)	11 (19.6)	
Quebec	185 (24.7)	164 (23.6)	21 (37.5)	
Saskatchewan	7 (0.9)	6 (0.9)	1 (1.8)	
Outside Canada	14 (1.9)	12 (1.7)	2 (3.6)	
Guideline specialty				<0.001
Andrology/infertility/sexual health	79 (10.5)	77 (11.1)	2 (3.6)	
Endourology	43 (5.7)	37 (5.3)	6 (10.7)	
Functional urology	67 (8.9)	45 (6.5)	22 (39.3)	
General urology	36 (4.8)	34 (4.9)	2 (3.6)	
Pediatric urology	37 (4.9)	20 (2.9)	17 (30.4)	
Urologic oncology	488 (65.1)	481 (69.3)	7 (12.5)	

MP 10.3

Pisse prophets, quackery, and stones: Urologic surgery in the aftermath of uroscopy

Kikachukwu Otiono[1], *Wenhui Yu*[2], *Neal Rowe*[1]

[1]Division of Urology, University of Ottawa, Ottawa, Canada; [2]Department of Medicine, University of Ottawa, Ottawa, Canada

Introduction: Before the advent of urinary biomarkers for specific diagnoses, ancient physicians lauded the visual examination of urine ('uroscopy') as the cornerstone of diagnostic medicine for centuries. We explored the history of uroscopy, with a focus on the cultural changes that contributed to its demise. Although the history of uroscopy has been previously examined, there is a noticeable gap with regards to understanding the relationship between uroscopy, social change, and the emergence of urology as a specialty.

Methods: A historiographic review of secondary sources in the English language was conducted through a literature search of PubMed, Google Scholar, and Ovid. We reviewed historic documents and primary texts using libraries and archives, including the National Library of Medicine and the Medical Heritage Library.

Results: As early as 4000 BC, Sumerians and Babylonians recorded their observations of urinary illness on clay tablets. The practice of urinary examination and uroscopy continued to gain prominence, especially in Europe, until the late Middle Ages; however, this changed with the invention of Gutenberg's printing press in the 1450s, at which point scientific knowledge became readily available to an increasingly literate populace. Thus, uroscopy became an obsolete practice denounced in scientific treatises, medical laws, and polemics such as Thomas Brian's, "The Pisse Prophet" (1637).

Conclusions: Most literature lacks a detailed examination of societal changes that contributed to uroscopy's rise and demise. We contend that Gutenberg's invention of the printing press and the revolutionary ideas disseminated during the Renaissance and Enlightenment periods rendered uroscopy obsolete, and this sociocultural context is understudied in the history of urology. Contemporary urologists can learn from such historical perspectives and develop a balanced approach to technological innovations and applications in the field today.

MP 10.4

Hormonally induced budding and branching in 3D organoid culture for benign prostatic hyperplasia

Connor M. Forbes[1], *Liliana Vega*[1], *Xuesen Dong*[1]

[1]Department of Urologic Sciences, University of British Columbia, Vancouver, Canada

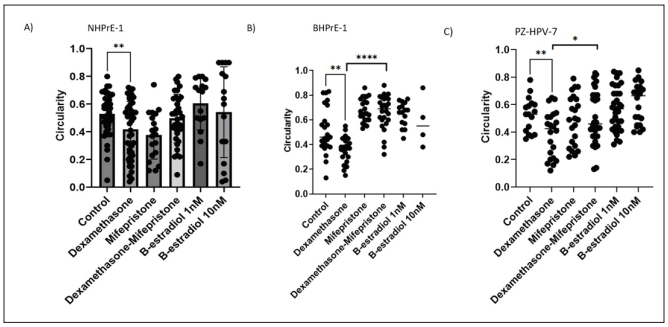
Introduction: Glucocorticoids are elevated in patient tissue with benign prostatic hyperplasia (BPH). We previously developed a 3D organoid model that can bud and branch with glucocorticoid exposure. Herein, we evaluated for the specificity of the phenotypic changes with glucocorticoid exposure in our 3D organoid model compared to other key steroid hormones.

Methods: BPH cell lines NHPRE-1, BHPRE-1, and PZ-HPV-7 were maintained and grown in 3D organoid culture in Matrigel. They were treated with control, dexamethasone, dihydrotestosterone (DHT), estradiol (E), or the dexamethasone antagonist RU-486. Budding and branching were quantified by automated segmentation with quantification of circularity (Incucyte).

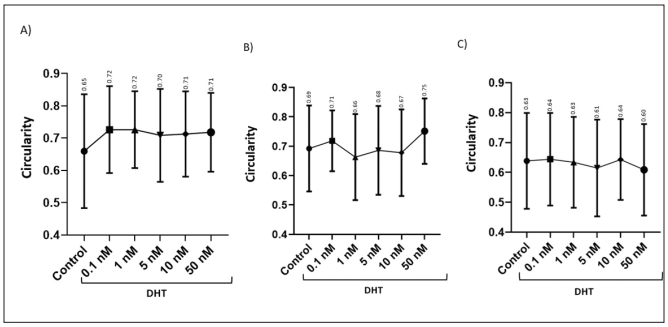
Results: Dexamethasone induced phenotypic budding and branching for NHPRE-1, BHPRE-1, and PZ-HPV-7 (Figure 1), showing a statistically significant decrease in circularity. With the addition of RU-486, this phenotypic change was inhibited. E (Figure 1) and DHT (Figure 2) did not induce budding and branching in 3D culture.

Conclusions: Dexamethasone induces a statistically significant phenotypic change in BPH in 3D culture. This budding/branching change is inhibited by glucocorticoid antagonist RU-486. Budding and branching is specific to Dex, and is not induced by E or DHT. Glucocorticoids are implicated as a phenotypic driver in BPH cells in-vitro, mimicking the budding/branching seen in patients with BPH. Further characterization is required.

Acknowledgements: Supported by the CUASF-Early Career Investigators award.



MP 10.4. Figure 1. Dexamethasone-induced circularity changes are inhibited by RU486 (mifepristone) in (A) NHPrE1; (B) BHPrE-1; and (C) PZ-HPV-7. Estradiol does not induce budding and branching changes.



MP 10.4. Figure 2. DHT does not induce budding and branching for (A) NHPRE-1 (less budding/branching vs. control); (B) BHPRE-1 (same or less branching , only p<0.01 at 50 nM); and (C) PZ-HPV-7 (no significant difference).

MP 10.5

Synthesis of nerve growth factor by bladder cells relies on different proteolytic pathways between male and female rats

Lysanne Campeau[1], Philippe Cammisotto[1], Sami Lasri[1], Matthew Homa[1]
[1]Lady Davis Institute for Medical Research, Montreal Jewish Hospital, Montreal, Canada

Introduction: Nerve growth factor (NGF) is essential in the development and survival of the cells of the nervous system. In a cohort of female aging patients diagnosed with overactive bladder (OAB), NGF urinary levels are decreased as a consequence of high activity of the enzyme matrix metalloproteinase-9 (MMP-9). Successful treatment of rodents with diabetic bladder dysfunction restored NGF levels but a decrease of MMP-9 activity is observed only in females. We aimed to determine the sex difference in the control of NGF synthesis from bladder cells.

Methods: Smooth muscle (SMC) and urothelial cells (URO) were isolated from rat bladder after collagenase IV digestion. Cells were incubated for 24 hours with THX-B (5 microg/mL) or sodium nitroprusside (SNP, 300 microM). NGF and proNGF levels were measured using ELISA kits, MMP-9, furin, plasmin, and MMP-3 activity by enzymatic kits, RTqPCR for gene expression, and immunoblotting for cell proteins.

Results: THX-B led to an increase in NGF secretion from male and female urothelial cells while proNGF was increased in male only. No changes were observed in SMC in both genders. SNP decreased NGF secretion in URO and SMC in female cells and had no effect on male cells. When looking at MMP-9, THX-B and SNP decreased and increased MMP-9 activity, respectively, in female cells while male changes were unaffected. NGF mRNA levels were not affected by both treatments in both genders. When looking at enzymes converting proNGF into NGF (namely plasmin, furin, and MMP-7), SNP and THX-B increased proteolysis of proNGF into NGF in female cells while the same enzymes were decreased in male cells. In the latter, MMP-3 activity was unaffected.

Conclusions: These data confirmed that the secretion of NGF and proNGF relies on different pathways of synthesis between males and females. These observations should be taken into account when considering OAB in male and female patients.

Acknowledgements: Supported by the Canadian Urological Association.

MP 10.6

Inflammation as a mediator of calcium-containing kidney stone disease

John A. Chmiel[1], Gerrit A. Stuivenberg[1], Alexandria Roa Agudelo[2], Arden Lawson[2], Shannon Seney[2], Kait F. Al[1], Hassan Razvi[1], Jeremy P. Burton[1], Jennifer Bjazevic[1]
[1]Western University, London, Canada; [2]St. Joseph's Health Care, London, Canada

Introduction: Kidney stone disease is rising globally, yet underlying causes remain poorly understood. Chronic inflammation is linked to various metabolic disorders associated with stone disease, but its role in disrupting calcium metabolism and promoting calcification remains poorly understood. This study examined the relationship between inflammation and calcium metabolism in calcium stone formers.

Methods: Thirty controls and 31 current or previous (within 12 month) calcium stone formers were recruited from a tertiary care center for a single-visit, cross-sectional study (NCT05081960). Participants were matched by age and sex. Blood samples were collected to assess C-reactive protein (CRP), lipopolysaccharide (LPS) binding protein, IL-6, calcium, and vitamin D. Spot urine calcium samples were normalized to osmolality to account for hydration status.

Results: Stone formers had significantly higher blood and urine calcium ($p<0.05$) compared to controls, despite having similar levels of parathyroid hormone and 25(OH) vitamin D (storage form); however, 1,25(OH)2 vitamin D (active form) was elevated in stone formers ($p=0.01$). Inflammatory markers, particularly CRP ($p<0.05$), were higher in stone formers, and CRP correlated strongly with LPS binding protein (Spearman's $\rho=0.60$, $p<0.05$). Serum IL-6 was slightly higher ($p=0.11$) but did not reach conventional statistical significance.

Conclusions: This study demonstrates that calcium stone formers exhibit low-grade systemic inflammation, possibly driven by endotoxin exposure. This inflammatory process promotes extrarenal vitamin D activation, disrupting calcium homeostasis and leading to elevated circulating calcium levels. As one of the first prospective studies to link inflammation, cytokines, and vitamin D status in this population, our findings suggest that both inflammatory and metabolic pathways are key contributors to kidney stone formation and should be targeted for better prevention and treatment strategies.

Acknowledgements: Financial support was received from Lawson Health Research Institute (Internal Research Fund) and the Northeastern Section of the AUA (Datta G. Wagle Young Investigator Award).

MP 10.7

The first nephrectomy: Unveiling the untold story of a surgical milestone in Montreal, 1868

Khadidja Belaissaoui[1], Daniel Taussky[1], Hugues Widmer[2]
[1]Department of Radiation Oncology, Centre hospitalier de l'Université de Montréal, Montreal, Canada; [2]Division of Urology, Centre hospitalier de l'Université de Montréal, Montreal, Canada

Introduction: Surgical firsts are a source of pride. We present the first known human nephrectomy, conducted in a Canadian hospital.

Methods: We reviewed literature, focusing on the first nephrectomy by Dr. (later Sir) William Hales Hingston (1829–1907) at Hotel Dieu Hospital in Montreal.

Results: Dr. Hingston, a McGill University graduate and Montreal's mayor in 1875, performed the nephrectomy in 1868. The patient did not survive. This surgery was only mentioned in an 1890 speech in "La Gazette Médicale de Montréal" but should have been documented in mandatory operating room reports. Details about the kidney access method are unknown. The 1890 article praised Hingston's "world first" in French, recognizing his achievement as part of the Ecole de Médecine et de la Chirurgie de Montréal and as a faculty member at the University of Victoria at Cobourg; however, Dr. Gustav Simon is credited with the first official nephrectomy because he published his operation before Hingston's case was reported. Simon practiced on 30 dogs before performing the surgery in front of students and visiting doctors in August 1869 in Heidelberg, Germany. His success was documented in the 1870 "Deutsche Klinik" journal. Simon's procedure on a 46-year-old female patient was extraperitoneal and conducted under chloroform anesthesia. The patient recovered six weeks post-operatively and was followed up for at least six months.

Conclusions: The first nephrectomy was performed in Montreal in 1868, but the patient's death likely delayed its report. Consequently, the "world first" correctly belongs to G. Simon of Germany. The initially high mortality rate was gradually overcome, leading to today's surgical success.

MP 10.8

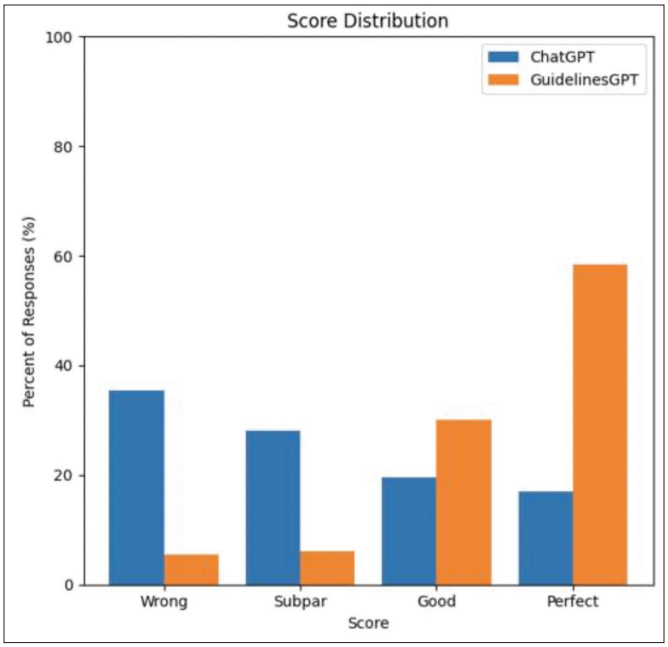
Retrieval augmented generation significantly improves large language model performance on complex urology queries

Tiange Li[1], Mohamad Baker Berjaoui[1], Gagan Fervaha[1], Alexander Koven[1], Brian Carrillo[2], Monica Farcas[1,4], Rano Matta[1,3]
[1]University of Toronto, Toronto, Canada; [2]WellSpring Research, Toronto, Canada; [3]Sunnybrook Health Sciences Centre, Toronto, Canada; [4]St. Michael's Hospital, Toronto, Canada

Introduction: Large language models (LLMs) have demonstrated impressive zero-shot performance on queries across vast domains. Within urology, however, generalist models have shown poor performance in domain-specific queries due to the non-specific and outdated nature of their pretraining data. We developed GuidelinesGPT, a retrieval-augmented framework using Canadian Urological Association (CUA) guideline documents to improve LLM outputs on complex urology queries.

Methods: We incorporated 54 documents from the CUA website, including guidelines, best practice reports, and consensus statements. We constructed a vectorized knowledge-base and developed a workflow to optimize information retrieval, which is used by GuidelinesGPT to provide accurate, contextual, and guideline-endorsed responses. We evaluated this tool against standard ChatGPT (OpenAI) on a dataset of 50 urology-related queries. Four reviewers assessed model responses using a four-point scale (wrong, subpar, good, perfect). Wilcoxon signed-rank test compared models; the intraclass correlation coefficient (ICC) was used for inter-rater reliability.

Results: Results are demonstrated in Figure 1. GuidelinesGPT scored "perfect" or "good" in 89% of responses, compared to ChatGPT at 36%. The difference in score distribution was statistically significant ($p<0.05$) with a large effect size ($r>0.5$). While inter-rater reliability was poor for both models (ICC 0.32 vs. 0.34), analyses of individual rater data consistently demonstrated a similar direction and magnitude of performance improvement with GuidelinesGPT, despite variations in individual scoring.



MP 10.8. Figure 1. Score distribution of GuidelinesGPT vs. ChatGPT on urology queries.

Conclusions: We introduce a retrieval-augmented framework to improve LLM responses to domain-specific queries within urology. We show that augmentation of the LLM with guidelines significantly improves model outputs to be accurate and relevant to a Canadian context. Further studies will examine the extension of this framework to larger corpus of clinical reference documents, and an evaluation of its utility as a clinical decision support tool.

MP 10.9

From interruption to innovation: Pilot study of an automated continuous bladder irrigation monitoring system

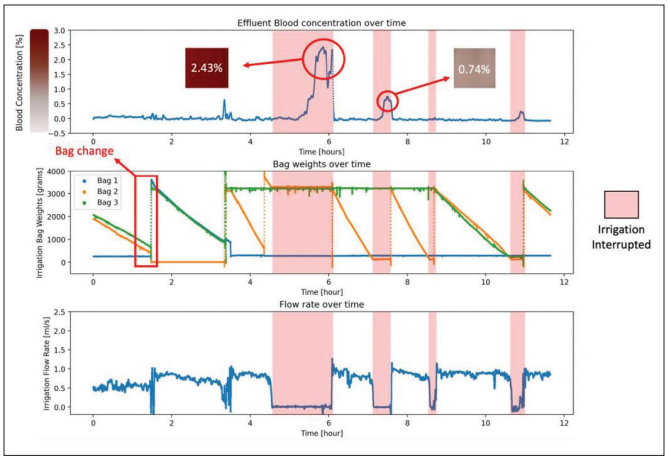
Sufyan Shaikh[1,3], Amir Hamzeh[2], Jonguk Lee[3], Fatima Saleem[2], Kyra White[4], Kai-Ho Fok[3], Karim Habib[3], Brian Carrillo[5], Monica Farcas[3,6]

[1]Institute of Medical Sciences, University of Toronto, Toronto, Canada; [2]Temerty Faculty of Medicine, University of Toronto, Toronto, Canada; [3]Division of Urology, Department of Surgery, St. Michael's Hospital, Toronto, Canada; [4]Royal College of Surgeons of Ireland, Dublin, Ireland; [5]WellSpring Research, Toronto, Canada; [6]Division of Urology, Department of Surgery, University of Toronto, Toronto, Canada

Introduction: Continuous bladder irrigation (CBI) requires diligent monitoring and fine control of saline flow rate (FR) in response to changing hematuria. Our previous work revealed the limited and inconsistent FR control permitted by current CBI equipment. Furthermore, we documented the excessive workload associated with CBI management that impacts nurses' ability to manage CBI. In response, our team developed a novel, low-cost device to monitor and aid CBI management.

Methods: Our device consists of 1) a system of sensors to track saline bag fluid levels; and 2) a camera-based blood concentration (BC) detection module. To ensure accurate BC readings, we calibrated our detection module to a standard created from porcine blood. Our device records irrigation bag weights, inflow rate, and effluent BC every 0.5 seconds. For our pilot study, three patients receiving transurethral resection of the prostate (TURP) were enrolled.

Results: Figure 1 reports a patient's CBI that was monitored for approximately 12 hours post-TURP. During this time, the irrigation flow rate ranged from 0–1.18 ml/sec; peak effluent BC was 2.43%, and four interruptions occurred: three due to saline bags emptying and one due to bags being left unclamped. Three interruptions resulted in a sharp increase in effluent BC. Over 12 hours, patients required an average of six bag changes. They experienced 2.67 instances of CBI cessation lasting 2.15 hours, on average, with the longest duration being 1.17 hours. Peak effluent BC ranged from 0.70–2.43%.



MP 10.9. Figure 1. Continuous monitoring of a patient undergoing CBI post-TURP. Extended periods of irrigation interruptions led to spikes in effluent blood concentration.

Conclusions: Our device successfully identified key metrics related to CBI administration. With a larger sample size, we will gain greater insight into the implications of CBI interruptions and high effluent BC, assisting in establishing CBI guidelines and developing an automated system. Future directions include upgrading our devices' functionality and collecting additional patient data, such as coagulopathies, medications, hemoglobin, and platelet levels, to observe their relationships with CBI administration.

MP 10.10

Assessing the efficacy and clinical utility of artificial intelligence scribes in urology

Joseph Moryousef[1], Praveen Nadesan[1], Michael Uy[1], Danny Matti[2], Yanbo Guo[1]

[1]Divisions of Urology, McMaster University, Hamilton, Canada; [2]Divisions of Urology, The University of Western Ontario, London, Canada

Introduction: Physician burnout is a significant issue in healthcare, with burnout rates in urology reaching up to 63.6%. A substantial contributor to this is the administrative burden tied to clinical documentation. Artificial intelligence (AI) shows promise for optimizing healthcare workflows. This study aimed to assess the quality of AI-driven medical scribes and to evaluate their impact on urologic practice.

Methods: Standardized reference consultation notes were developed for common urologic referrals, including urolithiasis, BPH, and PSA screening. Each note highlighted pertinent positives and negatives that could influence management, aligning with national and international guidelines. Audio recordings of these simulated encounters were processed by five freely accessible AI scribes: 1) Scribe MD; 2) Heidi; 3) Scribeberry; 4) Tali; and 5) Nabla. The AI-generated outputs were evaluated by urology faculty and trainees across two Canadian academic institutions using a standardized survey.

Results: Among the 20 urologists surveyed, 75% identified clinical documentation as a primary contributor to burnout, and 90% expressed willingness to use AI scribes for documentation assistance. Of the AI tools evaluated, Nabla scored highest, with a favorable composite rating of 68% and the lowest critical error rate (28%). Three-quarters of respondents indicated they would consider implementing AI scribes in their current form, and 89% believed these tools could substantially impact their future practice.

Conclusions: AI scribes have the potential to significantly ease the documentation burden and thereby mitigate burnout among physicians. Nevertheless, challenges such as accuracy, medicolegal considerations, and privacy issues persist. AI scribes represent a valuable adjunct to clinical practice, enhancing patient-clinician interactions by reducing administrative workload; however, they should complement rather than replace clinician-led documentation to ensure patient care quality and safety.

MP 10.11

Assessing the capability of artificial intelligence ChatGPT in interpreting uroflowmetry study and developing clinical management plans

Abdulrahman Almazeedi[1], Ahmad Almarzouq[1,2], Tariq Alshaiji[1]
[1]Urology Unit - Department of Surgery, Jaber Alahmad Hospital, Kuwait City, Kuwait; [2]Urology Unit - Department of Surgery, Sabah Alahmad Urology Center, Kuwait City, Kuwait

Introduction: Uroflowmetry is a key diagnostic test in assessing and diagnosing lower urinary tract symptoms. ChatGPT is a large language model that generates human-like text responses based on user prompts, showing potential in healthcare data analysis. The use of AI has shown promising findings in interpreting radiologic studies in urology and pathology specimens. The study aimed to evaluate ChatGPT ability to interpret uroflowmetry study and formulate appropriate management plans, comparing its performance to that of expert humans.

Methods: We included patients aged 18–85 years who had undergone uroflowmey study at Jaber Al-Ahmad Hospital between March and June 2024. A standardized template, which included patient demographics, presenting symptoms, and a printout of the uroflowmetry study, was inputted to ChatGPT version 4o and prompted to analyze the uroflow shape pattern, readings of the void volume, Qmax, flow time, average flow, time to max flow, and the PVR obtained using ultrasound post-uroflow. The uroflowmetry study, clinical impression, and management plans were compared with those of two expert urologists to assess the concordance.

Results: Data was collected from 100 patients, with the majority being female (60%) and at a mean age of 38 years. ChatGPT demonstrated a concordance rate of 94.3% for the uroflow shape pattern. The void volume, Qmax, flow time, average flow, and time to maximum flow showed a concordance rate of 91.2%. The concordance rate was 88.5% for the clinical impression and 85.8% for management plans. Overall concordance, including shape, parameters, impression, and management, was 90.85%.

Conclusions: This study demonstrates that ChatGPT achieved high concordance rates when compared to expert interpretations of uroflowmetry studies, clinical impressions, and management plans. These findings highlight the potential of AI software to support clinical decision-making in urology and warrant further research to explore its broader applications and integration into clinical workflows.

MP 10.12 - WITHDRAWN

MP 10.13

Artificial intelligence in urology: A survey of urology healthcare providers

Yam Ting Ho[1], Rizal Rian Dhalas[2], Muhammad Zohair[3], Subrata Deb[4], Mohammed Shoaib[5], Sandra Elmer[6], A.H.M Imrul Tareq[7], Tauheed Fareed[8], Nahid Rahman Zico[9], Agus Rizal Ardy Hariandy Hamid[10], Jeremy Y.C. Teoh[11,12,13], Isaac A. Thangasamy[1,14]
[1]Nepean Urology Research Group, Kingswood, Australia; [2]Department of Urology, Faculty of Medicine, Universitas Airlangga, Dr. Soetomo Regional Public Hospital, Surabaya, Indonesia; [3]Department of Urology, Institute of Kidney Diseases Hayatabad, Peshawar, Pakistan; [4]Department of Urology, Sylhet MAG Osmani Medical College Hospital, Sylhet, Bangladesh; [5]Department of Urology, Peshawar Medical College, Peshawar, Pakistan; [6]Department of Urology, Royal Melbourne Hospital, Royal Melbourne Hospital, Melbourne, Australia; [7]Army Medical College and Combined Military Hospital, Chattogram, Bangladesh; [8]Peshawar Institute of Medical Sciences/ Pak International Medical College, Peshawar, Pakistan; [9]Department of Urology, Dhaka Medical College Hospital, Dhaka, Bangladesh; [10]Department of Urology, Faculty of Medicine, Universitas Indonesia, Cipto Mangunkusumo Hospital, Jakarta, Indonesia; [11]S.H.Ho Urology Centre, Department of Surgery, Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong, Hong Kong; [12]Li Ka Shing Institute of Health Sciences, The Chinese University of Hong Kong, Hong Kong, Hong Kong; [13]Department of Urology, Medical University of Vienna, Vienna, Austria; [14]Faculty of Medicine, University of Sydney, New South Wales, Australia

Introduction: We sought to examine the attitudes and beliefs about artificial intelligence (AI) technology among urology healthcare providers. AI has many uses in medicine, including but not limited to diagnostics, predicting clinical outcomes, and patient education. AI has been used in urologic conditions such as urolithiasis, urogynecology, and uro-oncology.

MP 10.13. Table 1. Demographic details of respondents (N=464)

	n	%
Gender		
Male	403	86.85
Female	61	13.15
Age group (years)		
<30	90	19.4
30–39	215	46.34
40–49	104	22.41
50–59	36	7.76
≥60	19	4.09
Continent		
Africa	1	0.22
Asia	389	83.84
Oceania	44	9.48
Europe	5	1.08
North America	20	4.31
South America	5	1.08
Institution		
Teaching hospital/academic institution	312	67.24
Non-academic public hospital	67	14.44
Private practice	37	7.97
Mixed (public/private)	48	10.34
Occupation		
Urology consultant/specialist	272	58.62
Urology nurse/nursing consultant	2	0.43
Urology resident /trainee /registrar	151	32.54
General practitioner	31	6.68
Hospital staff/JMO/others	8	1.72

Methods: A structured, online questionnaire, created from a modified Delphi method with a panel of urologists and urology surgical trainees, was delivered through the Urological Asia Association's annual congress. The questionnaire, with 25 items of mixed-type responses (five-point Likert scale, nominal polytomous, and open-ended), acquired data regarding demographics, current and perceived AI usage, attitude/belief towards AI usage in urology, and perceived enablers and barriers of AI use.

Results: A total of 464 respondents from 47 different countries over six continents were collected and demographic details of respondents are demonstrated in Table 1. Most (80%) participants have used AI in their practice; it is commonly used in research, patient education, and administrative tasks. More than 75% of participants are positive towards AI and believe it will improve urologic care and many believe AI adoption will not replace clinical practice. The majority (86.2%) of participants are willing to adopt AI in future clinical practice; the tabulated breakdown of responses is seen in Table 2. The key enablers identified include

MP 10.13. Table 2. Tabulated breakdown of responses for willingness to use AI in future practice, organized by age group and occupation

Response to question "Willing to use AI in future clinical practice"	n (%)	
	<50 years old	≥50 years old
Agree	353 (76.1)	47 (10.1)
Urology consultant/specialist	193 (41.6)	46 (9.9)
Urology nurse/nursing consultant	1 (0.2)	1 (0.2)
Urology resident/trainee/registrar	125 (26.9)	–
General practitioner	27 (5.8)	–
Hospital staff/JMO/others	7 (1.5)	–
Neutral	46 (9.9)	8 (1.7)
Urology consultant/specialist	21 (4.5)	8 (1.7)
Urology resident/trainee/registrar	20 (4.3)	–
General practitioner	4 (0.9)	–
Hospital staff/JMO/others	1 (0.2)	–
Disagree	10 (2.2)	–
Urology consultant/specialist	4 (0.9)	–
Urology resident/trainee/registrar	6 (1.3)	–
Total	409 (88.2)	55 (11.9)

regulatory approval, AI clinical effectiveness, and access to AI training.
Conclusions: Overall, attitudes and beliefs toward the use of AI in urology are positive, as participants see value in improving urologic care. Nevertheless, further AI training, education, and regulatory reform are required to realize the full potential of AI in mainstream urology practice.

MP 10.14

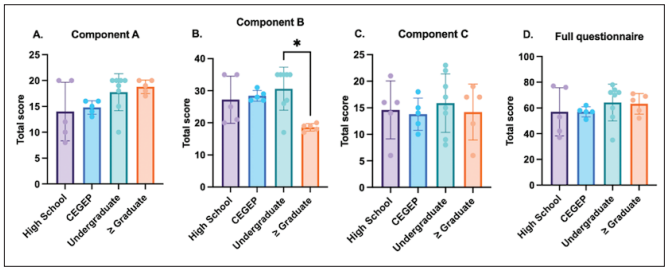
Automating systematic review screening with large language models: Efficiency gains and cost benefits in evidence synthesis

Tiange Li[1], David-Dan Nguyen[1], Jethro Kwong[1], Brian Carrillo[2], Christopher Wallis[1], Monica Farcas[1]
[1]University of Toronto, Toronto, Canada; [2]WellSpring Research, Toronto, Canada
Introduction: Systematic reviews are a cornerstone of evidence-based medicine, but are resource-intensive to generate, typically requiring manual effort from at least two reviewers. Recent advances in generative artificial intelligence, including large language models (LLMs), may automate the screening phase of systematic reviews, significantly reducing time and resource burdens.
Methods: This study evaluated the effectiveness of zero-shot prompting on Cohere's contextual reranking models and chain-of-thought techniques on OpenAI's GPT-4-omni. An analysis of screening performance was conducted on both models, referencing 35 systematic reviews published within the last ten years, including 11 in urology.
Results: The reranking model achieved a mean sensitivity of 99.1% (range 82.4–100%) and specificity of 40.9% (29.4–57.9%), processing 10 000 abstracts at an average cost of $0.30 USD and time of 57 seconds. Chain-of-thought prompting with GPT-4-omni demonstrated a sensitivity of 97.5% (88.2–100%) and specificity of 71.7% (42–99%), costing on average $120 and taking 53 minutes per 10 000 abstracts. In a subanalysis of urology-specific SRs, reranking achieved 99.0% sensitivity (88.5–100%) and 41% specificity; GPT-4o achieved 99.8% sensitivity (97.7–100%) and 71.8% specificity (53–99%). Compared to manual screening, which has been reported to cost up to $10 000 USD or 500 hours for a similar number of abstracts, LLMs significantly reduced screening time and costs while maintaining high sensitivity for relevant literature.
Conclusions: LLMs show substantial efficiency gains and cost benefits in automating systematic review screening, while maintaining a high degree of sensitivity to relevant abstracts. This has the potential to expedite evidence synthesis in urology. Future work aims to extend these workflows to full-text evaluation and data extraction. Integrating automated tools as a second reviewer or research "copilot" may result in substantial workload savings when generating systematic reviews.

MP 10.15

From pandemic to practice: Satisfaction and acceptability of telemedicine for the management of benign prostatic hyperplasia

Aalya Hamouda[1], David Bouhadana[2], Mohaammed Aleid[2], Fadl Hamouche[2], Serge Carrier[2], Mélanie Aubé-Peterkin[2]
[1]Department of Medicine, McGill University, Montreal, Canada; [2]Department of Surgery, McGill University, Montreal, Canada
Introduction: Benign prostatic hyperplasia (BPH) presents with lower urinary tract symptoms (LUTS) affecting quality of life (QoL) in aging men. During the COVID-19 pandemic, followup was heavily conducted using telemedicine (TM). The added cost and time benefits have pushed TM to continue. Given the important complications of BPH and necessary monitoring, the quality of TM in BPH care remains a concern. This pilot study aims to evaluate the satisfaction and future acceptability of TM by BPH patients.
Methods: This is a single-center, retrospective study including 23 patients followed for BPH who received at least one phone consult from 2020–2024. Subjects completed a non-validated questionnaire with three components. The first two components assessed satisfaction: A) feasibility and accessibility; and B) perceived quality of care (primary outcome), whereas the third reflected acceptance: C) acceptance of future TM. Responses were recorded on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Data also included baseline variables: age, education, past medical and surgical histories, language, and number of consults. Cronbach alpha (α) was calculated to assess the questionnaire's reliability and internal consistency.
Results: Mean scores for each question of A and B fell within 4–5, except for question 6 (between 3–4) (Table 1). Responses for C fell within 2–4. Yet, total scores (in percentage) across components were similar. Patients with graduate or postgraduate education had significantly lower B scores than those with undergraduate education (p=0.02) (Figure 1). Finally, internal consistency and reliability were strong for each component (A: α=0.8108, B: α=0.9018, C: α=0.8456).
Conclusions: This study demonstrates that patients with BPH are satisfied with past phone consults and with potential for acceptance of future TM. Apart from education, satisfaction was unrelated to other cohort characteristics, showing benefits in most demographics.



MP 10.15. Figure 1. Relationship between mean total score and highest level of achieved education: (A-C) each questionnaire; (D) the full questionnaire. Non-parametric one-way ANOVA. Error bar represents ± SD. *p<0.05.

MP 10.15. Table 1. Questionnaire results

Question	Mean±SD
Component A. Perspective on feasibility and accessibility	
I was comfortable using telemedicine technology (including troubleshooting and user experience).	4.3±1.18
Telemedicine was useful in avoiding wait times on the day of my scheduled appointment.	4.2±1.15
I value the reduced time, cost, and effort related to transportation that telemedicine offers.	4.1±0.96
Telemedicine was useful in managing my overall schedule for the day.	4.0±1.09
Component A. Total score (on 20)	16.5±3.75
Component B. Perceived quality of care (primary outcome)	
I was confident in sharing my medical concerns.	4.3±0.88
I was confident in my urologist's ability to treat my chief concerns without a routine physical exam or other in-person tests.	4.1±1.04
I was relaxed and did not feel rushed.	4.2±0.95
There was sufficient time to address my concerns.	4.0±1.02
My questions were adequately answered.	4.6±0.59
Overall, I believe I received the same quality of care in my past telemedicine visits versus in-person.	3.8±1.30
Overall, I am satisfied with my past telemedicine experience(s).	4.3±0.93
Component B. Total score (on 35)	29.3±5.43
Component C. Acceptance of future telemedicine consultations	
In the future, I would prefer telemedicine over in-person consultations.	2.8±1.19
In the future, I would be open to telemedicine over in-person consultations for:	
a) Management of my BPH-related LUTS	3.1±1.31
b) For surgical decision-making and consent	2.9±1.32
c) For post-operative follow-up	3.2±1.34
In the future, I would prefer new methods of telemedicine, such as more interactive video consults specialized for medical encounters, compared to current telemedicine practice (Zoom/phone).	3.3±1.03
Component C. Total score (on 20)	15.1±4.89
Overall questionnaire score (on 75)	60.9±12.4

Likert scale: 1=strongly disagree; 2=disagree; 3=neither agree nor disagree; 4=agree; 5=strongly agree.

MP 10.16

The role of magnetic resonance imaging in penile fracture management: A systematic review

Henry Wang[1], Shravankrishna Ananthapadmanabhan[2], Jeremy Saad[1], Alexander Combes[1], Jarrah Spencer[1], Sunny Nalavenkata[1], Ankur Dhar[1]

[1]Department of Urology, Westmead Hospital, Westmead, Australia; [2]Department of Urology, Nepean Urology Research Group, Kingswood, Australia

Introduction: Penile fractures, defined by traumatic rupture of the tunica albuginea, are a rare urologic emergency. While classically diagnosed on clinical grounds, magnetic resonance imaging (MRI) has emerged as a promising tool in the management of penile fractures and is often recommended in equivocal cases. This study aimed to evaluate the diagnostic accuracy of MRI for penile fractures and to explore MRI's effectiveness in guiding the surgical approach through precise localization of the injury site.

Methods: PubMed, Embase, and Cochrane databases were searched from January 1995 to December 2022. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed and a total of 246 cases from 32 studies were identified.

Results: Pooled results for MRI use in penile fracture diagnosis resulted in a positive predictive value of 97.8%, a negative predictive value of 87.0%, a sensitivity of 98.6%, and a specificity of 80%. MRI can accurately guide localized incisions due to its ability to accurately identify the exact site of injury, with no additional reported complications or conversions to degloving. Considerable heterogeneity was observed within MRI parameters and protocols used in the studies identified.

Conclusions: This review suggests that MRI is an accurate imaging modality for penile fractures and should be considered as a first-line investigation for equivocal cases. MRI may refine clinical management through precise injury localization and by avoiding unnecessary surgeries by differentiating penile fractures from mimics. Future standardization of MRI protocols could enhance its utility and reliability in the clinical setting.

Acknowledgements: The authors would like to thank Dr. Daniel Chia for his assistance and input in this review.