

# Syllabus

## J.K. Wyatt Urology Residents Research Day



*Friday, May 24, 2024  
Ivey Spencer Leadership Centre  
London, Ontario*



# ***Remembering Dr. John (Jack) Kenneth Wyatt***



Jack Wyatt completed his undergraduate and medical school training at Western. During his university days he excelled in sports and was captain of the Western football team. His medical school classmates described him as the class prankster.

After completion of residency training Dr. Wyatt began his urological career in 1960 at Victoria Hospital, practicing general urology with a special interest in cancer and reconstructive surgery. He later went on to serve as Residency Program Director and Division Chair, and aided the building of the Western Urology division into a strong clinical and academic program.

Dr. Wyatt is fondly remembered by alumni for his care in their well being as residents, and his sharp clinical acumen. He was also a great storyteller with a razor-sharp wit and dry sense of humor. He is remembered by former patients for his common sense approach, easy-going nature and empathy.

During his career Dr. Wyatt was actively involved in both the Northeastern Section of the American Urological Association and Canadian Urological Association. He served as CUA President in 1984.

Dr. Jack Wyatt passed away in 2004 after a long and distinguished urological career. We are indebted to his many contributions to Urology in London and beyond. His legacy is celebrated through our annual Research Day.

# 2024 Guest Professor: Dr. Pramod P. Reddy, MD

Dr. Reddy is a Professor of Urology at the University of Cincinnati, School of Medicine and the Curtis Sheldon and Jeffrey Wacksman Chair of Pediatric Urology at Cincinnati Children's. He was also awarded the Janszen Endowed Scholar in Urology in 2022. He received his M.B.B.S. degree from Nagarjuna University in India. He trained in Urology at Albany Medical Center, Albany, N.Y. He completed a Pediatric Urology Fellowship at SickKids, Toronto, Canada. He joined Arkansas Children's Hospital as the Division Director (1999-2001) and then in 2001, he joined the faculty at Cincinnati Children's, he has served as the Director of the Pediatric Urology Fellowship and is currently the Director of the Division of Pediatric Urology.

He is certified by the American Board of Urology with subspecialty certification in Pediatric Urology.

Dr. Reddy specializes in complex genitourinary reconstructive surgery – including re-operative hypospadias repair, anorectal malformations, neurogenic bladder, management of the lower urinary tract for renal transplant and has a special interest in fetal urology, management of posterior urethral valves (PUV) and bladder exstrophy. He served as the President of the Society of Fetal Urology 2017-18.

Dr. Reddy is the recipient of a K award from the NIDDK-NIH and is currently working to develop urinary biomarkers of renal and bladder injury.

Dr. Reddy is committed to sustainable global health programs, reducing healthcare disparities, improving access to care and improved clinical outcomes through clinical collaborations, both here in the USA and also globally. He travels annually to India for the International Bladder Exstrophy Consortium.

Dr. Reddy is an active participant in medical education and has been recognized for his teaching at the University of Cincinnati, he was made an honorary member of the Croatian Pediatric Surgical Society for his contributions and has also been recognized by numerous universities in India for his participation in their post-graduate medical education programs.

Dr. Reddy serves as the Surgical Liaison to the Strategic Growth Program at Cincinnati Children's.

## 2024 Talk Titles:

1. Transition of Care and Global Surgery – creating sustainable programs
2. Posterior Urethral Valves (PUV) – Multidisciplinary care and Translational research to improve outcomes



## JK Wyatt Urology Residents' Research Day

Friday, May 24, 2024

Ivey Spencer Leadership Centre, London, Ontario

### Objectives:

1. To review clinical and basic science projects by Western University Trainees in the following areas: 1. Pediatrics, 2. Oncology, 3. Endourology, 4. Transplantation, 5. Medical Education, 6. Functional Urology
2. To understand the transition of pediatric urology patients to adult care providers
3. To gain insights into complex pediatric urological problems and develop approaches to these problems

## AGENDA

7:00 - 7:50 Registration

8:00 - 8:10 Welcome and Introductions: Dr. A. Sener, Dr. P. Wang, Dr. S. Pautler

### **SESSION I: Fundamental Sciences and Surgical Innovation Node**

**Moderator: TBD**

08:10-08:20 B. Liu: The impact of histologic subtypes on clinical outcomes after radiation-based therapy for muscle-invasive bladder cancer (Dr. Izawa)

– 5 minute presentation + 5 minute Question/Answer Period

08:20-08:30 E. Afenu: Controlled rewarming of kidneys from donors after cardiac death is associated with improved early graft function in transplant kidney recipients (Dr. P. Luke)

– 5 minute presentation + 5 minute Question/Answer Period

08:30-08:40 M. Basulto Martinez: Non-destructive urinary stones analysis utilizing micro-X-ray fluorescence and electron microprobe analysis: a proof-of-concept study (supervisor)

– 5 minute presentation + 5 minute Question/Answer Period

08:40-09:00 **Dr. Jeffrey Campbell, 'Development of a novel therapeutic option for treating of Peyronie's disease in Canada'** – 15 minute presentation + 5 minute Question/Answer Period

Learning Objectives:

- i) Discuss Peyronie's disease treatment in Canada
- ii) Review the innovation of 2d and 3d cellular Peyronie's disease models
- iii) Explore future treatment options for Peyronie's disease

### **SESSION II: Big Data/ICES Node**

**Moderator: Dr. Sumit Dave**

09:00-09:10 M. Playfair: The assessment and management of voiding dysfunction in adults living with cerebral palsy (Dr. Welk)

– 5 minute presentation + 5 minute Question/Answer Period

09:10-09:20 W. Luke: Role of 18F-DCFPyL PET/CT in the Prediction of Survival in Patients with Recurrent Prostate Cancer: Results of a Prospective Multicenter Registry Trial (supervisor)

– 5 minute presentation + 5 minute Question/Answer Period

09:20-09:30 H. Abed: Factors associated with the publication rate and impact of CUA abstracts from representative year over the last decade (Dr. Welk)

– 5 minute presentation + 5 minute Question/Answer Period

09:30-09:40 S. Ravula: Incidence and time to complications following hypospadias repair: Results from a population based retrospective cohort study, Ontario, Canada 2002-2017 (supervisor)

– 5 minute presentation + 5 minute Question/Answer Period

09:40-9:50 H. Rotz: Outcomes of the artificial urinary sphincter among men with prior pelvic radiation: device survival and impact of time since radiation (Dr. Welk)

– 5 minute presentation + 5 minute Question/Answer Period

9:50-10:00 B. Li: Comparison of [18F] PSMA-1007 PET/CT and Conventional Imaging in the Detection of Metastatic Clear Cell Renal Cell Carcinoma (Dr. Huynh)

– 5 minute presentation + 5 minute Question/Answer Period

*10:00-10:30 Refreshment/Health Break (30 minutes)*

**10:30-11:00 Guest Professor, Dr. Pramod Reddy: “Transition of Care and Global Surgery – creating sustainable programs”**

Learning Objectives: i) Define what a Transition of care program is and the differences between transition and transfer of care  
ii) State the importance of having a good proactive transition of care program – with regards to protecting the health outcomes of adults with congenital genitourinary conditions  
iii) Define what a sustainable global health surgical initiative is and the challenges that are unique to surgical programs

– 20 minute presentation +10 minute Question/Answer Period

**SESSION III: Quality Improvement & Patient Centered Research Moderator: Dr. Melissa Huynh**

11:00-11:10 J. Cendejas-Gomez: Experience of the Virtual Canadian Testicular Cancer Second Opinion Group (supervisor)

– 5 minute presentation + 5 minute Question/Answer Period

11:10-11:20 C. McMartin: In clinic verapamil injections for Peyronie's disease: A retrospective study on patient sexual satisfaction (Dr. J. Campbell)

– 5 minute presentation + 5 minute Question/Answer Period

11:20-11:30 M. Smith: Radiation Safety and Awareness (supervisor)

– 5 minute presentation + 5 minute Question/Answer Period

11:30-11:40 D. Matti: The Impact of Pediatric Circumcision on the Penile Microbiota (Dr. Dave)

– 5 minute presentation + 5 minute Question/Answer Period

11:40-11:50 J. Wong: Results of a Novel Inguinal Lymphadenectomy Template (supervisor)

– 5 minute presentation + 5 minute Question/Answer Period

11:50-12:00 M. Igbokwe : Temperature Changes in the renal allograft warming during kidney transplantation: Comparison of controlled vs. standard rewarming (Dr. P. Luke)

– 5 minute presentation + 5 minute Question/Answer Period

*12:00-01:00 Lunch Break and Social Networking*

**SESSION IV: Surgical Education Node Moderator: Dr. Peter Wang**

01:00-01:10 L. Stringer: Assessing Factors Impacting the Pursuit of Surgical Training in Canadian Medical Students (supervisor) – 5 minute presentation + 5 minute Question/Answer Period

01:10-01:20 P. Jenjitrant: Teaching Advanced Surgical Technique Using Peer-Reviewed Multimedia: An Assessment of Technical Competence in Cadaveric-Based Simulation (Dr. Power)

– 5 minute presentation + 5 minute Question/Answer Period

01:20-01:30 Victoria Turnbull: Visual Recognition Contest

**01:30-02:00 Guest Professor, Dr. Pramod Reddy: “Posterior Urethral Valves (PUV) – Multidisciplinary care and Translational research to improve outcomes”**

Learning Objectives: i) Define the pathophysiology of posterior urethral valves (PUV)  
ii) State the need for multidisciplinary care for children  
iii) Identify gaps in our diagnostic abilities for this patient cohort  
iv) Articulate the opportunities for developing biomarkers as a diagnostic tool for this condition

– 20 minute presentation +10 minute Question/Answer Period

02:00-02:10 Thank you, wrap up, surveys

02:10-03:10 Resident Round Table with Guest Professor – TBD Location

This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of The Royal College of Physicians and Surgeons of Canada and approved by Continuing Professional Development, Schulich School of Medicine & Dentistry, Western University (4.75 hours). Each participant should claim only those hours of credit that he/she actually spent participating in the educational program.

# Western University Jack Wyatt Urology Residents' Research Day 2024

## RESIDENTS:

### **PGY5**

Bonnie Liu  
Leandra Stringer

### **PGY4**

Haider Abed  
William Luke  
Carolyn MacLeod  
Matthew Playfair

### **PGY3**

Bruce Li  
Heather Rotz  
Jennifer Wong

### **PGY2**

Edem (Andy) Afenu  
Danny Matti  
Victoria Turnbull

### **PGY1**

Aurinjoy Gupta  
Mehran Nejad Mansouri  
Mckinley Smith

## FELLOWS:

### **Andrology/Reconstruction**

Catherine McMartin

### **EndoUrology**

Tariq Alotaibi  
Mario Basulto-Martínez

### **Pediatrics**

Satyanara Ravula

### **Transplant**

Atheer Alqahtani Awaal  
Martin Igbokwe  
Jirong Lu

### **UroOncology**

Jesus Cendejas Gomez  
Peter Jenjitranant

## THE IMPACT OF HISTOLOGIC SUBTYPES ON CLINICAL OUTCOMES AFTER RADIATION-BASED THERAPY FOR MUSCLE-INVASIVE BEHAVIOUR

Daniel Halstuch, **Bonnie Liu**, Ronald Kool, Gautier Marcq, Rodney H. Breau, Peter C. Black, Bobby Shayegan, Michael Kim, Ionut Busca, Hamidreza Abdi, Mark T. Dawidek, Michael Uy, Gagan Fervaha, Fabio L. Cury, Nimira S. Alimohamed, Claudio Jeldres, Ricardo Rendon, Fadi Brimo, D. Robert Siemens, Girish S. Kulkarni, Wassim Kassouf, Jonathan I. Izawa



**Purpose:** Outcomes of RT-based therapy (RT) for muscle invasive bladder cancer (MIBC) with histologic subtypes (HS-UC) are lacking. Our objective was to compare survival outcomes of pure urothelial carcinoma (PUC) to HS-UC after RT-based therapy.

**Materials and Methods:** A multicenter retrospective study of 864 patients with MIBC who underwent curative-intent RT to the bladder for MIBC (clinical T2-T4aN0-2M0) between 2001-2018 was conducted. The association between HS-UC and complete response was tested using logistic regression. The association between HS-UC and survival outcomes were tested using Cox regression models.

**Results:** 122 patients (14%) had HS-UC. Seventy-five (61%) had HS-UC with squamous and/or glandular differentiation. A complete response (CR) was confirmed in 69% of patients with PUC and 63% with HS-UC. There were 207 (28%) and 31 (25%) patients that died of metastatic bladder cancer in the PUC and HS-UC, respectively. There were 361 (49%) and 58 (48%) patients that died of any cause in the PUC and HS-UC, respectively. Survival outcomes at 5 years were not statistically different between the groups. In the univariate Cox regression analyses, HS-UC status was not associated with inferior survival outcomes.

**Conclusion:** HS-UC responded to RT-based therapy with no significant difference in CR and survival outcomes compared to PUC. The presence of HS-UC in MIBC does not confer resistance to RT-based therapy and these patients should not be excluded from bladder preservation treatment. Due to low numbers, definitive conclusions cannot be drawn for any individual histologic subtypes.





# CONTROLLED REWARMING OF KIDNEYS FROM DONORS AFTER CARDIAC DEATH IS ASSOCIATED WITH IMPROVED EARLY GRAFT FUNCTION IN TRANSPLANT KIDNEY RECIPIENTS

Jirong Lu, Edem Afenu, Ram Patel, Yanbo Guo, Juliano Offerri, Alp Sener, Patrick Luke

## Introduction and objectives

We and others have shown that donor kidneys warm up to 15°C approximately 10 minutes upon removal from hypothermic storage during vascular anastomosis in kidney transplantation. We hypothesize that re-warming kidneys over 10 minutes (controlled rewarming) is superior to immediate rewarming or uncontrolled rewarming (allowing the kidney to rewarm during the anastomosis).

## Methods

Between 2018 to 2023, we reviewed early graft outcomes of DCD kidney transplants. In a limited number of cases, an 'ice blanket' was created using a laparotomy sponge lined with freshly crushed ice and wrapped around the graft during the vascular anastomosis. Recipients were divided into 3 groups: controlled rewarming (removal of the ice 10 min prior to vascular unclamping), immediate rewarming (removal at the time of unclamping) and no ice blanket use (uncontrolled rewarming). Early graft outcomes were analyzed and compared between the 3 groups using 3x2 Chi-square and Kruskal Wallis tests. A logistic regression was carried to assess the effects of ice blanket use, donor and recipient parameters on delayed graft function (DGF).

## Results

Of 145 cases, the ice blanket was not used in 86 (59.3%) recipients. Immediate rewarming occurred in 40 (27.6%), and controlled rewarming occurred in 19 (13.1%) patients at a median time of 11 mins (IQR 10 - 12). Donor, recipient and transplant parameters were similar between groups except for donor sex (Table 1).

DGF rates were 65% (immediate rewarming) vs 45% (uncontrolled) vs 16% (controlled rewarming) ( $p = 0.002$ ), with all pairwise comparisons being statistically significant. eGFR was highest in the controlled rewarming group at 1 month ( $p = 0.026$ ), but not sustained at 3 months between groups ( $p = 0.347$ ) (Table 2).

On multivariable logistic regression, donor age, recipient years on dialysis and ice blanket use were significant. Compared to uncontrolled rewarming, DGF rates were more likely with immediate rewarming (OR 2.86, 95% CI 1.12 – 7.27,  $p = 0.028$ ), and less likely with controlled rewarming (OR 0.14, 95% CI 0.03 – 0.62,  $p = 0.010$ ).

## Conclusions

Controlled 10 min rewarming of donor kidneys is associated with superior early graft function compared with uncontrolled rewarming and immediate rewarming of kidneys. Continued analysis of greater numbers and randomized controlled trials are required to validate these findings.

**Table 1** Donor, recipient, and transplant parameters

	Uncontrolled rewarming, n= 86	Immediate rewarming, n= 40	Controlled rewarming, n= 19	p value
<b>Donor parameters</b>				
Age	43.2 (34.7 – 57.2)	43.4 (33.7 – 53.6)	42.6 (30.5 – 51.2)	0.5778
Sex (male)	51 (59.3)	33 (82.5)	8 (42.1)	0.00414
BMI	26 (23.6 – 31.6)	26.6 (23.6 – 29.6)	29.1 (23.1 – 33.4)	0.6163
<b>Recipient parameters</b>				
Age (y)	56.3 (47 – 64.3)	56.2 (45.7 – 64.3)	56.3 (38 – 62)	0.8344
Sex (male)	54 (62.8)	22 (55)	13 (68.4)	0.5708
BMI	28.2 (24.8 – 31.8)	26.8 (23.6 – 32.2)	27.41 (25.2 – 31.1)	0.8589
Dialysis vintage (y)	2.3 (1.4 – 2.9)	2.3 (1.7 – 2.9)	2.4 (1.4 – 3.8)	0.8147
<b>Transplant parameters</b>				
Warm ischemia time (min)	32 (27 – 67)	30 (24 – 45)	33 (27 – 82)	0.3349
Cold ischemia time (h)	8.9 (6.4 – 11.7)	8.9 (6.3 – 11.8)	8.9 (6.1 – 12.3)	0.9201
Anastomotic time (min)	39 (32 – 46)	41 (34.5 – 44.5)	37 (32.5 – 42.5)	0.454

Values are median (IQR) or n (%)

**Table 2** Early graft outcomes between rewarming groups

	Uncontrolled rewarming, n = 86	Immediate rewarming, n = 40	Controlled rewarming, n = 19	p value
DGF	39 (45.3)	26 (65)	3 (15.8)	0.002
<b>Serum Creatinine (µmol/L)</b>				
7 days	469 (208 – 671)	531 (262 – 656)	280 (178 – 516)	0.148
1 month	140 (107 – 211)	119 (98 – 155)	113 (93 – 143)	0.036
3 months	125 (101 – 183)	121 (90 – 141)	115 (103 – 150)	0.490
<b>eGFR (ml/min/1.73m<sup>2</sup>)</b>				
7 days	10.0 (7.6 – 27.4)	8.5 (6.9 – 20.3)	19.4 (9.8 – 38.5)	0.111
1 month	46.2 (28.8 – 62.6)	56.8 (43.1 – 69.2)	60.9 (44.1 – 78.3)	0.026
3 months	52.9 (33.9 – 70.3)	56.1 (43.2 – 84.9)	60.3 (49.5 – 76.7)	0.347

Values are median (IQR) or n (%)



# NON-DESTRUCTIVE URINARY STONES ANALYSIS UTILIZING MICRO-X-RAY FLUORESCENCE AND ELECTRON MICROPROBE ANALYSIS: A PROOF-OF-CONCEPT STUDY

**Mario Basulto-Martínez**<sup>1</sup>, Lauren Stone<sup>2</sup>, Tariq Alotaibi<sup>1</sup>, Jeremy Burton<sup>1,3</sup>, Hassan Razvi<sup>1</sup>, Jennifer Bjazevic<sup>1</sup>.

<sup>1</sup>Schulich School of Medicine and Dentistry, Division of Urology; <sup>2</sup>Earth and Planetary Materials Analysis Laboratory, Western University; <sup>3</sup>Department of Microbiology & Immunology, Western University, London, Canada

## Introduction and objective

Urinary stone composition should be investigated whenever feasible to target prevention strategies and decreased stone recurrences rates. However, modern techniques for urinary stone analysis are typically limited to mass spectrometry, spectroscopy, and powder X-ray diffraction. Although efficient, these techniques require pulverization prior to analysis, preventing investigation of the internal heterogeneity exhibited by some stones. Therefore, we aimed to utilize non-destructive methods of spectrochemical analysis to determine the spatial distribution of elements within the stones at the micron scale and gain a greater understanding of the underlying mechanisms of stone formation.

## Methods

Five human kidney stones were embedded in resin, cross-sectioned, and polished prior to geochemical analyses via two techniques: micro-X-ray fluorescence ( $\mu$ XRF), and electron microprobe analysis (EPMA). Both techniques used highly restricted excitation beams to determine the elemental composition of micron-scale "spots." Overlapping spots were scanned until the full sample surface had been covered, allowing for the generation of high-resolution maps of elemental/mineralogical distribution within the stones.  $\mu$ XRF was conducted with the Bruker M4 Tornado and the JEOL JXA-8530F microprobe instrument for EPMA. All analyses were carried out at the Earth and Planetary Materials Analysis.

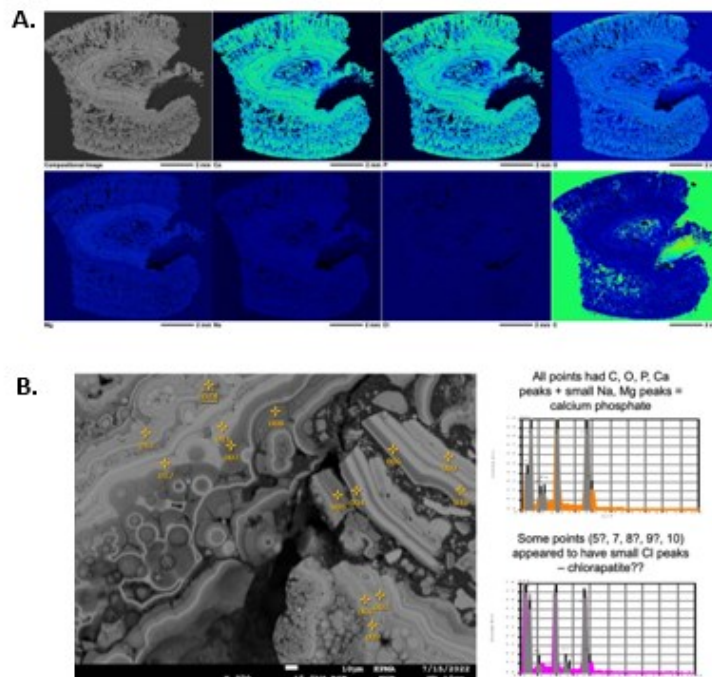
## Results

Five stones were analyzed with the following compositions: 1, calcium phosphate (CaPO); 2, calcium oxalate (CaOx) with a cysteine band; 3, uric acid (UA) with CaOx bands; 4, CaOx with CaPO at surface; and 5, UA with CaPO and CaOx bands. Moreover, spatially-resolved elemental identification was achieved, allowing for compositional mapping of the major types of stones, and locations of trace elements (e.g. Na, Zn, Cu) (Figure 1).

## Conclusions

This proof-of-concept study demonstrates the feasibility of utilizing non-destructive techniques for human urinary stone composition analysis using  $\mu$ XRF and EPMA, and allowed us to identify unique trace elements present within all five stones. Further studies matching stone composition and patients' clinical data are warranted to better understand the underlying mechanisms of stone crystallization and how trace elements may impact this process.

Figure 1. Geochemical analysis of a calcium phosphate stone. A.) Micro-XRF compositional mapping identifying presence of calcium, phosphate, oxygen, magnesium, sodium, chloride, and carbon. B.) Electron microprobe analysis identifying presence of calcium, phosphate, oxygen, magnesium, sodium, chloride, and carbon.





# THE ASSESSMENT AND MANAGEMENT OF VOIDING DYSFUNCTION IN ADULTS LIVING WITH CEREBRAL PALSY

**Matthew Playfair**<sup>1</sup> · **Sean Elliott**<sup>2</sup> · **Blayne Welk**<sup>1,3,4</sup>

## Abstract

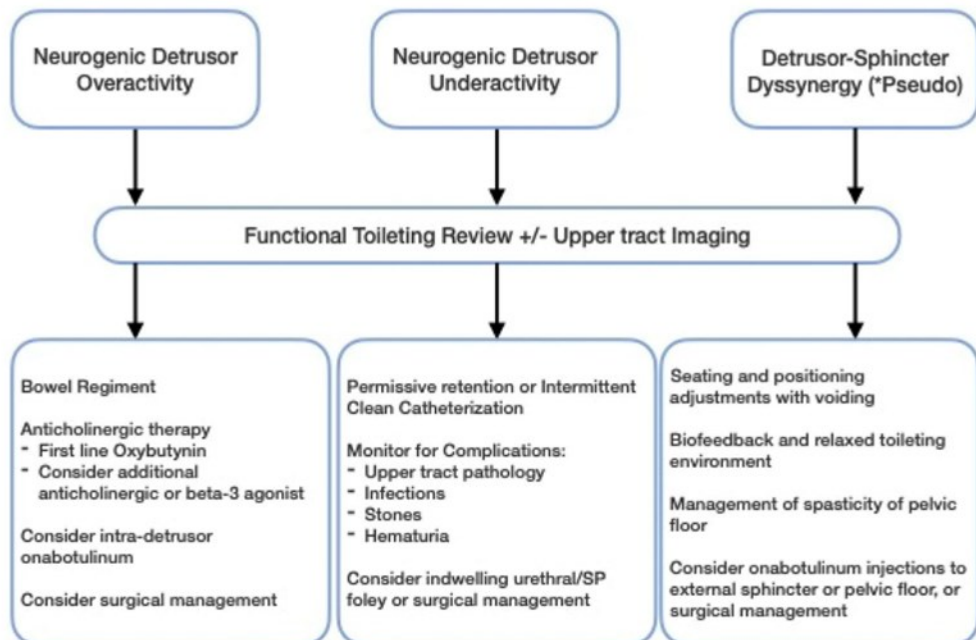
**Purpose** Improvements in life expectancy have resulted in an increasing number of adults with cerebral palsy, of which over a third will have neurogenic lower urinary tract dysfunction (NLUTD). This review explores urinary dysfunction in adults with cerebral palsy.

**Methods** Relevant literature on NLUTD in adults with cerebral palsy was identified using an unrestricted search of PubMed. **Results** Urinary incontinence is the most common complaint, often accompanied by frequency and urgency. Special consideration should be given to women and in those with worse motor or cognitive dysfunction as they have been shown to have more severe urologic symptoms. NLUTD can have significant morbidity and impact quality of life.

Hospital admission, urinary tract infections, and hydronephrosis are common urologic complications, with poor urinary function associated with decreased quality of life (QOL). Neurogenic detrusor overactivity is the most common urodynamic abnormality, with elevated detrusor leak point pressure and reduced bladder capacity. Detrusor sphincter dyssynergy is present in some patients and maybe secondary to generalized spasticity or incomplete upper motor neuron injury. Elevated bladder capacity is also present in a portion of patients, and becomes particularly relevant in adults as a result of increased spasticity of the urinary sphincter. Conservative management like functional toileting strategies, medications, and incontinence aids are successful in most patients. Medical management with anticholinergics is well described, and frequently the only intervention required, particularly in children. Intermittent clean catheterization has mixed results with this population, as its efficacy is limited by pelvic spasticity and patient factors. Surgical intervention, while often successful, should be restricted to select patients, as it is associated with significant morbidity in this population.

**Conclusion** Management of NLUTD in adults with CP involves conservative management, medications, and in rare cases surgical intervention.

**Fig. 2** Modified management strategy as initially proposed by Murphy et al. for CP patients based on urodynamic findings [8]



# ROLE OF 18F-DCFPyL PET/CT IN THE PREDICTION OF SURVIVAL IN PATIENTS WITH RECURRENT PROSTATE CANCER: RESULTS OF A PROSPECTIVE MULTICENTER REGISTRY TRIAL

**W Luke,** A Kohan, D Langer, P MacCrostie, B Green, S Pautler, G Kulkarni, U Metser, G Bauman



## Introduction

PSMA PET imaging continues to have a growing role in the global landscape of prostate cancer treatment. The Ontario experience was initially evaluated in the Ontario PSMA-PET Registry for Recurrent Prostate Cancer (PREP) study in 2022. This demonstrated that patients with biochemical failure and low volume or negative conventional imaging were frequently found to have additional disease sites, with subsequent changes to management plan. Since this study, patients in Ontario have had increased access to PSMA PET imaging without prior conventional testing. This study looks to evaluate the Ontario experience with PSMA PET regarding treatment pathway decisions and survival.

## Methods

This prospective, single arm, research ethics board approved registry of PSMA-PET studies included five academic hospitals across Ontario. Men were recruited between 2018 and 2022 based on: (a) prior primary treatment of prostate cancer with curative intent for localized disease, (b) evidence of high-risk disease at time of prostatectomy (node positive or PSA >0.1 ng/ml post prostatectomy) OR evidence of biochemical failure (BF). Patients were placed in cohorts based on status as (1) high risk, (2) BF post prostatectomy with salvage radiotherapy, (3) BF while on hormone therapy after primary treatment, (4) BF following therapy for oligo-metastatic disease, (6) BF following primary radiotherapy. Patient mortality, PSMA PET positivity, disease localization, and management changes were recorded. Cox Proportional Hazard modeling was used to evaluate differences in survival by multivariate analysis using PSA value, age, metastasis location (lymph, bone, viscera, mixed), management change, income,

## Results

There were a total of 4135 participants with a median age of 71 years. 24.6% of them had prior positive (oligometastatic) conventional imaging. Median time from primary treatment to PSMA PET was 3.3 years. 138 deaths (3.3%) were recorded with a median time to follow-up after scan was 1.8 years. 70.6% of all PSMA PET scans were positive, of those 18% demonstrated extensive disease, 23.2% identified only local failure. Median PSA at time of PSMA PET was 1.3 ng/ml. Patients with a PSA >0.2 ng/ml demonstrated a positivity rate of 76%. A positive PET prompted management change 64% of the time. Our multivariate model demonstrated that patient sub cohort ( $p < 0.0001$ ), management change ( $p < 0.0001$ ) and metastasis location ( $p < 0.0001$ ) were significantly associated with overall survival. Notably, mixed metastasis type was associated with the worst hazard ratio for survival (3.0) When sub cohort 4 and 6 were modeled both metastasis type ( $p = 0.029$ ,  $p = 0.041$ ) and management change ( $p = 0.002$ ,  $p = 0.005$ ) were significantly correlated with survival.

## Discussion

PSMA PET detects recurrent prostate cancer in a large proportion of patients with either biochemical failure or initial node positive status. Recurrent or persistent disease was identified roughly half of the time even with PSA values between 0.2-0.5 ng/ml. Despite a short follow up period survival differences were able to be detected based on imaging characteristics of patients. We hypothesize that the worsened survival portended by mixed metastatic status may be due to a more aggressive disease biology, with ability to flourish in variable micro-environments. Furthermore, clinicians seem to be able to further stratify patients' survival based on decisions to change management strategy. This may be due to tailored clinical choices impacting disease outcomes (less aggressive strategies on those that don't need, or more aggressive in those that do not), or an artifact of physicians choosing to intervene on those with more favourable baseline characteristics.



## FACTORS ASSOCIATED WITH THE PUBLICATION RATE AND IMPACT OF CUA ABSTRACTS FROM REPRESENTATIVE YEAR OVER THE LAST DECADE

**Authors:** Haider Abed, Zizo Al-Daqqaq, Ihtisham Ahmad, Zwetlana Rajesh, Ealia Khosh Kish, Blayne Welk

**Introduction:** The Canadian Urological Association's (CUA) annual meeting is the largest gathering of Canadian urologists and many abstracts that are presented go on to be published as peer-reviewed papers. Our objective is to determine the publication rates and impact of these abstracts, and examine predictors associated with

their publication.

**Methods:** We identified abstracts presented at the 2010, 2013, 2014, 2015, 2018, 2020, and 2021 CUA meetings, and determined if there were matching manuscripts based on author and title using a comprehensive Medline search. Standardized data was extracted. Medians and interquartile ranges are presented, and regression models were used to determine factors associated with manuscript publication, and journal impact factor.

**Results:** There were 1732 CUA abstracts in our years of interest. The overall publication rate was 45.4% at 3 years. Median journal impact factor was for all published abstracts was 2.27 and time to publication was 13.2 [6.1-23.3] months. Type of presentation was significantly associated with publication rate ( $p < 0.01$ ), with 63.7% of podiums, 46.7% of moderated posters, and 39.5% of unmoderated posters published. The median journal impact factor for published podium abstracts was 3.46 [2.05-5.65], 2.19 [1.37-3.77] for moderated posters and 2.10 [1.41-3.40] for unmoderated posters. Abstracts presented in 2015 (OR 1.643;  $p < 0.008$ ) and 2021 (OR 2.59;  $p < 0.001$ ) were associated with higher publication rates compared to 2010. Some Canadian universities had significantly higher or lower odds of abstract publication. Presentation modality had a significant association with published journal impact factor ( $p < 0.01$ ), while the year of presentation did not ( $p = 0.58$ ).

**Conclusions:** Approximately 45% of CUA annual meeting abstracts are eventually published. The type of presentation correlates well with both publication and impact factor, suggesting the CUA review process and scientific program committee does a good job of judging abstract quality.

**INCIDENCE AND TIME TO COMPLICATIONS FOLLOWING HYPOSPADIAS REPAIR: RESULTS FROM A POPULATION BASED RETROSPECTIVE COHORT STUDY, ONTARIO, CANADA 2002-2017**

S. Ravula





## OUTCOMES OF THE ARTIFICIAL URINARY SPHINCTER AMONG MEN WITH PRIOR PELVIC RADIATION: DEVICE SURVIVAL AND IMPACT OF TIME SINCE RADIATION

Heather Rotz, Blayne Welk

The artificial urinary sphincter (AUS) can improve continence and quality of life for men with post-prostatectomy incontinence. However, the exact impact of radiation on outcomes of the AUS is still unclear. Our objective was to describe our surgical revision rate in patients with prior radiation and determine if time since radiation significantly impacts the risk of device failure.

This was a retrospective cohort study using administrative records to identify all adult males who underwent a first-time AUS from 2012 to 2023 with a single surgeon. We only included patients who had received pelvic radiation prior to AUS. The primary outcome was any failure of AUS requiring repeat surgical intervention, while our secondary outcome was failure due to infection or erosion. Primary exposure was time, in months, from completion of radiation to AUS insertion. Cox regression analysis was used;  $p < 0.05$  was considered significant.

We identified a total of 101 men who met inclusion criteria. The median age (interquartile range, IQR) was 72 (69-76) years. The median time between radiation and AUS implantation was 93 (IQR 43-131) months. The most often used cuff size was 4 cm (43%). The median follow-up after AUS implantation was 24 months (IQR 9-56) months, with 16 men having repeat surgical intervention on the AUS. The 5-year overall device survival was 87%. Time in months from radiation was not significantly associated with all-cause device failure (HR 1.00, 95% CI 1.00-1.01,  $p=0.37$ ). Larger cuff size was significantly associated with lower risk of all-cause device failure (HR 0.28, 95% CI 0.06-0.89,  $p=0.03$ ). Similar results were seen with the secondary outcome specific to device infection or erosion.

Patients with prior radiation have a high device survival at 5 years. Time since radiation is not a significant predictor of device failure; however, a larger cuff size is significantly protective against repeat surgical intervention.

B. Li: Comparison of [18F] PSMA-1007 PET/CT and Conventional Imaging in the Detection of Metastatic Clear Cell Renal Cell Carcinoma





## EXPERIENCE OF THE VIRTUAL CANADIAN TESTICULAR CANCER SECOND OPINION GROUP

Jose de Jesus Cendejas-Gomez, Nicholas Edgar Power

**Introduction:** Testicular cancer (TC) is the most frequent solid neoplasia in males between 15-35 years, with an estimated 1100 men diagnosed annually in Canada. The mortality rate of TC has significantly decreased since the introduction of cisplatin-based chemotherapy. However, as the cancer progresses to metastatic stages, it becomes more complex and challenging to treat. To improve patient outcomes, second-opinion groups have been found to be effective in implementing evidence-based treatments.

**Objectives:** The primary objective of this study was to analyze the effectiveness of a second opinion group in potentially changing decision-making in Canadian patients with TC. As secondary objectives, we analyzed the number of answers per question, the average waiting time for second opinions, the types of questions, and potential over and undertreatment.

**Materials and Methods:** We carried out a retrospective analysis of the Virtual Canadian Testicular Cancer Second Opinion Group. The analysis was based on the discussions of cases that took place between June 17th, 2014, and July 1st, 2022. The discussions were held anonymously on the Google Groups platform, with the participation of doctors from nine different provinces and centers across Canada, including oncologists, urologist oncologists, and radiation oncologist. We collected patient demographics, histology, and treatment data. From a second-opinion perspective, we analyzed the number of answers, the type of question, the agreement between the first and second opinions, and any potential changes in treatments after the discussion.

**Results:** We included 132 cases of patients with testicular tumors and extragonadal primary germ cell tumors (GCT) in Canada. The most common histology was GCT, representing 94.7% (125/132) of cases. Among these, non-seminomas represented 72.7% (96/124), and 13% presented malignant somatic transformation at some point. The most common clinical stage was metastatic, representing 94.7% of cases. The mean of second opinions per case was 4.5 (SD±2.08), with 81% of patients receiving responses from at least three different centers, and 56.8% of questions receiving a response from at least two different specialties. The average waiting time for total second opinions was less than one day. The questions came from academic centers in 81% of cases, and oncologists were the most common seekers, accounting for 86.4% of questions. The most frequent questions were related to chemotherapy in 49% of cases. When comparing the first and second opinions, we found 24% of overtreatment and 26% of undertreatment, with 52% of cases potentially changing their decision-making. In the multivariable analysis with binary logistic regression assessing decision-making changes, we did not find any statistically significant predictors.

**Conclusions:** A second opinion group is an inexpensive and valuable tool to improve the implementation of evidence in practice in patients with complex TC. Even in academic cancer centers, there is a significant percentage of potential changes in treatment. It is recommended to seek a second opinion in all complex testicular cancer cases, as there are no predictors for a possible change in decision-making.

# IN CLINIC VERAPAMIL INJECTIONS FOR PEYRONIE'S DISEASE: A RETROSPECTIVE STUDY ON PATIENT SEXUAL SATISFACTION

**Catherine McMartin,** Jeffrey Campbell



## **Introduction**

Peyronie's disease (PD) is an acquired curvature of the penis that affects 5-10% of men and is associated with psychological distress. Intralesional Clostridium collagenase (*Xiaflex*) and interferon have been removed from Canada, leaving verapamil as the only effective therapy available to our patients. The results of intralesional verapamil (ILV) are variable depending on dosing, injection protocols, and practitioner technique. Surgical treatment of PD endorses substantial risk of penile length loss and erectile dysfunction, which most patients prefer to avoid.

## **Objectives**

We aimed to evaluate our experience with ILV to determine whether off-label ILV provides satisfactory results to men with PD and avoids more invasive interventions.

## **Materials and Methods**

This is a retrospective cohort study of 127 men who completed ILV treatment between January 1st 2021 and December 31st 2023 performed at our institution by a single urologist. Dorsal penile block was performed, 10mg of verapamil diluted in 10ml was injected using FAN technique into PD scar. Subjective clinical data was retrieved from initial consultation and follow-up visits through our electronic records.

## **Results**

Mean age was 63 years old, with a majority of men having an upward curvature (63%) between 30-45° (44.1%). Mean onset of the curvature was 20 months before the initial consult, with a disease stability of 13.3 months. Risk factors including erectile dysfunction (50.4%), diabetes (20.5%) and active smoking (19.7%) were evaluated. The curvature was initially impairing sexual intercourse for 37% of patients.

After ILV treatment protocol, 89.0% of patient's curvature were subjectively improved, with 96.9% of men being able to engage in sexual intercourse, an increase of 33.9%. Only 8.7% required subsequent surgical treatment for their PD.

## **Conclusion**

We conclude that our ILV treatment protocol helps men regain their ability to engage in sexual intercourse, provides a subjective lesser degree of curvature and reduces the need to undergo more invasive interventions.



## RADIATION SAFETY AND AWARENESS

**Mckinley Smith**

**Introduction:** Medical imaging involving ionizing radiation is common in the clinical setting. Little is known about the level of radiation safety training for medical trainees and attending physicians. We sought to identify the level of radiation safety knowledge and training at the undergraduate, postgraduate, and attending physician level.

**Methods:** A 29-question survey was sent by email to two sites in Canada. We pooled the results of medical students, residents, and attending physicians. The primary outcome was to describe the amount of radiation safety training among these groups. The secondary outcomes were to describe the frequency of radiation exposure, level of radiation knowledge, and preferred training method for radiation safety.

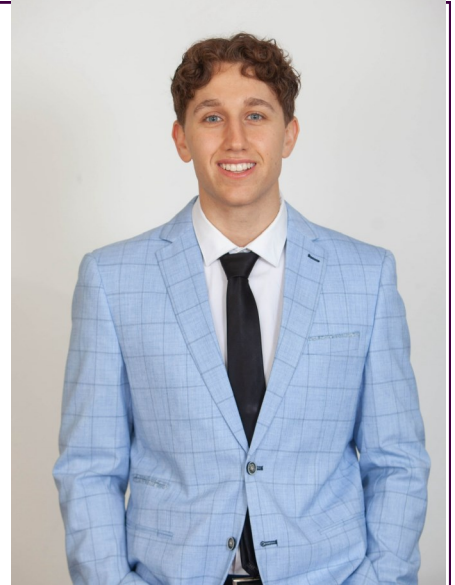
**Results:** Of 115 surveys that were properly completed, 31 (26.9%) medical students, 17 (14.7%) residents, and 67 (58.3%) attending physicians responded. A greater number of medical students (41.9%) reported they had zero hours of training time for radiation safety compared to attending physicians (14.9%) ( $p < 0.05$ ). A higher number of attending physicians (47.8%) and residents (64.7%) participated in patient care involving fluoroscopy daily or at least several times per week compared to medical students (3.2%) ( $p < 0.001$ ). Attending physicians had the greatest number of correct responses to radiation safety questions. Online courses and workshops were the preferred training methods.

**Conclusions:** Radiation safety training is an important component of medical education for medical trainees and attending physicians. Current radiation safety training requirements and procedures at various levels of medical training in Canada should be addressed. Implementing radiation safety education may improve adherence to the radiation safety principles.

# THE IMPACT OF PEDIATRIC CIRCUMCISION ON THE PENILE MICROBIOTIA

Rachel PENNEY<sup>1</sup>, **Danny MATTI**<sup>2</sup>, Jessica PRODGER<sup>2</sup>, Jeremy BURTON<sup>2</sup>, Peter Zhantao WANG<sup>2</sup> and Sumit DAVE<sup>3</sup>

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## PURPOSE

Male circumcision (MC) is performed for religious reasons, treatment of pathological phimosis and for congenital anomalies associated with recurrent UTI's. This prospective cohort study aims to identify the changes to the foreskin microbiota before and after MC.

## MATERIAL AND METHODS

We conducted a longitudinal study of pediatric patients undergoing MC and collected penile swabs during surgery and 6 weeks after MC (n=74). Patients were divided into 3 cohorts based on MC indication: pathological phimosis, religious elective MC, and MC for medical reasons. The microbiota before and after MC was characterized using 16S rRNA gene sequencing analysis for the different groups.

## RESULTS

The penile microbiota was found to be significantly different between the cohorts prior to MC ( $p=0.014$ ). After MC, the composition of the penile microbiota changes drastically ( $p=0.009$ ) and the microbial diversity decreases. Data analysis suggests a preponderance of *Prevotella* sp. in uncircumcised boys, associated with higher T cell and dendritic cell density in the inner foreskin, which are markers for inflammation. The outer foreskin in boys with pathological phimosis showed a higher density of Langerhans cells and Natural killer cells.

## CONCLUSIONS

These results suggest a change in the microbiota of the penile skin following MC and a correlation between inflammatory markers and the foreskin phimosis status. This information will increase the understanding of the relationship between the penile microbiota and the host in children and aid further studies to investigate the mechanism underlying the benefits of MC in patients undergoing circumcision electively or for pathological phimosis.





## RESULTS OF A NOVEL IMAGING TEMPLATE AROUND THE SAPHENO-FEMORAL JUNCTION FOR SUSPICIOUS LYMPH NODES IN PATIENTS WITH PENILE CANCER

Wong JF, Cendejas-Gomez JJ, Izawa JI, Huynh MJ, Chin J, Power NE

### Background:

Penile cancer is a rare disease in North America and Europe, with an incidence rate of less than 1 in 100,000 every year. Inguinal adenopathy is present in 30-60% of cases during diagnosis, and inguinal lymphadenectomy is a crucial diagnostic and potentially curative intervention. However, the radical inguinal lymph node dissection (rILND) has a high rate of morbidity in patients. To reduce complications, a modified inguinal lymph node dissection (mILND) template was designed by Catalona et al. in 1998, although it poses a risk of leaving extra-template disease.

A recent study using micro-computer tomography on cadavers found that 99% of all inguinal lymph nodes (LN) are situated in the femoral triangle around the saphenofemoral junction (SFJ). This study concluded

that using a surgical template with a 6 cm radius around the SFJ could limit the disruption of the lymphatic drainage system while ensuring a complete lymphadenectomy.

**Objectives:** Our primary objective was to assess the clinical precision of identifying all the suspicious nodes by using an anatomical boundary of 6 cm in diameter around the SFJ among patients diagnosed with penile cancer who underwent inguinal lymph node dissection (ILND). As our secondary objective, we examined the agreement between suspicious lymph nodes in the CT scan and pathology reports that were positive for metastatic disease.

**Methods:** We conducted a retrospective analysis at a single tertiary center from 2009 to 2021, which included all consecutive patients diagnosed with penile carcinoma and who underwent ILND. Patients were included if they had an imaging study (CT or MRI) that showed suspicious inguinal lymph nodes and one or more positive inguinal LN on pathology. The variables analyzed included demographic, pathological, and imaging data.

The images were examined based on the radiographic report, and one researcher recorded the number and size of additional inguinal LN seen within and outside the 6cm radius of the femoral-saphenous junction.

We collected and analyzed patient demographics, imaging information, histology, and treatment data. From an imaging standpoint, we focused on analyzing the number and percentage of suspicious lymph nodes inside and outside of the 6 cm diameter surrounding the SFJ. Additionally, we examined the concordance between the imaging report of suspicious lymph nodes and the presence of metastatic disease on that side. The data was analyzed using SPSS v25.

### Results:

A total of 15 patients met the criteria and were included in the retrospective review. Median age of patients was 59 (IQR 52-69). Median BMI was 28 (IQR 24-32). All patients had pathological squamous cell carcinoma (13 SCC, usual type; 2 SCC basaloid subtype) of the penis. The primary location of cancer was the penis, with one patient having cancer in the penis, urethra, and scrotum.

Of the 15 patients, 5 had bilateral positive nodes, 2 had positive nodes on the left, and 8 had positive nodes on the right. The median number of positive nodes on pathology was 2 (IQR 1-4). We found a total of 253 LN reported in the pathological report, 46 (18.25%) were positive for metastatic disease and the median size of the largest LN was 4cm (IQR 3-6). The majority of lymph nodes were described as superficial (n=227/89.7% [right side (RS) : 89.3%; left side (LS): 90.3%]), and 43 of 46 (93.5% [RS 94.3%; LS 90.9%]) positive LN for metastatic disease were also superficial.

All patients had a preoperative CT of the pelvis prior to ILND. On imaging, we found that the 96.7% (RS 98%; LS 95.2%) of LN seen were within a 6cm radius of the femoral-saphenous junction, with all of the suspicious nodes on CT within the specified radius. A total of 3 lymph nodes were found outside of the 6cm radius in three separate patients. Two had positive lymph node(s) on the concurrent side. The lymph nodes were 3cm, 0.5cm and 0.1cm outside the 6cm radius. The concordance between suspicious nodes on imaging and pathology was high (RS 86%; LS 78.6%).

### Conclusion:

According to our observations, the lymph nodes detected on CT scan are typically located within a 6cm radius of the femoral-saphenous junction. We also found that all the suspicious nodes identified on imaging were within the same radius. In addition, most of the positive pathological lymph nodes are usually found during a superficial inguinal lymph node dissection. Our findings, combined with those of Marshall et al (2020), suggest that this boundary could be used as a new modified template for inguinal lymph node dissection. This novel procedure would likely include the vast majority of superficial and deep lymph nodes, making it probably oncologically safer than the mILND, while preserving the benefits of lower morbidity and complications.

# TEMPERATURE CHANGES IN THE RENAL ALLOGRAFT DURING KIDNEY TRANSPLANTATION: A PRELIMINARY REPORT OF THE ICE BLANKET EFFECT

**Martin Igbokwe**, Jirong Lu, Atheer Alqahtani, Erica Li, Alp Sener, Patrick Luke



## Introduction

It is established that maintaining a renal allograft at lower temperatures is essential in reducing anerobic respiration and its deleterious effect during the second warm ischemic time (WIT). There is still limited knowledge on the actual temperature and its rate of rise during kidney transplantation. Several modalities have been introduced over the years with the aim of mitigating or decelerating the rise in temperature of the kidney during anastomosis. One of such techniques is the use of an ice blanket (IB) wrap during transplantation. This study aims to identify actual allograft temperature changes during the 2<sup>nd</sup> WIT among a cohort of kidney transplant recipients and to compare these temperature changes among IB vs Non IB groups.

## Methods

Using a non-contact infra-red thermometer, the temperature of the kidney was taken at specific time-points during the 2<sup>nd</sup> WIT. Timing was commenced from retrieval of the organ from the perfusion pump up till the end of anastomosis and re-perfusion. Data was analyzed using and expressed as means and standard deviations. A p value of <0.05 was considered statistically significant. The IB group was compared with the non-IB group.

## Results

Twenty-four patients were studied in this preliminary report with one patient having incomplete data. There were 14 patients in the non-IB group (controls) and 9 in the IB group. The mean temperature of the allograft at time of unclamping were 18.19 + 5.81<sup>o</sup>C and 25.21+/- 6.78<sup>o</sup>C in the IB and non-IB groups respectively ( p= 0.0184). The mean rise in temperatures per minute was 0.5 +/- 0.2<sup>o</sup>C and 0.24 +/- 0.26<sup>o</sup>C in the non-IB vs IB groups respectively (p= 0.0432). When compared to no ice blanket, the use of an ice blanket contributes to a significantly lower temperature at clamp release, smaller AUC before clamp release (p= 0.0052), and a lower temperature per minute (AUC/min) (p<0.0001)

## Conclusion

This preliminary report shows a significant reduction in surface temperature of the renal allograft during the second WIT among ice blanket wrapped kidneys compared to the non-ice blanket wrap. The effect of this reduced temperature on both the long- and short-term outcomes in kidney transplant recipients would be our future area of investigation

*Keywords: Rewarming, temperature changes, kidney transplant, renal allograft*

	No ice blanket			Ice blanket			p
	N	Mean	SD	N	Mean	SD	
Slope of temperature curve before clamp release	14	0.43	0.24	9	0.27	0.24	0.1336
Temperature at clamp release	14	25.21	6.78	9	18.19	5.81	0.0184
Area under curve (AUC) before clamp release	14	589.03	179.29	9	366.78	143.85	0.0052
AUC/min	14	17.22	2.50	9	8.04	4.55	<0.0001

Table I: Summary of temperature findings between ice-blanket vs non-ice blanket groups.



## ASSESSING FACTORS IMPACTING THE PURSUIT OF SURGICAL TRAINING IN CANADIAN MEDICAL STUDENTS

**Stringer, L.,** Feng, K, Graham, E., Brackstone, M., Turnbull, V., Ross, D., & Campbell, J.

### Abstract:

**Background:** Medical students' experiences and perceptions of surgery impact their decision to pursue postgraduate surgical training. There is a paucity of data examining perceived barriers for medical students exploring surgical training and how their decisions may be affected by their experience during surgical rotations and impression of surgical training.

**Methods:** A RedCAP® survey was distributed to medical students across Canada during the fall and winter of 2023/2024. These were distributed via undergraduate representatives via email, on social media, and through contacts at medical schools.

Questions assessed main themes surrounding factors impacting medical students' decision to pursue surgical residency training. The themes included compatibility with having a family/fertility concerns, workload and time required for training, and gender bias and mentorship.

**Results:** 118 surveys were completed. The average age of respondents was 26.1. Most medical student respondents were in third and fourth year of their training. Three of the participants currently have children. Thirty six of the respondents intend to pursue a surgical specialty and eighty one do not.

Most students felt that surgical residency was not compatible with having a family and felt concerns related to fertility/family planning were a deterrent to pursuing surgical residency training. There was no significant difference between men and women. Most medical students felt that deterrents to pursuing surgical training included workload in residency, work-life balance, and family planning concerns. Male and female medical students equally identified that there is not equal gender representation in surgical training programs with respect to both residents and staff.

**Discussion:** Concerns related to workload, fertility/family planning, gender bias and time for training may negatively impact the pursuit of surgery and thus impact future workforce planning. Studying the factors that deter medical students from pursuing surgical training allows us to strive towards a more equitable and diverse surgery experience for medical students. Removing barriers that may prevent medical students from pursuing surgical training is important to ensure that we continue to have diverse representation in surgery.



# TEACHING ADVANCED SURGICAL TECHNIQUE USING PEER-REVIEWED MULTIMEDIA: AN ASSESSMENT OF TECHNICAL COMPETENCE IN CADAVERIC-BASED SIMULATION

Jenjitrant P, Beveridge TS, Power NE

## Introduction

Retroperitoneal lymph node dissection (RPLND) has proven to be a highly effective surgery to remove testicular cancer metastases with high cure rates and little-to-no risk of recurrence in expert centers. Despite its ability to effectively remove cancer, RPLND poses the risk of postoperative functional infertility caused by unintentional damage to a complex network of nerves – a preventable complication that is particularly concerning given that testicular cancer primarily affects young men. In addition, complete removal of nodes is required to reduce in field recurrence. Nerve-sparing RPLND is a complex and rare surgical procedure where trainees have limited exposure. Therefore, we have created peer-reviewed video learning material for teaching nerve-sparing RPLND. Trainee improvement surgical skills for this rare and complicated procedure may be possible with the use of this video material in combination with human cadaveric simulation.



## Methods

A prospective study was initiated by recruiting 20 urology residents and fellows as participants whose RPLND performance was assessed before and after watching a video designed by experts in the field. They were tasked with performing one half (unilateral portion) of a nerve-sparing RPLND on fresh, or soft, human cadavers before and after the exposure to the video material. Surgical performance was evaluated quantitatively for the operative time and percentage of lymph node mass dissection. Their surgical performance was also video-recorded for further qualitative assessment by a blinded expert surgeon using generic the Objective Structured Assessment of Technical Skills (OSATS) global rating scale, and a procedure-specific rating scale. The participants also underwent self-assessment for qualitative measures including efficiency, technique, thoroughness (completeness of lymph node resection), quality (viability of nerve), and comfort level of operating RPLND surgery.

## Results

Ten participants were recruited who were randomized to perform either the left-sided or right-sided RPLND first. The mean self-assessment surgical performance scores were significantly higher after the exposure to the intervention in all aspects including efficiency (51.4 vs 24.2,  $p = 0.003$ ), technique (50.4 vs 30.4,  $p = 0.007$ ), thoroughness (48.6 vs 25.9,  $p < 0.001$ ), quality (45.2 vs 20.1,  $p = 0.003$ ), and comfort level (61.0 vs 24.9,  $p = 0.002$ ). The mean percentage of lymph node mass resected was significantly higher after the exposure to the intervention (81.57% vs 52.07%,  $p < 0.001$ ). The group of participants who did the left-sided RPLND first had significantly higher mean improvement of percentage of lymph node mass resected than those who did the right-sided RPLND first (43.12% vs 15.88%,  $p = 0.003$ ). However, there was no statistically significant difference in median operative time before and after the intervention (55 minutes pre-intervention vs 47 minutes post-intervention,  $p = 0.285$ ). All participants preferred video over paper-based learning materials.

## Conclusions

Paper-based and video learning materials have their own advantages and disadvantages. However, preliminary results suggested that there was a significant amount of possible surgical performance improvement with the opportunity to the cadaveric simulation and video learning material. The peer-reviewed multimedia and/or cadaveric simulation may be able to afford substantial benefits to translating surgical research into technical prowess. We expect that this model can be successfully applied for teaching complex and rare procedures in other fields as well.

## **PAST RESIDENTS' DAY GUEST PROFESSORS 1985 – 2023**

2023	Dr. Stacey Loeb	2004	Dr. Anthony Atala
2022	Dr. Andrew Hung	2003	Dr. Peter T. Scardino
2021	Dr. Robert Uzzo	2002	Dr. Inderbir Gill
2020	no guest professor (Covid-19)	2001	Dr. Shlomo Raz
2019	Dr. Douglas A. Husmann	2000	Dr. Donald Lamm
2018	Dr. Bernie H. Bochner	1999	CUA in London, no Residents' Day
2017	Dr. Arthur L. Burnett	1998	Dr. Patrick Walsh
2016	Dr. Philipp Dahm	1997	Dr. Joseph Oesterling
2015	Dr. E. Ann Gormley	1996	Dr. Michael Marberger
2014	Dr. Joel B. Nelson	1995	Dr. E. Darracott Vaughan
2013	Dr. Stephen Nakada	1994	Dr. Martin Resnick
2012	Dr. Lawrence Klotz	1993	Dr. Andrew Novick
2011	Dr. Gerald Andriole	1992	Dr. Howard Winfield
2010	Dr. John Michael Fitzpatrick	1991	Dr. Moneer Hanna
2009	Dr. Antoine Khoury	1990	Dr. Drogo Montague
2008	Dr. Margaret Pearle	1989	Dr. Ralph Clayman
2007	Dr. Martin Gleave	1988	Dr. Gerald Sufrin
2006	Dr. Leonard Zinman	1987	Dr. Alvaro Morales
2005	Dr. Joseph A. Smith Jr.	1986	Dr. J. Edson Pontes
		1985	Dr. Alan Perlmutter

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