

# CUA 2022 Annual Meeting Abstracts – Poster Session 5: Sexual Dysfunction and Infertility, Pelvic Pain, Urological Infection, Pediatrics

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## MP-5.1 Outcomes of organ-sparing surgery for adult testicular tumors: A systematic review of the literature

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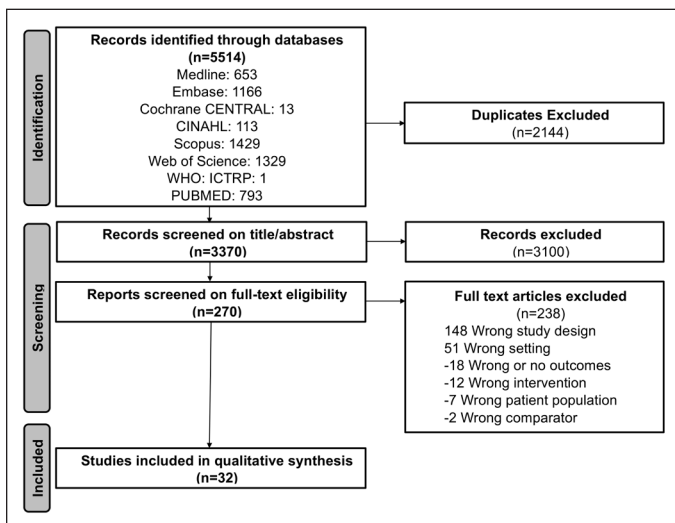
**Introduction:** We aimed to perform a systematic review on the effects of testis-sparing surgery (TSS) on the oncological, functional, and hormonal outcomes of adults with testicular tumors.

**Methods:** A literature search was performed after PROSPERO registration (CRD42020200842) and reported in compliance with PRISMA methods. We conducted a systematic search of Medline (Ovid), Embase, Cochrane CENTRAL, CINAHL, Scopus, Web of Science, *ClinicalTrials.gov*, and the WHO/ICTRP from inception to November 20, 2020. Manuscripts and published abstracts were included if they involved TSS and reported on at least one of the outcome measures. Case reports were excluded.

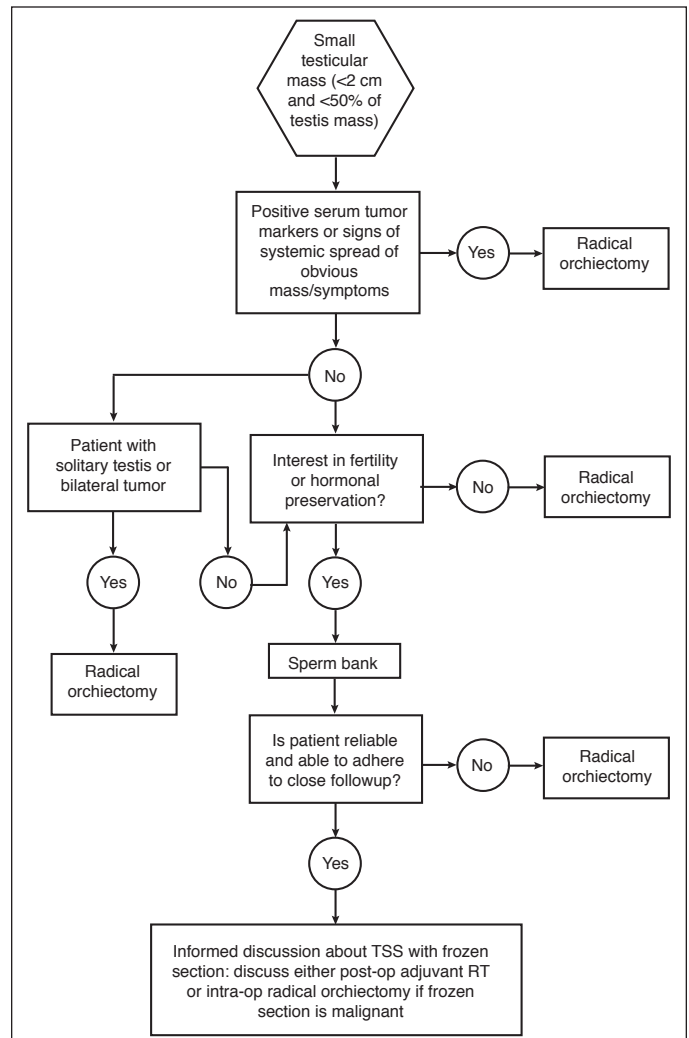
**Results:** Our initial search yielded 3370 manuscripts, with 269 of these screened for full-text eligibility. A total of 32 studies were included in the final analysis (Figure 1). Oncological outcomes were obtained from 12 studies, functional data from 26, fertility information from 10, and data on non-palpable tumors from 11 studies. Oncological control appears to be excellent in studies that reported these outcomes. Presence of germ cell neoplasia in situ was controlled with adjuvant radiation in nearly all cases. Functional outcomes are also promising, as development of primary and compensated hypogonadism was rare. Semen parameters are poor preoperatively among men with benign and malignant testis tumors, with occasional decline after TSS. Frozen section analysis at the time of surgery

appears to be very reliable, and the majority of non-palpable tumors appear to be benign (Figure 2).

**Conclusions:** TSS is a safe and efficacious technique with regards to oncological control and postoperative hormonal function based on retrospective, non-controlled studies. TSS avoids unnecessary removal of benign testicular tissue and should be given serious consideration in cases of non-palpable, small tumors under 2 cm. In cases of malignancy, TSS can safely avoid anorchia in men with bilateral tumors and in men with solitary testicles.



MP-5.1. Figure 1. Study flow chart.



MP-5.1. Figure 2. Algorithm for management of a small testicular mass.

**MP-5.2****Hormonal stimulation therapy in men with azoospermia prior to sperm retrieval: Systematic review and meta-analysis**Mary Ellene Boulos<sup>1</sup>, Emma Cain<sup>1</sup>, Karla Solo<sup>2,3</sup>, Nancy Santesso<sup>2,3</sup><sup>1</sup>Michael G. DeGroot School of Medicine, McMaster University, Hamilton, ON, Canada; <sup>2</sup>Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, ON, Canada; <sup>3</sup>Michael G. DeGroot Cochrane Canada and McMaster GRADE Centres, McMaster University, Hamilton, ON, Canada**Introduction:** Hormonal stimulation therapy is commonly administered to men with azoospermia prior to sperm retrieval. Controversy exists regarding the potential benefits and risks of preoperative hormonal therapy.**Methods:** We conducted a systematic review of randomized controlled trials and non-randomized studies that compared hormonal stimulation to none among adult men with azoospermia undergoing sperm retrieval. We searched MEDLINE, EMBASE, CENTRAL, and LILACS databases from inception to June 2021. We performed a pairwise meta-analysis with a random-effects model to calculate a risk ratio (RR) for binary outcomes, including sperm retrieval, pregnancy, and live births. We used the ROBINS-I tool to assess the risk of bias of non-randomized studies and assessed the certainty of evidence using GRADE.**Results:** Eighteen non-randomized studies included 1868 azoospermic patients undergoing hormonal stimulation therapy compared to 2428 patients with none prior to sperm retrieval. Gonadotrophins were commonly used, followed by aromatase inhibitors and clomiphene. There is low certainty evidence for a slight increase in sperm retrieval with hormone therapy (RR 1.10, 95% confidence interval [CI] 0.90–1.34), and little to no effect in clinical pregnancy (RR 1.09, 95% CI 0.80–1.50). Few studies measured live births, resulting in very low certainty evidence for a reduction in live births with hormonal therapy (RR 0.86, 95% CI 0.65–1.13). Side effects were measured in three studies: two reported none and one reported similar numbers in each group. Studies did not measure other important outcomes, such as quality of life or mental health.**Conclusions:** The evidence suggests there may be a slight increase in sperm retrieval but little to no effect on pregnancy when providing hormonal stimulation to men with azoospermia prior to sperm retrieval. In addition, the effect on live births is uncertain. Future randomized controlled trials could strengthen the current evidence base.**MP-5.4****A 360-degree view of sexual health services at selected institutions across Canada: The need for the Canadian Oncology Sexual Health Initiative (COSHI)**Sydney Sparanese<sup>1,2</sup>, Ryan Flannigan<sup>1,2</sup>, Andrew Matthew<sup>3</sup>, Celestia S. Higano<sup>1,2</sup>, Eugenia Wu<sup>2</sup>, Steven Guirguis<sup>3</sup>, Monita Sundar<sup>2</sup><sup>1</sup>Department of Urologic Sciences, University of British Columbia, Vancouver, BC, Canada; <sup>2</sup>Prostate Cancer Supportive Care Program, Vancouver Prostate Centre, Vancouver, BC, Canada; <sup>3</sup>Department of Surgical Oncology, Princess Margaret Cancer Centre, Toronto, ON, Canada**Introduction:** Sexual health (SH) is compromised by cancer diagnosis and treatment. Prevalence rates of sexual dysfunction are 90% in prostate/gynecological, 73% in breast, 30% in colorectal, and 20% in non-breast/non-pelvic cancers. SH clinics in oncology settings are the exception in Canada. As such, we formed the Canadian Oncology Sexual Health Initiative (COSHI), which is comprised of a multidisciplinary group of SH experts with the following goals:

- Develop a SH virtual resource repository for participating cancer centers
- Develop standardized treatment protocols and access for SH across Canada
- Develop a series of cancer-type-specific guidelines for SH treatment

Establish a national SH database, inclusive of clinical and patient-reported outcomes (PROs)

**Methods:** The authors contacted selected Canadian clinicians to participate in the development of COSHI. Purposeful effort was made to ensure regional and multidisciplinary representation. Every clinician contacted agreed to be “site-champions” for COSHI. In June 2021, a meeting was held to define the

scope, mission, and governance of COSHI. A 360° survey was distributed to 12 participating cancer centers to characterize SH care in oncology in Canada. Responses were collated and descriptive results reported.

**Results:** Eleven of 12 institutions responded to the survey. All sites reported some form of SH care: seven have cancer-specific clinics (gynecology, prostate, colorectal); two offer SH care for all cancers; and four offer SH education classes. Seven sites have in-person clinics and two offer virtual services. MDs (urologists) deliver SH care at nine sites, RNs at six, and psychologists at three. At least some SH-related PROs are collected at seven sites. Eight sites reported that SH was a “gap in care” and all reported limited to no community-based SH resources.**Conclusions:** The 360° survey confirms gaps, discrepancies, or absence of SH care across selected Canadian cancer centers. Results underscore the need for an organization such as COSHI, with its goals to improve SH care across Canada.**MP-5.5****Disproportional signal of sexual dysfunction reports associated with finasteride use: A pharmacovigilance analysis of VigiBase**David-Dan Nguyen<sup>1,2</sup>, Peter Herzog<sup>1</sup>, Eugene B. Cone<sup>1</sup>, Muhieddine Labban<sup>1</sup>, Kevin C. Zorn<sup>3</sup>, Bilal Chughtai<sup>4</sup>, Shehzad Basaria<sup>5</sup>, Dean Elterman<sup>6</sup>, Quoc-Dien Trinh<sup>1</sup>, Naeem Bhojani<sup>3</sup><sup>1</sup>Division of Urological Surgery and Center for Surgery and Public Health, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, United States; <sup>2</sup>Faculty of Medicine and Health Sciences, McGill University, Montreal, QC, Canada; <sup>3</sup>Division of Urology, Centre hospitalier de l'Université de Montréal (CHUM), Université de Montréal, Montreal, QC, Canada; <sup>4</sup>Department of Urology, Weill Cornell Medical College/New York Presbyterian, New York, NY, United States; <sup>5</sup>Research Program in Men's Health: Aging and Metabolism, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, United States; <sup>6</sup>Division of Urology, University Health Network (UHN), University of Toronto, Toronto, ON, Canada**Introduction:** Finasteride, a 5 $\alpha$ -reductase inhibitor, is used in the management of alopecia and benign prostatic hyperplasia (BPH). Previous reports suggest that some men taking finasteride experience a constellation of adverse events, including sexual dysfunction. We investigated the association of sexual dysfunction with finasteride use**Methods:** We conducted a pharmacovigilance study using VigiBase, the World Health Organization's global database of individual case safety reports. We used the reporting odds ratio (ROR), a surrogate measure of association used in disproportionality analysis, with 95% confidence intervals (CI). Extensive sensitivity analyses included stratifying by indication (BPH and alopecia) and age (<45 and  $\geq$ 45); comparing finasteride signals to those of drugs with different mechanisms but similar indications (minoxidil for alopecia and tamsulosin for BPH); comparing finasteride to a drug with a similar mechanism of action (dutasteride); and comparing reports of sexual dysfunction before and after 2012.**Results:** We identified 7700 reports of sexual dysfunction in finasteride users. There was a significant disproportionality signal for sexual dysfunction (ROR 50.30, 95% CI 49.03–51.60) linked to finasteride use. All sensitivity analyses met the threshold of signal significance (Table 1). Patients under the age of 45 (ROR 65.73, 95% CI 61.83–69.88) and alopecia patients (ROR 33.62, 95% CI 25.22–44.82) had larger signals than older patients (ROR 30.43, 95% CI 27.12–34.15) and those with BPH (ROR 1.74, 95% CI 1.47–2.07). A signal was detected for minoxidil (ROR 1.92, 95% CI 1.54–2.38).**Conclusions:** We detected disproportional signals of sexual dysfunction linked with finasteride use. Despite sexual dysfunction being more prevalent in older BPH patients, we detected larger signals of sexual dysfunction in young alopecia patients. Sensitivity analyses suggest that reports of sexual dysfunction linked with finasteride use may be confounded by indication (young alopecia patients may be more likely to experience sexual dysfunction) and by stimulated reporting. However, confounding alone does not account for the totality of the signal observed in young patients with alopecia, considering the large difference in signal size between finasteride and minoxidil.

**MP-5.5. Table 1. Result of sensitivity analyses for the primary outcome of sexual dysfunction**

Adverse event	Count	Expected count <sup>†</sup>	Empirical Bayes estimator (5th percentile)	Reporting odds ratio* (95% CI)
By indication (BPH vs. alopecia with finasteride)				
BPH	165	6.55	21.41	27.9 (23.7–32.7)
Alopecia	4309	88.02	47.62	64.9 (62.7–67.2)
By age (<45 y and ≥45 y with finasteride)				
<45 y	1329	29.17	43.31	56.4 (53.1–59.9)
≥45 y	329	13.35	22.23	27.3 (24.3–30.6)
By dose (1 mg, 5 mg, and unknown dose of finasteride)				
1 mg	4046	88.07	44.65	59.7 (57.7–61.8)
5 mg	1220	41.14	28.17	34.0 (32.0–36.1)
Unknown	2434	60.79	38.63	49.2 (17.1–51.4)
Of other drugs with similar indications but different mechanisms				
Tamsulosin	711	57.72	11.53	13.0 (12.1–14.1)
Minoxidil	83	43.49	1.57	1.92 (1.54–2.38)
Of dutasteride, overall, by age, and by indication				
Overall	430	17.61	22.28	26.8 (24.2–29.6)
<45 y	40	1.21	22.44	38.5 (27.6–53.8)
≥45 y	203	11.72	15.17	18.7 (16.2–21.5)
BPH	399	21.31	17.09	20.4 (18.4–22.6)
Alopecia	60	1.42	30.10	51.40(38.9–68.0)
By period				
Before 2012	1396	73.93	18.02	22.0 (20.8–23.3)
After 2012	5848	106.03	53.86	80.4 (78.0–82.9)

<sup>†</sup>Expected count = (ni, n.j)/N where ni and n.j are the marginal counts and N is the sum of spontaneous report counts. \*The reporting odds ratio (ROR) in spontaneous report databases allows for estimation of the relative risk.

### MP-5.6

#### Insurance approval rates for collagenase clostridium histolyticum prior to discontinuation: A Canada-wide analysis

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**Introduction:** Intravesical collagenase clostridium histolyticum (CCh) was the first approved non-surgical treatment for Peyronie’s disease (PD) following the results of the IMPRESS I and II trials.<sup>1</sup> CCh was recently withdrawn from the European, Canadian, and Asian markets. The primary reason for discontinuation cited by Endo Pharmaceuticals was poor demand, partially due to lack of government reimbursement options.<sup>2</sup> Our goal was to assess insurance approval rates and ultimately usage of CCh across Canada to better understand the factors that led to its withdrawal.

**Methods:** Data was obtained for all patients who had been prescribed CCh for either PD or Dupuytren’s contracture through collaboration with BioScript Solutions. Data were collected for all patients enrolled in the Xiaflex Access Program from April 2018 to June 2020. This data was used to determine the association of variables with insurance approval and prescription filling. Relationship with insurance approval and prescription filling was analyzed using univariable and multivariable-adjusted logistic regression analysis.

**Results:** We identified 3297 insurance coverage applications for Xiaflex from April 2018 to June 2020. Of all applications for PD, 695 (92.9%) applications were approved while 53 (7.1%) were rejected. Despite the withdrawal of CCh from Canadian markets in 2021, coverage application approval rates for 2018, 2019, and 2020 were 86.5%, 90.1%, and 89.1%, respectively. Of all 2921 approved applications, 2594 (88.8%) prescrip-

tions were filled. However, for the 376 rejected applications, 250 (66.4%) prescriptions were filled. Overall, 90% (80–100) of the cost of Xiaflex was covered in Canada among those with extended health benefits, with an out-of-pocket expense of \$210.40 (0–283.30).

**Conclusions:** Insurance coverage requests for Xiaflex were approved at a high rate in Canada despite some interprovincial variation. Approved patients were also very likely to proceed with therapy.

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### MP-5.7

#### Baseline reproductive and sexual health knowledge among undergraduate university and college students

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**Introduction:** Undergraduate students comprise of a large proportion of newly sexually active adults; however, literature on their reproductive and sexual health knowledge is lacking. We sought to explore this knowledge gap to better address students’ needs.

**Methods:** A novel questionnaire was created using local expert input. In addition to assessing respondents' demographics and attitudes, multiple-choice questions were employed to evaluate three knowledge domains: contraception, sexually transmitted infections (STIs), and infertility. After obtaining local research ethics board approval, the questionnaire was distributed online from January to March 2021 to undergraduate university and college students in Manitoba through their institution's student unions. Participation was voluntary, informed consent was obtained, and data was anonymized. Chi-squared, Fisher's exact test, Kruskal-Wallis, and U-Mann Whitney tests were used for data analysis.

**Results:** Survey respondents (n=309) scored an average of 56% correct (18/32). Overall, respondents scored highest on questions regarding contraception (68%) and lowest on questions regarding STIs (32%). Higher knowledge scores were associated with high socioeconomic status and older age (p<0.05). Only 27% of respondents felt that their high school education on STIs was adequate and 62% felt that they did not have access to sufficient resources if they wanted any sexual health help.

**Conclusions:** Undergraduate students may be underprepared to make reproductive and sexual health decisions. These patients represent a vulnerable cohort within the urologist's practice. To our knowledge, this is the first Canadian study seeking to understand this group's baseline reproductive and sexual health knowledge. This study highlights the need for improved reproductive and sexual health education to enable our patients to make more informed decisions, minimize negative outcomes, and enhance their well-being during urological care.

**MP-5.8 Sacral neuromodulation outcomes in male patients with pelvic pain and fecal incontinence**

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**Introduction:** Sacral neuromodulation (SNM) is an effective third-line treatment, however, there is limited data involving male patients with overactive bladder (OAB) or non-bladder conditions (chronic pelvic pain and fecal incontinence [FI]). In this retrospective study, we followed 17 male patients with non-bladder conditions to assess efficacy, personal satisfaction, need for other treatments, and complications.

**Methods:** Between 2014 and 2021, 17 patients underwent SNM for pelvic pain and FI. All patients were followed from 1–7 years after SNM insertion.

**Results:** A total of 71% of the pelvic pain subgroup (n=7) had medication or pelvic physiotherapy treatment before SNM. After surgery, two patients had insufficient pain control (29%). SNM was largely well-tolerated, with a 71% satisfaction rate. Unfortunately, after one year of treatment, only 29% of the patients were satisfied and felt the improvement was significant. The need for other interventions was 71% and most of them were pelvic pain medication or BPH surgery. Complication rates were low (29%), including two patients with battery and lead pain (15%) and poor efficacy (14%). In the FI subgroup (n=10), four patients (40%) had previous surgeries (low anterior resection) and six had idiopathic FI. Following SNM implantation, only two patients had failure (20%). SNM resulted in high satisfaction within a year (90%) and beyond a year (80%). Complication rates were low (20%), including battery site pain (10%) and poor efficacy (10%). No FI patients required further treatments.

**Conclusions:** SNM in men with pelvic pain and FI is a useful and safe procedure. Most FI subgroup male patients were satisfied and improvement continue for years. The pelvic pain subgroup was mostly satisfied and improved within the first year, but this improvement diminished beyond a year and most required adjunct treatment. Finally, the success rate for FI in male patients is high, but mixed for pelvic pain patients; however, SNM may be useful in a multimodal treatment strategy.

**MP-5.10 Establishing a cyclosporin-A program for treatment of refractory Hunner lesion-Interstitial cystitis/bladder pain syndrome: An opportunity for collaboration and continuous quality improvement**

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**Introduction:** Oral cyclosporin-A (CyA) is a potential treatment of refractory Hunner lesion-Interstitial cystitis/bladder pain syndrome (HL-IC/BPS). Due to its toxicity profile, patients on CyA require monitoring of serum CyA levels, renal function, and blood pressure, posing a barrier to widespread use. Despite being a Canadian Urological Association (CUA) guideline option, there is little experience using CyA for the treatment of refractory IC/BPS. We launched a pilot program using CyA for refractory HL-IC/BPS while implementing a strategy for ongoing quality improvement (QI) at Queen's University.

**Methods:** A literature search was performed for studies using CyA for the treatment of refractory IC/BPS. Some authors were contacted directly for details regarding treatment and monitoring protocols. A transplant colleague at Queen's University (MKS) with experience using CyA was consulted in protocol development for treatment and monitoring (Figure 1). The program was initially implemented exclusively for patients with refractory HLs. Following protocol development and initial pilot, a colleague with expertise in QI (GCD) was consulted regarding developing a continuous QI approach. A database has been created for program monitoring, evaluation, and QI.

**Results:** To date, three patients are being treated with CyA through the program. The median length of treatment is seven months. Improvements in Interstitial Cystitis Symptoms Index and Interstitial Cystitis Problem Index at three months of followup have been dramatic for the first two patients (Figure 2), while the third has yet to complete initial followup. Dosage adjustments have been required in all patients due to supratherapeutic levels (x2) and side effects (x1). Collection of efficacy and quality of life data is ongoing.

**Conclusions:** We have successfully developed and implemented a CyA program for the treatment of refractory HL-IC/BPS in Canada. A program evaluation and QI approach will be used to expand and standardize the program.

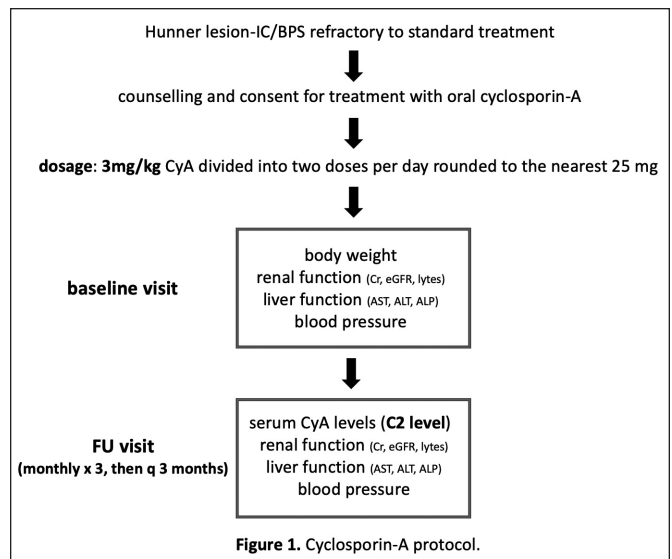
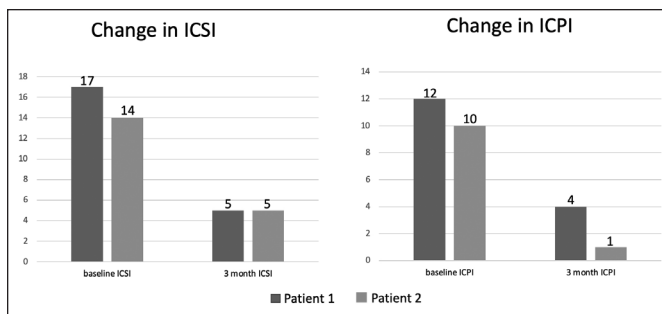


Figure 1. Cyclosporin-A protocol.

**MP-5.10. Figure 1.** Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart of screening and selection procedure.



MP-5.10. Figure 2. Change in ICSI and ICPI after three months of treatment in the first two patients.

### MP-5.11

#### Population-based study on the incidence and risks of multidrug-resistant organisms in patients with ureteric stents

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**Introduction:** Due to the overlapping symptoms between ureteric stents and infectious cystitis, patients are at increased risk of antibiotic over-exposure. Our objective was to assess provincial trends in antibiotic and multidrug-resistant organisms (MDRO) in patients with ureteric stents.

**Methods:** A retrospective, provincial cohort of patients undergoing ureteric stent insertion (SI) was created using administrative and clinical data through Alberta's Data Integration, Management, and Reporting unit (2013–2018). Those with concurrent extirpative and reconstructive surgeries were excluded. Data one year pre- and post-SI was collected. Patients with urine cultures (UC) growing MDRO (microbes resistant to >3 antibiotics) were identified and analyzed based on pre-SI UC status (no growth [NG], sensitive organisms [SO], and MDRO).

**Results:** A total of 13 820 SI were completed over the five-year period. MDRO increased from 1.2% (n=164) to 5.9% (n=815) after SI; 42% of these stents were placed for hydronephrosis and 21% for stones. Forty

percent underwent repeat SI in the following year. A total of 217 patients with NG and 434 with SO developed MDRO post-SI, within 2.9 and 2.7 prescriptions, respectively. Patients with pre-SI MDRO were more likely to receive antibiotic prescriptions in the following year (NG 5.5 vs. SO 5.7 vs. MDRO 7.0) and received ciprofloxacin 24% of the time. Unplanned emergency visits were similar post-SI (4.0 vs. 4.0 vs. 4.7, p=0.23) but pre-SI MDRO had significantly more emergency visits in the year prior (2.6 vs. 3.1 vs. 4.3, p<0.0001).

**Conclusions:** Ureteral stents pose a significant risk for developing MDRO, even when starting with negative urine cultures. Patients with MDRO are more likely to be re-stented, receive more antibiotics, and present to the emergency department. Given these complicating features, stented patients warrant careful consideration of their microbiology and antibiotic exposures.

### MP-5.12

#### Mini-incision and plication cure hydrocele technique: A less invasive surgical variation

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**Introduction:** Idiopathic hydroceles are the commonest cause of chronic benign scrotal swelling, affecting 1% of adult men. The popular Jaboulay technique (1902) is curative and remains the standard for most surgeons. However, it is associated with significant morbidity and has a reported recurrence rate of 5%. Various minimally invasive approaches have been described with fewer reported complications but limited efficacy, with unacceptable recurrence rates requiring multiple treatments. We describe a novel mini-incision and plication (MIP) cure hydrocele technique and report on our morbidity and recurrence.

**Methods:** A retrospective, single-surgeon audit was conducted on patients that underwent the MIP at two hospitals in Sydney between January 2013 and December 2020. This technique is performed using a standard minor-ops tray. Key operative steps include: small midline incision, early drainage of hydrocele, complete incision of the anterior hydrocele wall, delivery of testis, eversion and posterior plication of the bisected hydrocele sac, repositioning of testis, and standard closure (Figure 1). Routine postoperative followup takes place at one and three months. Recurrence



MP-5.12. Figure 1.

was defined to be any visible or palpable fluid collection that appeared and persisted within three months after surgery.

**Results:** A total of 92 men underwent MIP for symptomatic hydrocele; 83% had idiopathic hydroceles. Hydrocele size ranged from 50–1200 cc (57% were grouped as large and very large). Most (93%) were day-only procedures; 7% remained overnight due to spinal anesthesia. Zero drains were left and 22% had transient post-surgical edema that resolved by three months. Hematoma that did not require a return to the operating room developed in 4.3%. Only 1% developed a recurrence, resulting in a redo procedure at three years.

**Conclusions:** The MIP approach achieves eversion and plication with minimal hydrocele manipulation, a small incision, and no drains compared to Jaboulay. It provides excellent results independent of hydrocele size, with a lower complication rate and a recurrence rate of 1%.

### MP-5.13

#### Virtual mindfulness-based group therapy as a multidisciplinary approach to treat erectile dysfunction

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**Introduction:** Erectile dysfunction (ED) is multifactorial and even with organic etiologies, simultaneous performance anxiety and psychogenic inhibition often exacerbate the condition. Mindfulness is a technique to focus on being aware of what you're sensing and feeling in the moment, without interpretation or judgment. We aimed to determine the practicality of a virtual, mindfulness-based group therapy (MBGT) program for patients experiencing ED and to secondarily assess changes in erectile function.

**Methods:** A mixed-methods approach was taken for this feasibility pilot study. A total of 18 participants (mean age 42, range 22–69 years) with ED were recruited to participate in a four-week virtual MBGT program. Three groups were led by trained facilitators on a weekly basis via Webex platform and ran 1.5–2 hours in length, followed by daily home practice and sex education between sessions. Participants completed questionnaires (International Index of Erectile Function [IIEF], Relationship Assessment Scale [RAS], Five Facet Mindfulness Questionnaire [FFMQ]) as a baseline and three months after treatment. Qualitative exit interviews and program feedback were requested from all participants.

**Results:** The dropout rate was 11% (2/18); one participant quit early, and one had unanticipated work duties. There was a statistically significant improvement in the mean IIEF scores, from a baseline of 43 to 56 after MBGT intervention ( $p < 0.05$ ). Overall feedback was positive, and most participants responded that they would recommend this program to others. Some participants felt that the material could be covered over six weeks and/or that an in-person setting would be more interactive.

**Conclusion:** This is the first published virtually MBGT program for patients experiencing ED. This program appears feasible: attendance rates were high, the content was well-received, and patients had improvement in erectile function. Our pilot study has provoked a change in the treatments we may offer patients with ED. Further studies are needed to compare MBGT to medical management and other psychotherapy interventions.

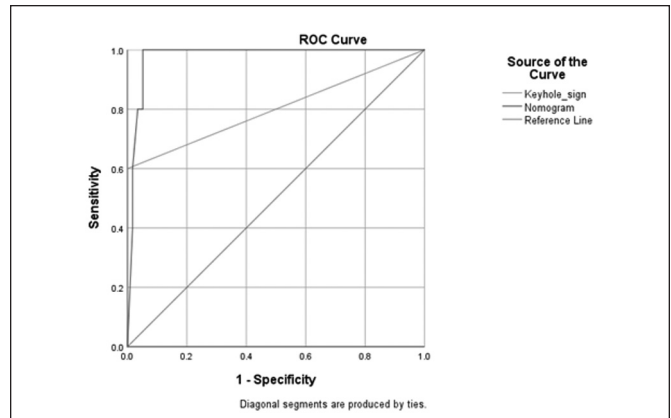
### MP-5.14

#### Configuration and validation of the Toronto Nomogram of Antenatal Ultrasound Index generated from Bayesian meta-regression analysis in predicting posterior urethral valves

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**Introduction:** The keyhole sign is considered to be suggestive of a post-natal diagnosis of posterior urethral valve (PUV). However, not all fetuses with PUV may have this feature, potentially leading to missed diagnoses and symptomatic postnatal presentation. Herein, we configured a nomo-



MP-5.14. Figure 1.

gram to assess the diagnostic accuracy of the nomogram in comparison to the keyhole sign in predicting a postnatal diagnosis of PUV.

**Methods:** Antenatal ultrasound indices identified by the Bayesian meta-regression analysis that were highly predictive of PUV were oligohydramnios, bilateral hydronephrosis, bilateral ureteral dilatation, megacystis, bladder thickening, and urinoma. The nomogram was configured as a calculator with the baseline 6% PUV incidence among male fetus with moderate-severe hydronephrosis. The pooled diagnostic odds ratio generated for each diagnostic index was used as a coefficient factor for nomogram configuration to calculate the probability of PUV. The nomogram was validated using our institutional prenatal consultation database (March 2020 to present).

**Results:** Based on 72 antenatal consults for male infants with moderate to severe hydronephrosis, the keyhole sign has a specificity of 100% and sensitivity of 44%, while the nomogram had specificity of 96.83 and sensitivity of 100%. The keyhole sign had two false negatives and the nomogram had two false positives. The receiver operating characteristic curve showed that the nomogram had a superior area under the curve compared to the keyhole sign (Figure 1). The suggested cutoff using Youdin's index for the nomogram was 95% probability to prevent false positives. The NNS was 2.42 for keyhole sign and 1.03 for our nomogram.

**Conclusions:** Based on the validation study, we have established that the Toronto Antenatal Ultrasound Indices nomogram calculator for PUV has similar if not better diagnostic accuracy with keyhole sign. The nomogram can be an adjunctive tool to trigger additional post-natal screening for patients who do not present with classic keyhole sign but have high index of suspicion.

### MP-5.15

#### Incidence and results of voiding cystourethrogram from 2005–2020

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**Introduction:** Vesicoureteral reflux (VUR) was historically believed to inevitably result in pyelonephritis, scarring, and renal insufficiency, which resulted in aggressive investigations and surgical treatment. However, over the past 20 years, spontaneous resolution has been expected and prophylactic antibiotics and treatment of bowel and bladder dysfunction have had a greater efficacy at reducing urinary tract infection rates than surgery. Therefore, treatment has been aimed at minimizing morbidity of the investigations (voiding cystourethrogram [VCUG]: catheterization and radiation) without sacrificing treatment of significant disease. We hypothesized that fewer VCUGs are being performed, with an increased proportion of positive tests and higher grades. We also believe that rates of surgical intervention and renal damage will remain stable.

**Methods:** A retrospective review was undertaken to determine the number and results of VCUGs performed over the past 20 years, surveying data from 2005, 2010, 2015, and 2020. The number of surgeries is also reported, combining open reimplant and endoscopic repairs.

**Results:** A total of 614 VCUGs were performed in 2005, 697 in 2010, 404 in 2015, and 208 in 2020. Rates of a positive exam for VUR were 34%, 26%, 29%, and 32%, respectively. The number of patients with bilateral VUR was: 79 (15%), 78 (13%), 79 (19%), and 40 (19%), respectively. The number of patients with high-grade (IV and V) was: 14 (3%), 13 (3%), 20 (5%), and 14 (7%), respectively. The number of anti-reflux surgeries performed for the years 2010, 2015, and 2020 was 28, 10, and 8, respectively. We have been able to show that the number of VCUGs performed dropped by almost 1/3 in 2015 and 2/3 in 2020. The rates of bilateral VUR and high-grade reflux increased. The numbers of surgeries performed decreased over the reporting period. Renal outcome data is pending.

**Conclusions:** Contemporary guidelines have resulted in a decrease in investigations and treatment of VUR.

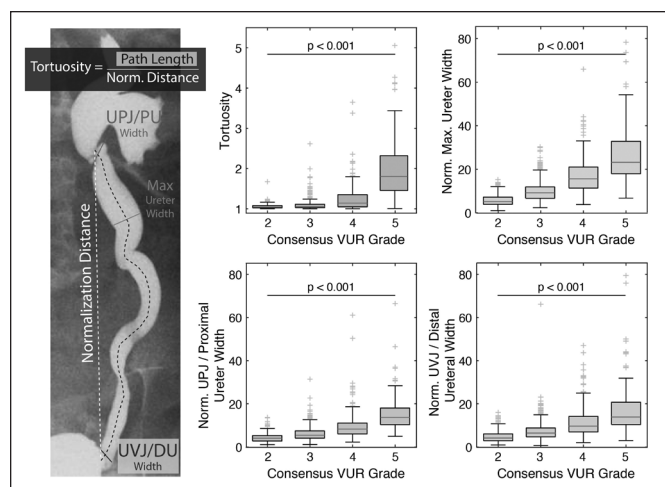
### UP-5.1 Moving towards quantitative grading of vesicoureteral reflux from voiding cystourethrograms

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**Introduction:** Vesicoureteral reflux (VUR) grading from voiding cystourethrograms (VCUGs) has poor inter-rater agreement between clinicians. We sought to integrate more objective means of grading VUR with machine learning (ML) to standardize and improve the current VUR grading system.

**Methods:** We retrospectively reviewed our institutional VCUG imaging repository between January 2013 and December 2019. Each VCUG was split into left and right renal units, respectively containing the whole ureter and kidney, and then assessed for reflux. Each renal unit was then annotated to generate features for supervised ML. The four features abstracted include: ureter tortuosity, proximal ureter width, distal ureter width, and max ureter width (Figure 1). Due to the highly variable grading of VUR, each included renal unit was graded by at least five raters to determine a consensus grade. Inter-rater reliability was determined to assess the validity of grading. Multiclass classification was trained with a SVM model to distinguish individual VUR grades.<sup>1</sup>



UP-5.1. Figure 1.

**Results:** A total of 6288 renal units (from 3144 VCUGs) were identified in the study period and screened for VUR. Of these, 1935 renal units had documented VUR, with 1248 being included in the ML model. A total of 7986 independent VUR grades from 5+ raters for each renal unit were collected. The included cohort consisted of a 50/50 male/female split, with a median age at imaging of 0.74 years (interquartile range 0.25, 3.12). The overall Fleiss' kappa for inter-rater agreement was 0.44. The model performed with 66% accuracy (area under the curve=0.82) on 80/20 holdout validation. Our model determined clinically significant differences in PUV patients requiring dialysis and was moderately correlated to hydronephrosis resolution post-pyeloplasty.

**Conclusions:** VUR grading by quantitative metrics is feasible in large datasets and can be supported by ML-based methods. VUR features may be correlated with clinical outcomes but further validation and prospective study are warranted.

### Reference

1. Khondker A, Kwong JC, Rickard M, et al. A machine learning-based approach for quantitative grading of vesicoureteral reflux from voiding cystourethrograms: Methods and proof of concept. *J Ped Urol* 2022;18:78.e1-7. <https://doi.org/10.1016/j.jpuro.2021.10.009>

### UP-5.3 Sacral nerve stimulators pseudo-capsule: Rate of microbial colonization

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**Introduction:** We aimed to evaluate the rate of microbial colonization of the pseudo-capsule that forms around sacral nerve stimulators (SNS) and, consequently, the significance of surgical excision of this pseudo-capsule at the time of SNS revision or removal.

**Methods:** A cohort of 31 patients who underwent SNS revision or removal from January 2018 to June 2021 were retrospectively reviewed. The baseline demographics, rate of pseudo-capsule microbial colonization, and development of SNS insertion site clinical infection were reported.

UP-5.3. Table 1. Demographics, baseline characteristics and tissue culture results of SNS pseudo-capsule

Age in years (mean±SD)	51.6±13.8
BMI (mean±SD)	31.5±8.1
Sex, n (%)	
Female	29 (93.5%)
Male	2 (6.5%)
Smoker, n (%)	8 (25.8%)
Diabetes, n (%)	5 (16.1%)
Immunosuppressive therapy, n (%)	5 (16.1%)
Indication for SNS insertion, n (%)	
Overactive bladder (OAB)	21 (67.7%)
Bladder pain syndrome (BPS)	5 (16.7%)
Neurogenic bladder	4 (13.3%)
Refractory urine retention	1 (3.3%)
Indications for SNS removal, n (%)	
Revision of malfunctioning device	9 (29%)
Leg or insertion site pain	6 (19.3%)
MRI	9 (29%)
Patient request	1 (3.2%)
Failure to achieve symptoms control	6 (19.3%)
Pseudo-capsule positive cultures, n (%)	
Coryneform bacillus	2 (50%)
Cutibacterium acnes	1 (25%)
Pseudomonas aeruginosa	1 (25%)

**Results:** A cohort of 31 patients who underwent InterStim device (Medtronic, Minneapolis, MN) revision or removal were included. The majority were females (93.5%). The most common indication for SNS was refractory overactive bladder (OAB) (67.7%). Nine patients (29%) underwent SNS revision due to malfunctioning device and nine had SNS removal for the need of magnetic resonance imaging procedures (29%).

Four patients (12.9%) had positive tissue culture growing *Corynebacterium bacillus* (50%), *Cutibacterium acnes* (25%), and *Pseudomonas aeruginosa* (25%) (Table 1).

**Conclusions:** Pseudo-capsule colonization was uncommon at the time of SNS revision; however, it remains unclear whether removal of pseudo-capsule will reduce the risk of infection or not.