Poster Session 4: Functional Urology, Reconstructive Urology (Part 1), Transplant
Sunday, June 28, 2026 • 16:45–18:00

Cite as: *Can Urol Assoc J* 2026;20(6Suppl1):S44-50. http://dx.doi.org/10.5489/cuaj.9815

MP 4.1

Environmental performance of kidney replacement therapies: A comparative lifecycle assessment

Saba Saleem[1], Caroline Stigant[2], Tasleem Rajan[2], Kasun Hewage[1], Rehan Sadiq[1], Andrea MacNeill[3], Christopher Y.C. Nguan[4]

[1]School of Engineering, University of British Columbia, Vancouver, Canada; [2]Faculty of Medicine, University of British Columbia, Vancouver, Canada; [3]Department of Surgery, University of British Columbia, Vancouver, Canada; [4]Department of Urologic Sciences, University of British Columbia, Vancouver, Canada

Introduction: Healthcare delivery is associated with considerable greenhouse gas (GHG) and other pollutant emissions. Kidney replacement therapies (KRTs) for kidney failure are resource-intensive. Although relative health and economic impacts of KRTs have been examined, their comparative environmental impacts remain poorly described.

Methods: A comparative lifecycle assessment (LCA) was performed and environmental impacts of deceased donor kidney transplant (KT), automated/cycler peritoneal dialysis (PD), and in-center hemodialysis (HD) were identified, capturing all inputs and outputs for each therapy. The functional unit of comparison was defined as kidney replacement for one patient for one year.

Results: Across the majority of environmental impact categories, including climate change, air pollution, human toxicity, and water depletion, HD demonstrates the highest environmental impact and KT the lowest. The climate impact of a patient receiving HD is 74% and 46% more than patients receiving KT and PD, respectively. Similarly, HD accounts for 65% of total air pollution impacts, 54% of human toxicity, and 44% of water depletion. The highest impact of PD is on water depletion (41%) and metal depletion (81%). KT demonstrates the lowest impacts across all categories except terrestrial ecotoxicity. Within each therapy, patient and staff travel and consumables are the largest contributors to GHG emissions.

Conclusions: Understanding the relative environmental impacts of KRTs can help inform clinical decision-making in the management of kidney failure. KT is the most environmentally preferred therapy and has better clinical outcomes; thus, opportunities to optimize transplantation uptake should be explored. Between dialysis modalities, PD is preferable to HD and could be considered for more widespread use.

MP 4.2

Development of a novel framework for intraluminal fibrin plug synthesis for preclinical testing of minimally invasive peritoneal dialysis catheter devices

Ria Belinda Khan[1,2], Filip Bodera[2,3], Brock Hoard[4], Heyu Ni[2,5,6], Brian Carrillo[7], Michael Kolios[2,3], Monica Farcas[1,2,6,8]

[1]Institute of Medical Science, University of Toronto, Toronto, Canada; [2]Unity Health Research, St. Michael's Hospital, Toronto, Canada; [3]Medical Physics, Toronto Metropolitan University, Toronto, Canada; [4]School of Medicine, Limerick University, Limerick, Ireland; [5]Laboratory Medicine and Pathobiology, University of Toronto, Toronto, Canada; [6]Faculty of Medicine, University of Toronto, Toronto, Canada; [7]Research, WellSpring Research, Toronto, Canada; [8]Department of Surgery, St. Michael's Hospital, Toronto, Canada

Introduction: Peritoneal dialysis (PD) is a life-sustaining therapy for end-stage renal disease (ESRD) patients. Unfortunately, 36% experience mechanical catheter obstructions.[1] ESRD patients are particularly susceptible to intraluminal fibrin plug (IFP) obstructions due to elevated systemic inflammation and fibrinogen levels (the main IFP component).[2,3] Saline flushes, thrombolytic agents, and guidewire manipulation are often ineffective in restoring catheter patency, prompting laparoscopic surgical revision. This study aimed to bioengineer realistic IFPs to enable standardized benchtop and in vivo evaluation of minimally invasive medical devices designed to unblock PD catheters at the bedside, eliminating the need for invasive surgeries.

Methods: Fibrinogen volumes were titrated using thromboelastography (TEG) to determine optimal composition representative of true IFPs. Fibrinogen volumes of 0, 18, 36, and 54 µL were evaluated in a fixed mixture of 300 µL platelet-poor plasma (PPP), 4 µL $CaCl_2$, and 1 µL thrombin to establish increasing fibrin density gradients. To maintain a constant reaction volume, inverse volumetric adjustments were also performed, with increases in fibrinogen offset by proportional decreases in plasma (300 µL PPP + 0 µL fibrinogen; 282 µL PPP + 18 µL fibrinogen; 264 µL PPP + 36 µL fibrinogen; 246 µL PPP + 54 µL fibrinogen). Clot formation rate (angle) and final clot strength (maximum amplitude, MA) were recorded to assess fibrin polymerization and mechanical integrity.

Results: As fibrinogen increased from 0 µL to 54 µL, the angle rose from 27.5±5.7° to 61.3±0.6°, while MA increased from 3.7±0.5 mm to 19.6±3.6 mm, indicating accelerated fibrin polymerization and enhanced clot integrity. In the inverse volumetric series (PPP volume reduced, fibrinogen increased), the angle rose from 53.5±9.3° to 70.9±10.8°, and MA increased from 31.2±7.5 mm to 63.8±11.0 mm.

Conclusions: Inverse volumetric adjustments generated stronger, more efficient clot formation than fibrinogen alone. The 282/18 PPP-to-fibrinogen formulation (MA 31.2±7.5 mm) produced a clot comparable in strength to the 54 µL fibrinogen-only condition (MA 31.2±7.5 mm), despite using one-third the fibrinogen volume. Plasma reduction thus amplifies fibrin crosslinking and mechanical stability. This tunable model provides a reproducible framework for benchtop testing of devices across diverse IFP densities.

Funding: St. Michael's Hospital Surgical Grant from the Department of Surgery and the CIHR's Canadian Graduate Research Scholarship for Master's students. The authors acknowledge the tremendous ongoing support of Dr. Monica Farcas and Dr. Brian Carrillo, the Farcas Lab members, the hemodialysis/peritoneal dialysis nurses at St. Michael's Hospital, and Dr. Eno Hysi.

References:

1. Cacciapuoti M, Basso A, Stefanelli LF, et al. Peritoneal catheters malposition/dysfunction and their approach with catheterography and radiologic manipulation in peritoneal dialysis: A minireview and case series. *Life* 2024;14:1475. https://doi.org/10.3390/life14111475
2. Shlipak MG, Fried LF, Crump C, et al. Elevations of inflammatory and procoagulant biomarkers in elderly persons with renal insufficiency. *Circulation* 2003;107:87-92. https://doi.org/10.1161/01.CIR.0000042700.48769.59
3. Wolberg AS. Fibrinogen and fibrin: Synthesis, structure, and function in health and disease. *J Thromb Haemostas* 2023;21:3005-15. https://doi.org/10.1016/j.jtha.2023.08.01

MP 4.3

Prediction and explanation of kidney transplant outcomes with multimodal anesthesia timeseries deep learning

Rohit Malyala[1], Annudesh Liyanage[2], Anna-Lisa T.V. Ngyuen[3], Christopher Y.C. Nguan[1,4]

[1]Department of Urologic Sciences, University of British Columbia, Vancouver, Canada; [2]School of Medicine, University of British Columbia, Vancouver, Canada; [3]School of Medicine, University of Western Ontario, London, Canada; [4]Precision Medicine in Transplantation Research Excellence Cluster, Vancouver General Hospital, Vancouver, Canada

Introduction: Kidney transplants are increasingly sourced from deceased donors, which have a higher risk of delayed graft function (DGF). We hypothesized that complex interactions between operative features, such as hemodynamics, fluids, and medications, can impact early perfusion to the transplanted kidney, and aimed to find optimal management to prevent DGF.

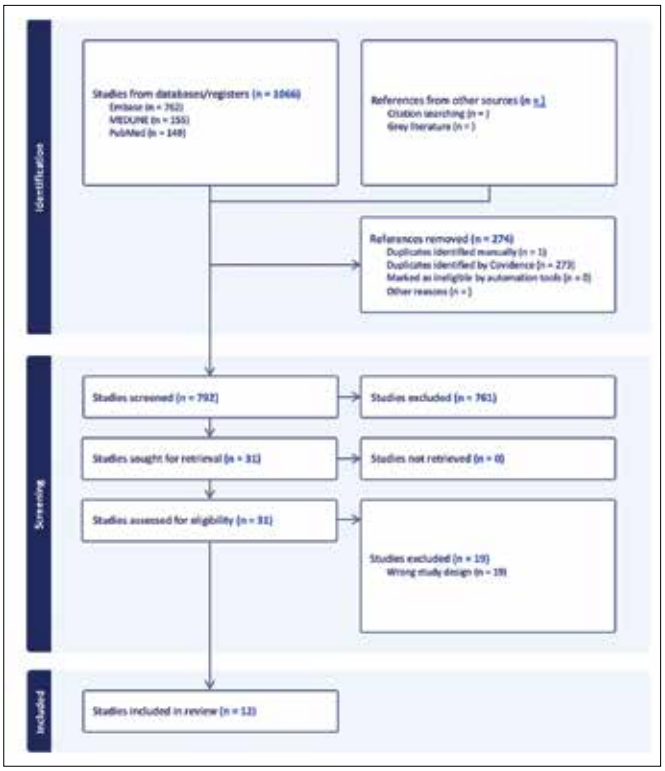
Methods: We used time-series machine learning to predict and explain DGF, incorporating tabular pre-transplant donor and recipient characteristics, with intraoperative anesthesia time-series, in both donation after cardiac death (DCD) and neurologically determined death (NDD) donors (n=424). Two models were made: DGFpredict-time, based on a multimodal convolutional neural network, and DGFpredict-explain based on gradient-boosted trees.
Results: A total of 121 DGF events were captured in our cohort derived from a single academic medical center (57/276 NDDs, 64/148 DCDs). DGFpredict-time predicts 80.07% (CI 77.4–82.7) of DGF events in test splits. In DGFpredict-time, salience maps identified post-anastomosis BP as the most influential feature of intraoperative management for DGF incidence, with normalized salience post-anastomosis being 84.0% vs. 37.8% pre-anastomosis (in DCDs). DGFpredict-explain was found to be 74.79% (CI 72.2–77.4) accurate for DGF. In SHAP explanatory analyses, pre- and post-anastomosis MAP were top five predictors of DGF incidence. Dependency analysis indicated a MAP of 76.0 mmHg (or below) as an optimal target at which to start pressors, and 37.3 cc/kg cumulative intraoperative crystalloid as an optimum for DGF prevention. Models were also interrogated to determine optimal recommendations for simulated patient vignettes, showcasing patient-personalized anesthesia recommendations.
Conclusions: Our models identify patients at risk of DGF, suggest modifications to intraoperative management to prevent DGF, and demonstrate new methods to analyze complex operating room time-series data.
Acknowledgements: A modified version of this abstract was presented at the AUA 2026 Annual Meeting.

MP 4.4

Benefits of cannabis in treating lower urinary tract symptoms: A scoping review

Alan Cheng[1], *John Kim*[1], *Udi Blankstein*[1]
[1]Division of Urology, McMaster University, Hamilton, Canada

Introduction: Anticholinergics remain the mainstay for bladder dysfunction but are limited by cognitive side effects. Cannabinoids have emerged as a potential alternative, given receptor distribution in bladder control pathways. Early studies suggested that cannabis may demonstrate benefits in overactive bladder (OAB) and lower urinary tract symptoms (LUTS), but findings are limited by small sample sizes and cross-sectionality. This review investigatd the therapeutic utility of cannabis and its impact on LUTS.
Methods: This scoping review was conducted following Cochrane and PRISMA guidelines. Eligible studies included adults with OAB symptoms due to neurogenic disease, benign prostatic hyperplasia (BPH), or cystitis, treated with cannabis vs. placebo, no treatment, or active therapies. Outcomes included urinary function and quality of life. Databases searched included MEDLINE, EMBASE, and CENTRAL. Non-English studies were excluded.
Results: From 792 abstracts, 31 full-text articles were reviewed and 12 were included (Figure 1). Studies showed consistent evidence on the effectiveness of cannabis-based therapies for managing LUTS, particularly in patients with multiple sclerosis (MS). Cannabis interventions, including THC, CBD, and combined formulations, showed some improvements in incontinence episodes, frequency, and quality-of-life measures. Mild adverse effects, including dizziness and dry mouth, were common (2–18%) and sometimes led to treatment discontinuation. Nine of 12 studies were done on MS populations, and only three studies were randomized controlled trials.
Conclusions: Evidence for the benefits of cannabis in treating LUTS is limited and largely observational. While preliminary findings are encouraging, randomized trials focusing on patient-centered outcomes are needed to clarify its role in clinical practice.



MP 4.4. Figure 1. PRISMA flow diagram detailing our search and selection process and showing the reasons papers were excluded.

MP 4.5

Expanding access to sacral neuromodulation: First Canadian implementation outside a major implanting center

Hossein Saadat[1], *Grace Ma*[1], *Paige Dougan*[2], *Dean Elterman*[3], *Danielle Waltenbury*[4]
[1]Department of Surgical Subspecialties, Health Sciences North, Northern Ontario School of Medicine, Sudbury, Canada; [2]Endoscopy and Minor Procedures, Health Sciences North, Sudbury, Canada; [3]Division of Urology, Department of Surgery, University Health Network, University of Toronto, Toronto, Toronto, Canada; [4]Health Sciences North Research Institute, Health Sciences North, Sudbury, Canada

Introduction: Sacral neuromodulation (SNM) is an effective treatment for refractory overactive bladder (OAB), non-obstructive urinary retention (UR), and fecal incontinence (FI), yet remains underused in Canada. Barriers can include limited trained centers, geographic inequity, and lack of local access to percutaneous nerve evaluation (PNE), the required screening step. In Northern Ontario, barriers lead many patients to forgo PNE, limiting access to SNM. We evaluated the feasibility and cost impact of local PNE implementation at a regional center.
Methods: We conducted a single-center, hybrid type 2 pilot implementation study in Northern Ontario. Adults with refractory OAB, non-obstructive UR, and FI underwent outpatient PNE using temporary untined leads. Outcomes included procedural completion, safety, and per-patient cost. Semi-structured interviews with ambulatory care unit (ACU) nurses explored barriers and facilitators using the Consolidated Framework for Implementation Research.
Results: Twelve patients (11 OAB and one FI) underwent PNE (mean age 59.4 years). One patient could not tolerate the procedure; all others completed PNE without serious adverse events. Ten patients (83%) had a successful trial and proceeded to implantation. All procedures were outpatient and required no fluoroscopy. Direct cost per patient was CAD $525. Five ACU nurses were interviewed. Facilitators included perceived advantage over out-of-region referral, supportive unit culture, and nursing champions. Barriers included delayed access to permanent implantation and limited training depth for sustainability and uncertainty regarding post-trial procurement.

Conclusions: Local PNE implementation is feasible, safe, and cost-efficient in a regional center. Implementation determinants suggest this model is scalable with modest adaptations. Local PNE delivery supports more equitable access to SNM in geographically dispersed, publicly funded healthcare systems.
Acknowledgements: The authors would like to acknowledge Mr. Roch Baronette, Ms. Rebecca Wandziak, Ms Kim Robitaille, and Ms. Tabitha Rono for their invaluable support in this project.

MP 4.6

The emerging role of vaginal laser for the treatment of urinary incontinence: A systematic review and critical appraisal

Rebecca Matthews[1], Cynthia Abbasi[1], Garson Chan[2]
[1]Department of Obstetrics and Gynecology, University of Saskatchewan, Saskatoon, Canada; [2]Division of Urology, University of Saskatchewan, Saskatoon, Canada

Introduction: Urinary incontinence (UI) is common among women, significantly affecting quality of life. Despite conservative and surgical treatments, barriers such as compliance, side effects, and recovery time have prompted exploration of alternatives. Vaginal laser therapy has emerged as a potential non-invasive treatment. The objective of this paper is to evaluate the clinical effectiveness and safety of vaginal laser therapy for UI.
Methods: A systematic review identified randomized controlled trials (RCTs) on vaginal laser therapy for UI. Inclusion criteria were RCTs focusing on use, efficacy, and safety. Exclusion criteria included secondary literature, animal studies, systematic reviews, cohort studies, and non-peer-reviewed articles. Quality assessment used the CASP checklist for RCTs.
Results: Thirteen studies were included. Ten assessed stress UI, one examined mixed UI, and two focused on overactive bladder. Treatment efficacy was assessed via subjective and/or objective improvements. Subjective improvements were reported in several studies using validated questionnaires but were inconsistent. Objective improvements were also mixed. Among studies showing efficacy, improvements were significant only in premenopausal women with mild to moderate SUI. Safety profiles were favorable, with minimal, self-limiting adverse effects.
Conclusions: Vaginal laser therapy shows potential for UI management, particularly in premenopausal women with mild SUI; however, inconsistent findings, short followup, and lack of standardized protocols limit widespread adoption.
Acknowledgements: This abstract was presented at AUGS as part of the "Rapid Fire presentation."

MP 4.7

Prospective evaluation of posterior tibial nerve stimulation device for overactive bladder: Canadian experience

Garson Chan[1]
[1]Division of Urology, Department of Surgery, University of Saskatchewan, Saskatoon, Canada

Introduction: Overactive bladder (OAB) is a common condition with a substantial impact on quality of life. For patients who do not respond to or cannot tolerate oral therapy, current options include intradetrusor onabotulinumtoxinA injection and sacral neuromodulation, both of which are invasive and variably accessible across Canada. Posterior tibial nerve stimulation (PTNS) has emerged internationally as a minimally invasive neuromodulatory therapy, but its feasibility and effectiveness have not been studied in Canadian practice.
Methods: This is a prospective, single-center study of adults with OAB refractory to oral therapy. Participants underwent weekly PTNS sessions for 12 weeks. The primary outcome was change in OAB symptoms, assessed by three-day bladder diaries and validated questionnaires (ICIQ-OAB, OAB-q SF). Secondary outcomes included treatment adherence, patient satisfaction, pad usage, and adverse events. Data were analyzed using paired t-tests or Wilcoxon signed-rank tests for continuous variables and χ^2 tests for categorical data.
Results: Fifteen patients were enrolled, with a median age of 67 years; 80% were female. All participants (100%) completed the 12-session induction protocol, and 80% elected to continue with maintenance therapy. PTNS was associated with a statistically significant reduction in urgency urinary incontinence episodes ($p<0.05$). Improvements were observed in bladder diary parameters, including urinary frequency, voided volumes, and leakage episodes. Patient-reported outcome measures demonstrated improvement in overactive bladder-related quality of life. One patient experienced minor local discomfort and bruising after a single treatment session but continued therapy without recurrence. No serious adverse events were observed.
Conclusions: Percutaneous PTNS appears safe, feasible, and effective for reducing OAB symptoms in a Canadian outpatient setting. These findings support further evaluation through larger, randomized trials and suggest that PTNS could expand treatment options for Canadian patients with refractory OAB.

MP 4.8

Retrospective evaluation of 30-day complication rates following drug-coated balloon dilation vs. conventional urethral dilation of urethral stricture disease

Jerron Zhang[1], Arushi Wadhwa[2], Faye De Souza[3], Elizabeth Garnett[5], Omer Choudhary[1], Rano Matta[4,5], Amanda Hird[4,5], Sender Herschorn[4,5], Robert Nam[4,5], Sarah Neu[4,5]
[1]Temerty Faculty of Medicine, University of Toronto, Toronto, Canada; [2]Faculty of Medicine, University of Ottawa, Ottawa, Canada; [3]Division of Urology, Sunnybrook Research Institute, Toronto, Canada; [4]Division of Urology, University of Toronto, Toronto, Canada; Division of Urology, Sunnybrook Health Sciences Centre, Toronto, Canada

Introduction: Urethral stricture disease (USD) is commonly managed with endoscopic techniques; however, these modalities are often associated with high recurrence rates and limited long-term durability. Drug-coated balloon (DCB) dilation is a promising, minimally invasive alternative, yet real-world data on its short-term safety remain limited. This study aimed to compare 30-day complication rates between conventional urethral dilation and DCB dilation in a real-world cohort.
Methods: This single-center, retrospective cohort study included male patients treated for USD with either urethral dilation or DCB dilation at a Canadian tertiary care center between January 2019 and December 2024. Thirty-day complications were defined as those requiring emergency department (ED) intervention/hospital admission, as well as documented hematuria, urinary retention, and urinary tract infections. Univariate and multivariate analyses were performed to compare complication rates.
Results: A total of 253 patients were included: DCB (n=118) and urethral dilation (n=135). Most strictures were idiopathic (61%), bulbar (96%), with a mean length of 1.9±1.0 cm. Thirty-day complication rates were similar between groups (DCB 10.2% vs. urethral dilation 12.6%, p=0.561). In contrast, ED visit complications occurred significantly less frequently with DCB compared to urethral dilation (1.7% vs. 9.6%, p=0.0075). On age-adjusted logistic regression, treatment modality remained independently associated with ED-requiring complications (p=0.034), while age was not a significant predictor (p=0.141).
Conclusions: In this single-center, real-world cohort, DCB dilation was associated with a significantly lower rate of severe 30-day complications requiring emergency intervention compared to urethral dilation, despite similar overall complication rates. These findings provide important comparative real-world evidence supporting the short-term safety of DCB dilation and may help inform procedural selection/patient counseling.

MP 4.9

Impact of frailty on postoperative outcomes after sling surgery

Jessica Dobler[1], Angelina Kuzina[1], Sidney Gregorek[1], Mohammad Mohaghegh[1], Garson Chan[2]
[1]Division of Urology, Department of Surgery, University of Vermont Medical Center, Burlington, United States; [2]Division of Urology, Department of Surgery, University of Saskatchewan, Saskatoon, Canada

Introduction: Frailty is a known predictor of postoperative morbidity and poor outcomes, but its impact on outcomes following stress urinary incontinence (SUI) surgery remains unclear. This study aimed to assess the association between frailty and short-term postoperative outcomes among women undergoing surgical treatment for SUI.
Methods: Female patients with SUI who underwent a primary continence procedure were identified in TriNetX. Frailty was defined using the five-item Modified Frailty Index (mFI-5), a screening tool designed by the American College of Surgeons National Surgical Quality Improvement Program to determine patient frailty, assigning 1 point for DM, non-independent functional status, CHF, HTN requiring medication, COPD. A score ≥2 indicated frailty. Primary outcomes included 30-day complication rate, 30-day UTI rate, and 90-day readmission rate, compared between frail and non-frail cohorts.

Results: Among 13 288 patients undergoing sling surgery, 9417 were non-frail and 3871 were frail (mean age 71.3 vs. 72.4 years). Frail patients had higher 30-day UTI rates (9.5% vs. 6.8%, p<0.0001), non-UTI complication rates (1.2% vs. 0.8%, p=0.0218), and 90-day emergency/inpatient visits (8.0% vs. 3.3%, p<0.0001). Frailty was associated with increased risk of postoperative morbidity and postoperative healthcare use.
Conclusions: Frailty independently predicted higher complication and acute care visit rates after sling surgery. Incorporating frailty screening into preoperative evaluation may improve risk counseling and postoperative management.

MP 4.10

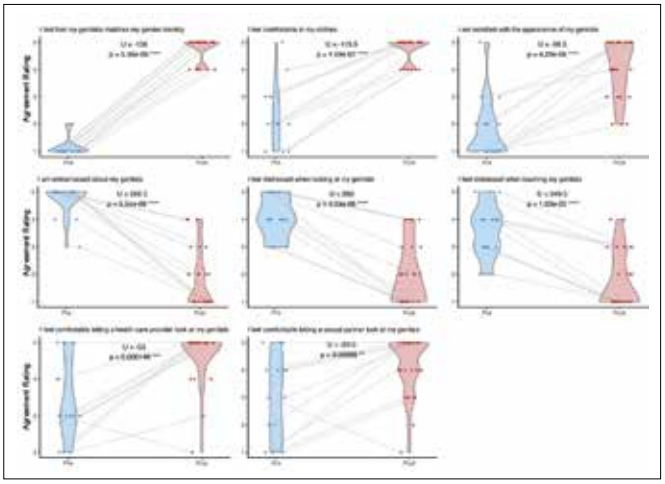
Reoperation rates after primary mesh urethral sling vs. primary pubovaginal sling for stress urinary incontinence

Jessica Dobler[1], Angelina Kuzina[1], Sidney Gregorek[1], Mohammad Mohaghegh[1], Garson Chan[2]
[1]Division of Urology, Department of Surgery, University of Vermont Medical Center, Burlington, United States; [2]Division of Urology, Department of Surgery, University of Saskatchewan, Saskatoon, Canada
Introduction: Stress urinary incontinence (SUI) can be treated by placing a midurethral mesh sling (MUS) or a pubovaginal sling (PVS). Both are highly effective, but FDA warnings about mesh use for pelvic organ prolapse have prompted patient and surgeon concerns about long-term mesh sling safety. PVS are mesh-free, using autologous rectus fascia. Mesh slings have demonstrated durable outcomes, but long-term comparative data on reoperations are limited. This study compared reoperation rates, secondary procedure types, and post-surgical UTIs after primary MUS vs. PVS.
Methods: An observational study was conducted using the TriNetX Dataset Network, a live global EHR database. Adult female patients with an ICD code diagnosis of SUI and CPT codes for either a MUS (CPT code for sling) or PVS (CPT code for sling plus harvest graft) procedure from 2005–2015 were selected. Patients with a prior continence surgery or past diagnosis of urethral diverticulum, fistula, stricture surgery, neurogenic bladder, or spinal cord injury were excluded. The primary outcome was cumulative one-, five-, and 10-year reoperation rates, with secondary outcomes of repeat procedures and 30-day UTI rate.
Results: A total of 17 920 patients were identified (MUS n=17 738; PVS n=182). Reoperation rates were significantly lower after MUS compared with PVS at all points: 2.06% vs. 6.04% at one year (p=0.002; RR=0.34 CI 0.19–0.61), 3.54% vs. 8.24% at five years (p=0.0007; RR=0.43 CI 0.26–0.70), and 4.32% vs. 8.24% at 10 years (p=0.0003; RR=0.44 CI 0.25–0.67). The most common secondary procedures at all points were repeat sling (66.3%, 64.3%, 64.9% for MUS; 72.7%, 66.7%, 61.1% for PVS) and urethral bulking (31.8%, 33.7%, 33.0% for MUS; 27.3%, 33.3%, 38.9% for PVS); Burch colposuspension was rare (1.6%, 1.9%, 2.0% for MUS; 0% at all times for PVS). In patients who required reoperation, there was no significant difference in mean time to secondary SUI procedure between cohorts. UTI rates at 30 days were significantly higher after PVS when compared to MUS (12/09% vs. 6.66%, p=0.0036; RR 0.55, CI 0.37–0.82).
Conclusions: Patients who underwent MUS placement had statistically fewer reoperations for recurrent SUI than those who underwent PVS, and had fewer post-surgical UTIs. This could be related to the surgical procedure being less complicated with fewer fail points. This is consistent with prior studies showing its safety, sustained efficacy, and long-term durability as a surgical option for SUI.
Acknowledgement: This abstract was presented at the 2026 AUA Annual Meeting.

MP 4.11

Patient-reported outcomes after penile inversion vaginoplasty: One-year functional, sexual, and psychosocial satisfaction from a single-center cohort

Lauren Pickel[1,2], Alexandra Leora Millman[1,3], Yonah Krakowsky[1,3], Olivia Drodge[3,5], Emery Potter[3,5], Emily MacLeod[3,5], Ethan D. Grober[1,3], Yulia Wilk-Goldsher[3,6]
[1]Division of Urology, Department of Surgery, University of Toronto, Toronto, Canada; [2]Temerty Faculty of Medicine, University of Toronto, Toronto, Canada; [3]Transition Related Surgery Program, Women's College Hospital, Toronto, Canada; [4]Department of Physical Therapy, University of Toronto, Toronto, Canada; [5]Lawrence S. Bloomberg Faculty of Nursing, University of Toronto, Toronto, Canada; [6]Faculty of Medical and Health Science, University of Tel Aviv, Tel Aviv, Israel
Introduction: Patient-reported outcomes (PROs) following gender-affirming surgery remain understudied. This study aimed to evaluate PROs during the first postoperative year following penile inversion vaginoplasty (PIV).
Methods: We conducted a single-center, retrospective cohort study of 76 consecutive patients undergoing PIV; questionnaires were sent out preoperatively, and at one, three, six, nine, and 12 months postoperatively. Outcomes were compared with logistic regression, cumulative link mixed models, and Mann-Whitney U tests.
Results: Fifty-nine patients (78%) completed at least one questionnaire. Vaginoplasty reliably improved the feeling of gender congruence (p<0.0001), increased comfort in clothes (p<0.0001), and reduced feelings of embarrassment (p<0.0001) and distress when looking at or touching genitals (each p<0.0001) (Figure 1). Respondents were more likely to endorse the ability to engage in their preferred sexual activity after vaginoplasty (p<0.0001). Return of genital sensation was gradual, with 100% of patients having at least partial sensation at six months and 61% describing full sensation by one year (p<0.001). Of those who had attempted to achieve orgasm, all were able at nine months (p<0.001). Respondents reported greater satisfaction with urinary function postoperatively (p<0.001), despite 25% having diverted stream. All but one participant, who had a complicated postoperative course, agreed with the statement "I am now happier after my surgery than before my surgery" at one year. Mental health concern prevalence remained stable over the course of one year (time effect p=0.64).
Conclusions: Penile inversion vaginoplasty was associated with high rates of satisfaction and significant improvements in patient-reported functional, sexual, and psycho-social outcomes. Longitudinal results can guide providers and patients in perioperative discussions regarding goals, expectations, outcomes, challenges, and satisfaction during the first year.
Acknowledgements: A version of this abstract was accepted for presentation at the AUA 2026 Annual



MP 4.11. Figure 1. Reported outcomes of gender congruence and satisfaction pre-surgery and post-vaginoplasty (significance threshold p<0.0.5).

MP 4.12

Revision to InterStim X: Clinical outcomes of sacral neuromodulation revision

Andrea Jacob[1], Stewart Whalen[2], Karthik Tennankore[3], Jerzy Gajewski[2], Ashley Cox[2]
[1]Faculty of Medicine, Dalhousie University, Halifax, Canada; [2]Department of Urology, Dalhousie University, Halifax, Canada; [3]Division of Nephrology, Dalhousie University, Halifax, Canada
Introduction: Sacral neuromodulation (SNM) is an effective therapy for refractory overactive bladder (OAB), urgency incontinence (UUI), non-obstructive urinary retention (NOUR), and fecal incontinence (FI). Since 1999, the Interstim system has evolved from the original Interstim, to InterstimII, and now InterstimX. This study aimed to investigate device performance and outcomes in patients who have undergone revisions from early versions of Interstim to InterstimX.

Methods: A retrospective chart review was conducted by identifying patients who underwent implantation of Interstim X, between February 2024 and October 2025 through surgical records. Patients who underwent a revision from an earlier device (REV) were compared to those undergoing their first InterstimX implant (INTX). The primary outcomes were success of implant at three months and device programming difficulty.
Results: A total of 51 patients were identified. Indication for InterstimX™ implant was UUI (27, 55%), OAB (4, 8%), BPS/IC (11, 22%), NOUR (5, 10%), FI (2, 4%), and neurogenic bladder (2, 4%). Nineteen patients underwent revision to InterstimX. All patients in the REV group were female vs. 29 (91%) in the INTX group, p=0.29. The mean age was 63±13 in the REV group compared to 58±14 in the INTX group (p=0.23). No intraoperative complications occurred. Device removal was not required in REV, compared with six (19%) in INTX (p=0.07). Success rates were higher in the REV group at both three months (89% vs. 71%, p=0.27) and 12 months (78% vs. 64%, p=0.5) compared with INTX. Device programming difficulty (n=43) occurred in 17% of the REV group, compared to 12% in the INTX group (p=0.68).
Conclusions: Overall, patients undergoing revision to InterStimX have an excellent treatment response, with little difficulties programming the new device. InterstimX™ appears to be a successful treatment modality for those with previous SNM devices. Further understanding into revision success and device performance is crucial to increase awareness among providers and guide future practice.

MP 4.13

Impact of body mass index on surgical outcomes and functional results in gender-affirming vaginoplasty

Daniel Callahan[1], Anne Yin[2], Cynthia Hinderscheid[3], Alyxandra Ramsay[4], Subha Karim[4], Peter Shamamian[5], Joshua Safer[6], Rajveer S. Purohit[2]
[1]Dell Medical School, University of Texas at Austin, Austin, United States; [2]Department of Urology, Mount Sinai Health System, New York, United States; [3]Michigan State University College of Human Medicine, East Lansing, United States; [4]Center for Transgender Medicine and Surgery, Mount Sinai Health System, New York, United States; [5]Department of Plastic Surgery, Mount Sinai Health System, New York, United States; [6]Department of Endocrinology, Mount Sinai Health System, New York, United States

Introduction: While previous studies have assessed the role of increased body mass index (BMI) on gender-affirming vaginoplasty outcomes, no studies are currently published on the risks associated with an underweight BMI (<18.5 kg/m²), nor do current studies present with statistical power due to limited sample sizes. This analysis represents the first and largest bidirectional assessment of BMI on vaginoplasty post-operative and functional outcomes.
Methods: A retrospective cohort study was conducted of 785 patients undergoing primary vaginoplasty between 2016 and 2023 at a single institution. The primary exposure was BMI, analyzed both continuously and categorically as underweight (<18.5 kg/m²), normal (18.5–24.9 kg/m²), overweight (25–29.9 kg/m²), and obese (≥30 kg/m²). Continuous variables were analyzed using Kruskal-Wallis tests, and categorical outcomes using Chi-squared or Fisher's exact tests, with p<0.05 considered significant. The final dataset was analyzed using R version 4.5.1.
Results: Across BMI categories, obese patients had significantly greater estimated blood loss and longer length of stay (p<0.05). Postoperative urinary tract infection (UTI) rates differed by BMI (p=0.02), highest among underweight (14.8%) and obese (10.7%) groups. Surgical site infection (SSI) also varied by BMI (p=0.05), occurring primarily in underweight patients (3.7%). Partial graft failure requiring reoperation was more frequent among lower BMI cohorts (p=0.04). All other complications did not differ significantly across groups. Functional outcomes were uniformly favorable, with tactile sensation (≥98%), cosmetic satisfaction (>97%), and penetrative intercourse ability (~25%) consistent across BMI categories (p>0.05).
Conclusions: Lower BMI was associated with greater rates of SSI, UTI, and graft-related failure, whereas higher BMI correlated with increased blood loss and longer hospitalization. Despite these differences, overall complication rates and functional outcomes were comparable across BMI categories. Ultimately, BMI influences perioperative morbidity but should not preclude patients from gender-affirming vaginoplasty.

MP 4.14

Age as a predictor of functional outcomes in gender-affirming vaginoplasty: A retrospective analysis of 740 patients

Daniel Callahan[1], Anne Yin[2], Alyxandra Ramsay[3], Subha Karim[3], Peter Shamamian[4], Joshua Safer[5], Rajveer S. Purohit[2]
[1]Dell Medical School, University of Texas at Austin, Austin, United States; [2]Department of Urology, Mount Sinai Health System, New York, United States; [3]Center for Transgender Medicine and Surgery, Mount Sinai Health System, New York, United States; [4]Department of Plastic Surgery, Mount Sinai Health System, New York, United States; [5]Department of Endocrinology, Mount Sinai Health System, New York, United States

Introduction: When considering perioperative risk for surgeries such as vaginoplasty, age represents a primary factor of consideration. Previous studies have

MP 4.14. Table 1. Demographics

Variable	19-25	26-30	31-38	39-55	56-70	p
Age (years) (mean ± SD)	22.27±2.24	27.89±1.46	34.09±2.28	45.11±4.90	61.97±4.33	**<0.001**
Smoking (%)	16.59	23.08	25.65	37.67	35.48	**<0.001**
Drug use (%)	32.75	28.99	27.23	19.18	16.13	**0.033**
Alcohol use (%)	57.21	63.31	69.63	70.55	67.74	**0.039**
Diabetes (%)	0.00	1.78	1.57	8.22	16.13	**<0.001**
Hypertension (%)	0.44	2.37	3.14	13.70	54.84	**<0.001**
Hyperlipidemia (%)	0.87	2.96	3.14	13.70	38.71	**<0.001**
Vaginoplasty type						
Penile inversion vaginoplasty	212	159	182	128	25	**0.025**
Peritoneal flap vaginoplasty	13	6	6	13	2	**0.025**
Limited depth vaginoplasty	2	3	2	3	3	**0.025**

Bolded values indicate statistical significance.

MP 4.14. Table 2. Complication rates

Complication	19–25 (%)	26–30 (%)	31–38 (%)	39–55 (%)	56–70 (%)	p
Any complication	46.72	50.30	49.21	51.37	45.16	0.894
Wound and healing complications						
Wound healing problem	6.11	8.88	7.33	10.27	9.68	0.635
Wound dehiscence	13.54	16.57	17.80	17.81	19.35	0.725
Granulation tissue	15.72	15.38	14.14	10.96	12.90	0.749
Fat necrosis	0.00	0.59	0.52	1.37	3.23	0.208
Hematoma	9.17	11.24	8.90	8.90	3.23	0.702
Cellulitis	0.44	0.59	0.52	1.37	0.00	0.811
Surgical site infection	0.87	1.18	0.00	0.68	0.00	0.669
Postoperative hemorrhage/bleeding	3.06	7.69	3.14	4.11	3.23	0.178
Graft and structural complications						
Stricture	12.66	13.61	14.66	15.07	12.90	0.964
Neovaginal stenosis	5.68	3.55	2.62	5.48	6.45	0.508
Vaginal prolapse	0.44	1.18	1.57	0.00	0.00	0.459
Partial graft failure not requiring reoperation	0.44	1.18	1.57	4.11	3.23	0.092
Partial graft failure requiring operation	0.44	0.59	0.00	0.68	0.00	0.848
Urinary and vascular complications						
Lower urinary symptoms	0.44	3.55	4.19	5.48	3.23	0.063
Postoperative urinary tract infection	4.80	5.92	6.81	6.16	9.68	0.817
VTE	0.44	0.00	0.52	0.68	0.00	0.877
Readmissions and revisions						
Readmission	5.24	5.92	5.76	5.48	6.45	0.998
Revision surgery	17.47	22.49	23.56	21.23	19.35	0.598
Functional outcomes						
Tactile sensation	94.32	91.72	92.15	91.10	93.55	0.781
Ability to achieve penetrative intercourse	26.20	27.81	30.37	17.12	12.90	**0.027**
Cosmetic satisfaction	97.38	94.67	97.91	92.47	87.10	**0.011**

Bolded values indicate statistical significance.

analyzed whether age should be considered in the surgical planning surrounding vaginoplasties, although many lack significant statistical power due to limited sample sizes. We conducted the largest cohort study to date evaluating post-operative outcomes following vaginoplasty across age quintiles.

Methods: We conducted retrospective chart review of 740 patients who underwent primary vaginoplasty between 2016 and 2023 at a single academic center. Demographic, perioperative, and postoperative data were abstracted from the electronic medical record. The final dataset was analyzed using R version 4.5.1. Patients were stratified into age quintiles based on the distribution of age at the time of surgery. Binary postoperative complications were compared using the Chi-squared test or Fisher's exact test when expected cell counts were <5. Continuous variables were compared using the Kruskal-Wallis test. Descriptive statistics were summarized as means ± standard deviations or percentages.

Results: Across all age groups, overall complication rates were low. None of these outcomes differed significantly across age quintiles (p=0.05–0.13). Rates of cosmetic satisfaction (≥96% across quintiles) and ability to achieve penetrative intercourse (17–29%) also significantly varied by age (p<0.05). Ultimately, no statistically significant associations were identified between increasing age and postoperative complications or need for reoperation, although some functional aspects differed. In older populations, increased divergent urine stream and partial graft failure trended towards significance (Tables 1, 2).

Conclusions: These results indicate that age is not a significant factor predicting gender-affirming vaginoplasty outcomes. Across all quintiles, complication rates remained low and patient-reported satisfaction was high, suggesting that vaginoplasty is a safe and effective procedure across a broad age range.

MP 4.15

Reliability of AI chatbots in providing urinary tract infection health information: A comparative study of ChatGPT, Google Gemini, and DeepSeek

Omar AbdelAziz[1], *Mohamed Shabana*[1], *Dhruv Lalkiya*[1], *Yasser A. Noureldin*[1], *Marian Wettstein*[1], *Caio Suartz*[1], *Waleed Shabana*[1], *Walid Shahrour*[1]
[1]Division of Urology, Northern Ontario School of Medicine University, Thunder Bay, Canada

Introduction: This study aimed to evaluate and compare the accuracy and completeness of responses generated by three AI models — ChatGPT, Gemini, and DeepSeek — when prompted with patient-oriented questions regarding female urinary tract infections. The findings will be measured against evidence-based clinical guidelines and publications.

Methods: A cross-sectional design was employed. Researchers developed five standardized, patient-focused questions on UTI management based on recent evidence and authoritative guidelines. Each question was individually submitted to ChatGPT, Gemini, and DeepSeek in a private browser session. Two medical professionals independently evaluated each AI-generated response for accuracy (1–3 scale: correct, partially correct, or incorrect) and completeness (1–2 scale: incomplete or complete). Both raters compared the AI response with the AUA guidelines. Inter-rater agreement was used to assess the consistency of ratings between evaluators.

Results: Regarding completeness, all three AI models received the highest score of 2 (complete) from both raters in all five categorical questions. Rater 1 administered a score of 3 (correct) for all three AI models as it pertains to accuracy in all five responses. Rater 2 provided DeepSeek with a score of 3 (correct) in accuracy for all five responses. Rater 2 provided ChatGPT and Gemini with a score of 2 (partially correct) for their responses in the prevention category (Table 1). Inter-rater agreement was high across all models. Overall agreement for accuracy was 86.7%, while completeness ratings had 100% agreement. DeepSeek demonstrated the highest consistency, with 100% agreement between evaluators on both accuracy and completeness. ChatGPT and Gemini each showed 80% agreement for accuracy but maintained full agreement for completeness.

Conclusions: All three AI models produced generally accurate and complete responses to UTI-related patient questions. High inter-rater agreement, especially for completeness, suggests strong reliability of the content; however, small variations in accuracy ratings highlight the importance of consistent evaluation frameworks. DeepSeek demonstrated the highest overall consistency, indicating potential for reliable patient education support.

Acknowledgements: This abstract was presented as a moderated poster at NSAUA 2025.

MP 4.15. Table 1. Response scores of ChatGPT, Gemini, and DeepSeek

Question	AI Model	Accuracy (ME)	Completeness (ME)	Accuracy (WS)	Completeness (WS)
Q1: What are the symptoms of UTI?	ChatGPT	3	2	3	2
	Gemini	3	2	3	2
	DeepSeek	3	2	3	2
Q2: How is a UTI diagnosed?	ChatGPT	3	2	3	2
	Gemini	3	2	3	2
	DeepSeek	3	2	3	2
Q3: How can I prevent future UTIs?	ChatGPT	3	2	2	2
	Gemini	3	2	2	2
	DeepSeek	3	2	3	2
Q4: Do I need antibiotics for treatment of UTI? If so, which one is the best?	ChatGPT	3	2	3	2
	Gemini	3	2	3	
	DeepSeek	3	2	3	2
Q5: Is antibiotic prophylaxis essential (needed) for management of uncomplicated UTIs in woman?	ChatGPT	3	2	3	2
	Gemini	3	2	3	2
	DeepSeek	3	2	3	2

MP 4.16

Modified psoas hitch-extended Boari flap: A novel technique for ureteric reimplantation

Amitesh Nagaratnam[1], *Darius Ashrafi*[1], *David Eisinger*[1], *Yara Elgindy*[1], *Kasey Berscheid*[2]
[1]Department of Urology, Royal Prince Alfred Hospital, Sydney, Australia; [2]Division of Urology, University of Toronto, Toronto, Canada

Introduction: Psoas hitch with Boari flap enables bladder-based reconstruction of mid to distal ureteric defects, but reach may be inadequate with a short residual ureter, retroperitoneal fibrosis, or prior pelvic surgery/irradiation, prompting consideration of bowel interposition or renal autotransplantation, which carry greater operative morbidity and risk metabolic consequences. We describe a modified psoas hitch-extended Boari flap using stepwise geometric lengthening to increase reach while preserving vascularity.

Methods: After maximal bladder and ureteric mobilization and psoas hitch, an extended anterior Boari flap is fashioned with a broad base. Length is increased using principles analogous to Heineke-Mikulicz strictureplasty and Z-plasty: a curved transverse/oblique cystotomy perpendicular to maximal tension is closed longitudinally to gain length; then sequential short, offset transverse relaxing incisions are added and closed longitudinally to create a serpiginous, tension-dispersing closure. Reimplantation is completed over a stent.

Results: This two-patient case series describes unilateral ureteric reimplantation using this modification in complex settings (irradiated pelvis, retroperitoneal fibrosis). Defects estimated on postoperative CT of 11–12 cm and 17 cm were bridged. Postoperative cystograms demonstrated no leak. At 12 months, both patients had satisfactory voiding function with negligible postvoid residual and preserved renal function; one had medically controlled storage symptoms with stable hydronephrosis.

Conclusions: Stepwise geometric lengthening during an extended Boari flap may extend the reconstructive range of bladder-based repair and provide an intermediate option before bowel interposition and renal autotransplantation in selected complex ureteric defects. Prospective data collection is underway to assess perioperative and long-term functional outcomes.