PD1

Does Social Media and Access to Electronic Information Change the Patient Referral Experience to a Urology Practice?

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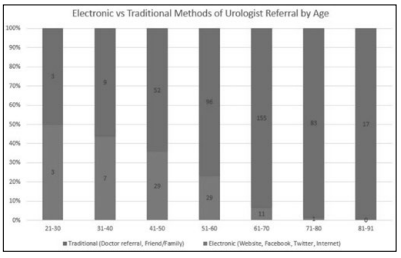
Introduction: Social media and electronic communication is becoming increasingly prevalent and an important means of communication within the healthcare field. This study aimed to investigate if social media and access to electronic information changes the patient referral experience.

Materials & Methods: An intake survey was distributed to all patients presenting to a single urologist between July 2015 and December 2015. Survey responses from 496 patients were collected with patient reported age and their method of referral ("[Urology practice] website," "facebook," "twitter," "the internet," "doctor referral," "friend/family," or "other"). Data was organized by age and referral by newer electronic means versus more traditional physician referral or friend/family.

Results: The mean age of all subjects was 60.69 years. Overall, 16.16% (80 patients, mean 50.65 yrs) used electronic methods while 83.84% (415 patients, mean 62.66 yrs) used traditional methods of finding a specialty urologist. While the majority of patients used more traditional methods, younger patients were more likely to use electronic means compared to older patients (50% of age 21-30 (n = 6) vs. 0% of age 81-91 (n = 17)). There was a direct correlation between younger age and increased percentage of patients using electronic self-referral methods.

Conclusions: As a greater percentage of younger patients use the internet and social media to find a specialty physician, urologists will need to market themselves to prospective patients and create an internet presence for their practice.



PD2

Complications Associated With Post-nephrectomy Tyrosine Kinase Inhibitor Use: Results from SEER-Medicare

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Introduction: Tyrosine kinase inhibitors (TKIs) transformed the management of advanced renal cell carcinoma (RCC). However, the perioperative safety and potential complications of TKI use remains unknown. Our objective is to describe postoperative outcomes of patients treated with TKIs vs. no TKIs for RCC using a large population based database.

Materials & Methods: We identified 567 patients diagnosed with Stage IV RCC who underwent nephrectomy between 2000 and 2009 from the SEER-Medicare database. 82 patients received TKI within 90 days of surgery while 485 patients had no TKI use. We calculated 30- and 90-day mortality and incidence rates of postoperative complications using a 1:3 propensity-matched sample, and compared the adjusted risk for post-operative complications between cases and controls using the Cox proportional hazard model with TKI use as a time-dependent variable.

Results: On unadjusted analysis, patients taking TKIs had significantly higher complication rates 30-days after surgery ($p = 0.03$). On multivariate analysis, perioperative TKI use was independently associated with higher risk for post-operative complications within 30 (HR = 2.89, 95% CI: 1.13-7.39) and 90 days of surgery (HR = 1.86, 95% CI: 1.02-3.38). Higher Charlson comorbidity index was also independent risk factor for post-operative complications 30 (HR = 2.32, 95% CI: 1.38-3.89) and 90 days (HR = 2.16, 95% CI: 1.46-3.21) of surgery.

Conclusions: Perioperative TKI treatment is independently associated with increased risk of complication rates following nephrectomy. Our results suggest that TKIs should be used sparingly in the postoperative setting, especially in sicker patients.

PD3

Impact of Non-Index Hospital Readmissions following Radical Cystectomy on Readmission Rates in a Nationally Representative Sample

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Introduction: Studies often report readmission rates using only readmissions to index hospitals, and therefore likely underestimate readmission rates. Our aim was to quantify the rate of non-index hospital readmissions in radical cystectomy patients using a nationally representative sample.

Materials & Methods: We queried the 2013 Nationwide Readmissions Database (NRD), Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality for discharge data on cystectomy patients with a diagnosis of bladder cancer. Exclusion criteria included patients with metastatic disease and death during index admission. All analyses were conducted using the population-based weights taking into account the complex survey design to provide nationally representative estimates.

Results: Nationally weighted, there were 7710 and 6226 cystectomies with appropriate follow-up for 30-day and 90-day readmission rate calculations, respectively. Table 1 shows the locations of readmissions. If only index hospital readmissions were used, the 30-day and 90-day readmission rates were 22.6% (1742/7710) and 30.1% (1873/6226), respectively. However, including non-index hospital readmissions, the 30-day and 90-day readmission rates were 27.3% (2107/7710) and 38.5% (2395/6226), respectively.

Conclusions: Reporting index hospital readmission rates results in a 4.7% absolute and 17.2% relative underestimation of the 30-day readmission rate and an 8.4% absolute and 21.8% relative underestimation of the 90-day readmission rate. Future single-institution studies should exercise caution when using only index hospital readmissions rates as outcome measures.

Table 1. Readmission locations stratified by follow-up duration.

	Number of Individuals (%), [95% Confidence Interval]	
	30-day follow-up (n=7710)	**90-day follow-up (n=6226)**
Both Index and non-Index Readmission	92 (1.5%), [57-127]	243 (3.9%), [174-311]
Index Hospital Readmission Only	1650 (25.5%), [1362-1939]	1630 (26.2%), [1358-1901]
Non-Index Hospital Readmission Only	365 (5.9%), [273-458]	522 (8.4%), [393-652]
No Readmission	5603 (90.0%), [4651-6554]	3831 (61.5%), [3177-4486]

PD4

In Vivo Effects of Subcutaneous Inositol Hexaphosphate (IP6) on Tumor Growth in a Murine Bladder Cancer Model

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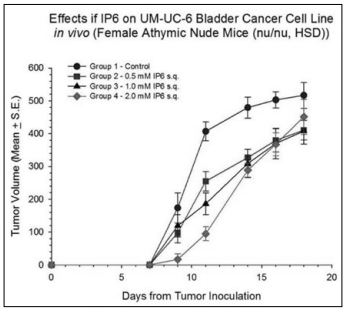
Introduction: Inositol Hexaphosphate (IP6) is a naturally occurring carbohydrate found in food sources high in fiber content. We have previously demonstrated the in vitro anti-cancer effects of IP6 against bladder cancer. Based on those results we evaluated the potential of IP6 in an in vivo murine bladder cancer model.

Materials & Methods: Sixty female athymic nude mice were randomized to four groups (15/group). Mice received 1 x 10^7 UM-UC-6 bladder cancer cells in a 0.1 cc volume in the right thigh (Day 0). Mice then received the following subcutaneous treatments: Saline, IP6 0.5 mM, IP6 1.0 mM and IP6 2.0 mM on days 1, 3, 5, 7, 9, and 11. All animals were examined three times weekly for incidence and growth of tumor. Tumor volume is expressed as Mean ± Standard Deviation. Statistical significance was determined by ANOVA.

Results: All IP6 treatment groups significantly reduced tumor growth compared to the saline control (ANOVA, $p < 0.001$) on experimental days 9 through 14. All IP6 groups reduced tumor volume equally compared to control and there was no dose response effect noted.

Conclusions: This represents the first report of the effects of IP6 in a mouse bladder cancer model. We are currently investigating orally administered IP6 in mice in preparation for proposing a Phase II clinical trial to evaluate the safety and clinical utility of this agent.



PD5

Non-neoplastic Pathologic Findings In Specimens from Renal Oncology Procedures Are Associated With Postoperative Renal Insufficiency

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Introduction: Recent research has looked at non-neoplastic pathologic findings in renal neoplasms to detect pathologic changes that can predict patients at risk of renal insufficiency. Our goal was to determine the frequency of underlying medical renal disease in patients undergoing surgery for renal neoplasms and establish whether these pathologic changes predict development of renal insufficiency.

Materials & Methods: IRB retrospective review of all patients that underwent radical nephrectomy, partial nephrectomy and nephroureterectomy from December 2009 to November 2013. 226 patients had complete pathologic and perioperative data for analysis. We compared preoperative and postoperative creatinine levels, neoplastic findings, tumor characteristics (positive margins, extracapsular extension), and pathology information regarding non-neoplastic findings (tubular atrophy, chronic inflammation, fibrosis).

Results: The presence of any pathologic abnormalities in the non-neoplastic renal parenchyma was significantly associated with increased serum creatinine levels postoperatively ($p = 0.01$) and at last follow up visit ($p = 0.04$). Univariate analysis showed that glomerular and vascular abnormalities were each significantly associated with worsening renal function. A medical history of diabetes mellitus was found to have no influence on the risk for worse postoperative renal function.

Conclusions: Our research suggests that abnormalities in non-neoplastic renal parenchyma found in renal specimens after renal oncologic surgery should not be ignored as they may predict possible worse outcomes in renal function. Identifying such risk factors may help determine which patients should be followed closer postoperatively.

Presence of Pathologic Abnormalities vs. Renal Function Parameters for All Patients

	Pathologic Abnormalities Present (n = 111)	Pathologic Abnormalities Absent (n = 115)	p-value
Preoperative Cr	1.3 ± 1.3	1.2 ± 1.4	0.06
Postoperative Cr at Discharge	1.7 ± 1.2	1.3 ± 0.9	0.01
Cr at Last Follow Up	1.6 ± 1.0	1.4 ± 1.3	0.04

PD7

Micro-RNA Expression Profiles In Upper Tract Urothelial Carcinoma Can Differentiate Stage and Predict Tumor Progression

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Introduction: Staging and prediction of tumor biology for upper tract urothelial carcinoma (UTUC) is challenging. MicroRNAs (miRNAs) are promising cancer biomarkers measurable in tissue, serum and urine. We aimed to identify miRNA expression profiles with potential to differentiate invasive and non-invasive UTUC as well as those tumors that will progress following radical nephroureterectomy (RNU).

Materials & Methods: Total RNA was extracted from FFPE RNU samples. Thirty-six unique tumors with diverse pathologies were profiled in the screening cohort using miRNA RT-qPCR array for 752 unique miRNA. Subsequently, evaluation of differentially expressed miRNA was performed on a validation cohort of 123 additional RNU tissue specimens.

Results: The miRNA profile of the screening cohort identified 31 miRNA differentially expressed between invasive and non-invasive tumors ($p < 0.05$). Twelve were up-regulated and 19 were down-regulated in the invasive specimens. Predicted probabilities from logistic regression analysis of the screening cohort revealed four miRNA with AUC ≥ 0.8 and an additional six with an AUC ≥ 0.7 for invasive UTUC (Table). Testing of selected miRNA on the validation cohort confirmed differential expression of 14 miRNA in invasive tumors. Clinical follow-up data for progression following surgery also identified miRNA that correlated with progression of disease.

Conclusions: UTUC miRNA profiles of RNU specimens can discriminate invasive versus non-invasive disease and potentially predict tumor progression following surgery. miRNA expression profiles may aid decision making following RNU.

Table. Results from logistic regression for detecting invasive UTUC

Target miRNA	Sensitivity	Specificity	AUC
146b-5p	78.9	88.2	0.88
29b-2-5p	78.9	76.5	0.88
let-7a-5p	78.9	64.7	0.80
29c-5p	78.9	70.6	0.80
29c-3p	73.7	64.7	0.76
200a-3p	78.9	64.7	0.75
18a-5p	68.4	58.8	0.75
142-3p	73.7	64.7	0.73
26b-3p	73.7	41.2	0.70
29b-3p	73.7	64.7	0.70

PD6

Urinary Diversion for Benign Indications - Outcomes and Risk Factors

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Introduction: Urinary diversion is often seen as a final therapeutic intervention for benign conditions. We sought to better understand both surgical outcomes and risk factors for complications.

Materials & Methods: A retrospective review was performed of patients who underwent urinary diversion for benign disease at a high-volume, single institution. The primary outcome was the type and severity of complications, along with trends in intra-operative and post-operative metrics.

Results: Sixty-four patients fit within our inclusion criteria. The three most common reasons for diversion were spinal cord injury, radiation cystitis and neurogenic bladder. Diversions were performed between February 2000 and September 2015. Median case length was 5.45 hours. Pelvic pain as indication was the only significant variable associated with shorter case length ($p = .004$). Average length of stay was 8.9 days. Liver disease was the only significant predictor of increased length of stay ($p = 0.003$). In the first three months, complications occurred in 16/54 (25%) patients. Incontinence ($p = .002$) was the only significant negative predictor of early complications with age approaching significance length ($p = .054$) Thirty-one of 64 (48%) patients had some form of complication three months or more after the surgery. There were no predictors for long-term complications. Twenty of 64 (32%) required further procedures requiring general anesthesia. Average follow-up was 74 months. There were no peri-operative mortalities.

Conclusions: Urinary diversion for benign causes is a reasonable and safe intervention. While complications were not rare, patients did well long-term. Up to one third of patients can expect further need for procedures following diversion.

P1

Comparison of Hospitalization Costs for Minimally Invasive vs. Open Radical Cystectomy in a Nationally Representative Sample

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Introduction: Previous studies providing national cost estimates have not compared follow-up hospitalization costs comparing minimally invasive vs. open radical cystectomy (ORC). Therefore, our aim was to compare follow-up hospitalization costs for minimally invasive vs. ORC with nationally representative estimates.

Materials & Methods: We queried the 2013 Nationwide Readmissions Database for discharge data on cystectomy patients with a diagnosis of bladder cancer. ICD-9 codes were used to determine surgical approach. Exclusion criteria included patients with metastatic disease or death during initial hospitalization. We calculated initial hospitalization, 30-day, and 90-day follow-up hospitalization costs by surgical approach. Multivariable linear regression was performed to determine if surgical approach was a significant predictor of 30-day and 90-day follow-up hospitalization costs after controlling for patient and hospital characteristics. All analyses were conducted using population-based weights taking into account the complex survey design to provide nationally representative estimates.

Results: When nationally weighted, for the initial hospitalization, 30-day, and 90-day follow-up there were 6177, 5696, and 4615 ORCs respectively and 1946, 1805, and 1445 minimally invasive cystectomies respectively with cost data available. Initial hospitalization was significantly more expensive ($p < 0.001$) for minimally invasive vs. ORC ($37,268 vs. $32,147), but there were no significant differences in follow-up hospitalization costs between surgical approaches. After adjustment, there was still no significant difference in 30-day (βopen = $360[95%CI: -795,1514]) and 90-day (βopen = $798[95%CI: -1106, 2702]) follow-up hospital costs between surgical approaches.

Conclusions: With nationally representative estimates, initial hospitalization is more expensive for minimally invasive vs. open radical cystectomy, but there are no differences in follow-up hospital costs.

P2

The Impact of Downgrading from Biopsy Gleason 7 to Prostatectomy Gleason 6 on Biochemical Recurrence and Prostate Cancer-specific Mortality

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Introduction: Accurate assessment of Gleason score (GS) is crucial for proper evaluation and treatment of men with prostate cancer (PC). Several predictors of downgrading from biopsy (Bx) GS 7 to radical prostatectomy (RP) GS 6 have been identified. We investigate whether downgraded men have different survival outcomes.

Materials & Methods: 23,918 men who underwent RP at our institution between 1984 and 2014, 10,236 with Bx and RP GS 6 or 7 were included. The cohort was divided into three groups based on Bx and RP GS: group I (Bx and RP GS 6), N = 6,923 (67.6%); group II (Bx GS 7 downgraded to RP GS 6), N = 648 (6.3%); and group III (Bx and RP GS 7), N = 2,665 (26.0%). Biochemical recurrence (BCR) and prostate cancer-specific mortality (PCSM) risk were compared using Cox regression and competing-risk analyses.

Results: At median follow-up of 5 years, 992 men experienced BCR, and 95 died due to PC. The BCR-free survival rate for the downgraded men (group II) was better than for those with GS 7 on Bx and RP (group III, $p < 0.001$), but worse than those with GS 6 on Bx and RP (group I, $p < 0.001$). Downgrading was independently associated with BCR (adjusted hazard ratio [AHR] 1.87, $p < 0.0001$), but not with PCSM (AHR 1.65, $p = 0.636$).

Conclusions: Downgrading from Bx GS 7 to RP GS 6 was an independent predictor of BCR, but not PCSM. This downgrading is probably due to the presence of minor amounts of Gleason pattern 4.

P3

Assessment of Communication Technology Access During Global Health Mission

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Introduction: Lack of appropriate post-surgical follow-up creates a significant risk when undertaking short-term international medical mission work. Post-surgical patient interviews are important when treating urinary incontinence, given the subjective nature of outcomes and acute complications that can arise. Despite collaboration with local in-country health care practitioners, deficient access to communication technologies represents a barrier to patient follow-up.

Materials & Methods: During global health missions to Belize, we performed questionnaire evaluation of patients presenting for evaluation of urological illness. This assessment was performed as an initial part of a program designed to optimize patient follow-up after surgical intervention.

Results: Fifty-four patients underwent evaluation by a visiting urogynecological surgical team in 2015. Average age was 56 years. Patients traveled an estimated mean distance of 35 miles (range 5-176) from one of 6 districts with varying population. Patients reported having access to various methods of communication: cellular telephone (48 (89%)), home internet (32 (59%)), local internet (28 (52%)), and email (26 (48%)). Cellular phone, email, and local internet was the preferred method of post-operative communication by 40 (74%), 13 (24%), and 1 (2%) patients, respectively. Statistical analysis demonstrated a significant effect of age on access to home internet and email ($p < 0.05$).

Conclusion: Patients presenting for surgical evaluation during a Belizean global health mission have access to a variety of communication technologies. Communication preference appears to have a relationship with age but not when comparing urban versus rural residency. Our assessment suggests that cellular phone is the best method of contacting patients for follow-up.

P4

Effects of IP6 and KLH on Cell Proliferation, Apoptosis, and VEGF Production in Human Bladder Cancer Cell Lines In Vitro

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Introduction: Inositol hexaphosphate (IP6), a chemical found in fiber-rich foods, has previously demonstrated growth inhibition in several cancer cell lines. Keyhole limpet hemocyanin (KLH), a metalloprotein derived from a mollusk, is being tested in clinical trials as an alternative to standard intravesical chemotherapy. We hypothesized that combined treatment with IP6 and KLH would display reduced cell proliferation in T24 (grade III) and TCCSUP (grade IV) human bladder cancer cell lines.

Materials & Methods: T24 and TCCSUP cell lines were incubated with titrating doses of KLH (200, 150, 100, 50, and 0 µg/well) and IP6 (0.5, 0.25, and 0 mM/well). Cell proliferation, vascular endothelial growth factor (VEGF) levels, and apoptosis were measured.

Results: KLH, IP6, and the combination of both therapies significantly reduced proliferation in TCCSUP ($p < 0.001$) and T24 ($p < 0.001$) cell lines. The combination of KLH and IP6 significantly reduced proliferation compared to single treatments with both agents ($p < 0.001$). IP6 treatment increased necrotic activity in TCCSUP cells ($p < 0.05$). There were no significant changes in VEGF activity or apoptotic markers in the TCCSUP line; however, there was a significant reduction in VEGF activity ($p < 0.001$) and an increase in early apoptosis ($p = 0.025$) in in the IP6 treated T24 cells.

Conclusions: Combination therapy with KLH and IP6 significantly reduced cell proliferation in T24 and TCCSUP human bladder cancer cell lines. IP6 treatment not only demonstrated increased necrotic activity in TCCSUP cells, but also anti-angiogenic and increased early apoptosis in T24 cells.

P5

Impact of Obesity on Urethral Reconstruction Outcomes

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Introduction: Obesity is an epidemic, becoming an increasingly more common comorbidity in patients we treat, including those with urethral stricture disease. There is a relatively paucity of literature examining the effect of obesity on urethroplasty. We have updated and reviewed our urethroplasty outcomes with regards to BMI.

Materials & Methods: Retrospective review of all patients undergoing urethroplasty was conducted, stratifying patients into BMI < 25, 25-30, and > 30. Demographic data were identified. Outcomes analyzed included operative time, estimated blood loss (EBL), length of stay (LOS), and complications as classified by the Clavien-Dindo system.

Results: From September 2012 to March 2016, 102 patients underwent urethroplasty. 24 had BMI < 25, 44 with BMI 25-30, and 35 with a BMI > 30. Overweight patients had significantly higher mean estimated blood loss (313 ml vs. 194 ml, $p = 0.01$). Despite this, there was no increased need for blood transfusions. In addition, increased BMI was not found to be associated with increased risk of complications or risk of more severe complications. There was no increase in the rate of recurrence among overweight and obese patients (16% vs. 15.6%).

Conclusions: Urethroplasty in the obese patient presents a more technically challenging procedure, associated with increased blood loss. However, contrary to existing literature, we have found that there is not an increased risk of complications or recurrence in obese patients. Therefore, while more risky and difficult in overweight patients, it can still have successful outcomes. This is important for patient selection, patient counseling and setting expectations.

P6

Visceral Fat is Associated with Adverse Perioperative Outcomes but Not Oncologic Outcomes in Patients Undergoing Radical Nephroureterectomy

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Introduction: Radical nephroureterectomy (RNU) remains the gold standard for upper tract urothelial carcinoma (UTUC) in patients with preserved contralateral renal function. Visceral fat is recognized as a patient-specific factor implicated in increased perioperative complications. This study investigates the association of visceral fat with adverse perioperative or oncologic events in patients with UTUC after undergoing RNU.

Materials & Methods: A retrospective review of our institutional upper tract urothelial carcinoma database was performed to identify all patients who underwent radical nephroureterectomy from 2000-2014. Visceral fat was measured at the L3 vertebral level and standardized to patient height (cm^2/m^2). Two-sample t-test and Spearman correlation examined the relationship between visceral fat and other independent variables.

Results: 94 patients (62 men and 32 women) with a median age of 69 years, BMI 30, Charlson comorbidity index (CCI) 4.5, and visceral adiposity of 113.2 cm^2/m^2 were included. Median EBL was 150 mL, OR duration was 316 minutes, and length of stay was 5.0 days. Visceral fat was associated with increased EBL ($p = 0.002$), length of stay ($p = 0.033$), CCI ($p = 0.003$), and 30-day complication rate ($p = 0.027$) (Table).

Conclusions: Visceral fat is associated with several adverse perioperative events in patients undergoing RNU for UTUC. Larger cohorts are required to better delineate the role of visceral fat in RNU outcomes and patient prognosis.

Variable	Spearman Correlation	P-value
Charlson Comorbidity Index	0.31 (0.10, 0.51)	**0.003**
Perioperative outcomes:		
EBL	0.32 (0.14, 0.51)	**0.002**
OR duration	0.11 (-0.10, 0.33)	0.328
Length of stay	0.22 (0.02, 0.43)	**0.033**
30-day complications	Two-sample t-test	**0.027**
90-day complications	Two-sample t-test	0.128
Intraoperative transfusion	Two-sample t-test	0.075
Oncologic outcomes:		
Tumor stage	2.48 (1.07, 5.74)	0.213
Tumor grade	1.98 (0.72, 5.41)	0.358
Bladder cancer relapse	Two-sample t-test	0.497
Non-bladder cancer relapse	Two-sample t-test	0.907
Mortality of urothelial carcinoma	Two-sample t-test	0.399

P7

The Physician Payment Sunshine Act: Industry Payment to Urologists

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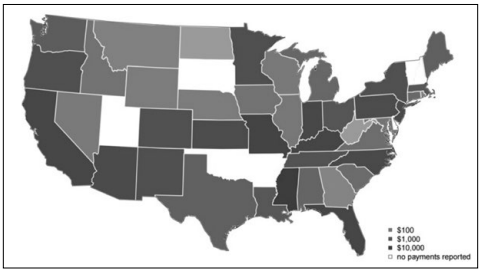
Introduction: The Physician Payment Sunshine Act (PPSA) was implemented to provide transparency regarding the financial transactions between industry and physicians. Under this law, the Open Payments Program (OPP) was created to publicly disclose all transactions and inform patients of potential conflicts-of-interest (COI). Awareness of the OPP is crucial for urologists, as its interpretation or misinterpretation can potentially affect trust between patients and urologists. The goals of this study are to comprehensively evaluate non-research payments made to urologists by industry and explore whether certain quantitative and qualitative variables affect payment amounts.

Materials & Methods: We used the first wave of PPSA data (August 2013-December 2013) to assess industry payments made to urologists.

Results: Urologists (N = 6,323) received a total of $8,463,872 during a 5 month period. Urologists comprised 1.3% of all individuals in the OPP and received 1.8% of the total amount. Among them, 75% received payments < $500 and 2.5% received payments > $9,999. The median (IQR) was $169 (59-503) and mean was $1,339. This is a similar value to other surgical subspecialties. The largest payment to an individual was $250,919. The two largest payment categories were for non-continuing education speaker fees ($2,959,834) and consulting ($1,358,868). Figure 1 shows the average payment to urologists by state.

Conclusion: The PPSA brings transparency to the physician-industry landscape and also highlights the OPP's risk for misinterpretation and controversy.



P8

Vasovasostomy: Outcomes in a Single Veterans Affairs Medical Center Over a 10-year Period

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Introduction: Up to 6% of men treated with vasectomy ultimately desire vasectomy reversal. However, there is limited research both on causes of infertility and success rates of vasectomy reversal in Veterans. The purpose of this study was to evaluate our vasovasostomy experience for quality assurance and to optimize fertility counseling in Veterans.

Materials & Methods: Veterans who had undergone vasovasostomy from 2005-2015 were identified. Retrospective chart review was performed to evaluate post-operative semen analyses, Veteran and partner age, obstructive interval, and intraoperative quality of vasal fluid. Veterans were also interviewed for subjective surgical outcomes, pregnancy rates, and overall satisfaction.

Results: 38 Veterans underwent vasovasostomy over 10 years. Mean obstructive interval was 8.1 years. Post-operative semen analysis was available for 22 Veterans. Sperm was present in 15/22 cases (68%). 32 Veterans participated in our survey. 26 attempted pregnancy, which was achieved in 5/26 cases (19%). 19 of 32 Veterans were characterized as having had successful vasovasostomy by either sperm present on post-operative semen analysis, or by achieved pregnancy (59%). There was no difference in semen analysis or pregnancy rate by obstructive interval or intraoperative quality of vasal fluid. Mean Veteran satisfaction was 9.21 out of 10.

Conclusions: Success of vasovasostomy at our institution was 59% overall. We demonstrated that vasovasostomy can be effectively performed in Veterans with varying obstructive intervals. More research is needed to improve follow up and outcomes in infertility for this unique population.

P9

Assessing Cancer Progression and Stable Disease After Neoadjuvant Chemotherapy for Organ-Confined Muscle-Invasive Bladder Cancer

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Introduction: The therapeutic benefit of neoadjuvant chemotherapy (NAC) for muscle-invasive bladder cancer (MIBC) is assessed by categorizing patients as complete, partial, and non-responders. In this study, we propose and validate a new approach to further stratify clinically classified, organ-confined MIBC (cT2N0M0) non-responders to better characterize the non-response to NAC.

Materials & Methods: We retrospectively identified bladder cancer patients with cT2N0M0 disease who underwent RC from 2005-2014 at our institution and from 2004-2012 in the National Cancer Database for external validation. Patients were stratified as stable disease (pT2N0M0) or progressors (> pT2 and/or pN+). The primary endpoint was cancer-specific survival (CSS) with secondary endpoints of overall survival (OS) and recurrence free survival (RFS).

Results: In the institutional cohort, NAC stable disease (n = 17) had better OS ($p = 0.0496$) and RFS ($p = 0.04$) than NAC progressors (n=50) and comparable OS ($p = 0.7$) and CSS ($p = 0.09$) compared to non-NAC stable disease (n = 27). Multivariable cox proportional hazards models showed larger tumor size predicted worse OS (HR = 1.20 95%CI[1.07-1.35]), CSS (HR = 1.27 95%CI[1.11-1.45]), and RFS (HR = 1.24 95%CI[1.09-1.42]). In the NCDB, NAC stable disease (n = 223) had improved OS ($p < 0.0001$) than NAC progressors (n = 232) and comparable ($p = 0.4$) OS to non-NAC stable disease (n = 950). Multivariable cox proportional hazards model showed larger tumor size (HR = 1.003 95%CI[1.002, 1.003]) and progression (HR = 2.69 95%CI[2.40-3.01]) predicted worse OS.

Conclusions: Distinct survival outcomes suggest NAC non-responders should be further stratified into two distinct subtypes: stable disease and progressors. Clinical predictors of progression of disease on NAC were not identified, highlighting the utility and need to explore molecular and genomic subtyping determinants of progression.

P10

Association of BMI with Outcomes of Urethroplasty
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Introduction: Previous reports suggest a non-linear relationship between body mass index (BMI) and urethroplasty failure. We assessed the rates of complication, stricture recurrence, and reoperation in patients undergoing urethroplasty stratified by body mass index.

Materials & Methods: A retrospective review was performed on patients who underwent urethroplasty between 2005-2014 at a single institution. Data was collected on BMI, flow rate, PVR, etiology of stricture, stricture location, type of repair, number of repair stages, complications, and need for repeat procedures.

Results: Of 143 patients, 31 (22%) had complications, including stricture recurrence, urethrocutaneous fistula, incontinence, hemorrhage, and transient penile numbness. Recurrence occurred in 21 patients (15%). A repeat procedure for recurrence was performed on 18 patients (13%). Twenty-three (16%) patients required a repeat operation for any cause. Overweight (BMI 25-29.9) or obese (BMI > 30) patients had a 30% complication rate vs. 19% complication rate for normal weight patients ($p = 0.30$). The recurrence rate was highest in obese patients at 20%. The reoperation rate was 22% for overweight and obese patients vs. 19% for normal weight patients ($p = 0.521$). Normal weight patients had the highest reoperation rate for recurrence of stricture ($p = 0.601$). Average BMI for patients with complications vs. without complication was 30 vs. 32 ($p = 0.283$).

Conclusions: The overall stricture recurrence rate in our series is similar to the previously reported rate of 15.7%. There was no statistically significant difference in the rates of overall complications, stricture recurrence, or reoperation between the normal weight and overweight or obese groups.

P11

Urgency Reduction following OnabotulinumtoxinA Treatment Predicts Clinically Meaningful Improvements in Patient Reported Outcomes in Overactive Bladder Patients: A Pooled Analysis of Two Randomized Controlled Trials
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Introduction: We evaluated the effect of various degrees of urinary incontinence (UI) and urgency reduction on Incontinence-quality of life (I-QOL) total score and perception of treatment benefit in overactive bladder (OAB) patients treated with onabotulinumtoxinA.

Materials & Methods: Pooled data from onabotulinumtoxinA-treated patients in the phase 3 trials were analyzed (post-hoc) by two independent factors: 1) percent reduction from baseline in UI, and 2) percent reduction from baseline in urgency. For each factor, patients were grouped into 4 quartiles: < 25% (Q1); ≥ 25%-49% (Q2); ≥ 50%-74% (Q3); and ≥ 75%-100% (Q4). Assessments at week 12 were change from baseline in I-QOL total score and proportions of patients reporting a positive response (urinary symptoms improved/greatly improved) on the treatment benefit scale.

Results: I-QOL scores were 2-3.8 times the minimally important difference (MID;+10 points) in the Q3 and Q4 UI reduction quartiles; proportions of patients reporting treatment benefit were 64.1% and 89.1%, respectively. Clinically meaningful improvements in I-QOL were observed in Q2, Q3 and Q4 urgency reduction quartiles with a substantial increase in I-QOL score in Q2 versus Q1 (18.0 vs. 8.8), which corresponded with a large increase in the proportion of patients reporting treatment benefit (66.7% vs. 30.7%). OnabotulinumtoxinA was well-tolerated with no unexpected safety signals.

Conclusions: OnabotulinumtoxinA was well-tolerated and effective in OAB patients who were inadequately managed by an anticholinergic; QOL improvements and treatment benefit were closely associated with reductions in UI and urgency. Patients with at least a 25% reduction in urgency reported treatment benefit and clinically meaningful improvements in QOL.

P12

Clinical Influences in the Multidisciplinary Management of Small Renal Masses in a Tertiary Referral Center
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Introduction: We designed a multidisciplinary Small Renal Mass Center (SRMC) to help patients decide between treatment options and to individualize therapy for the management of small renal masses. In this model, physicians and support staff from multiple specialties work as a team to evaluate and devise a treatment plan for patients within the same organized visit.

Materials & Methods: A retrospective review was performed on a total of 263 patients seen from 2009-2014. Patient characteristics monitored included age, Charlson comorbidity index, body mass index, nephrometry score and estimated glomerular filtration rate. Univariate and multivariate analyses were performed to identify patient characteristics associated with each treatment choice.

Results: Among the patient cohort, 88 elected active surveillance (AS), 64 underwent ablation and 111 had surgery (74 partial and 37 radical nephrectomy). There were significant associations between treatment modality and age, CCI, and eGFR. The mean patient age on presentation was 61.1 years. Patients with high CCI scores (> 5) or decreased eGFRs (< 60) were more likely to undergo AS (41.6%; 35%) and ablative therapy (29.6%; 34%) versus partial nephrectomy (10.6%, $p < 0.001$; 9%, $p < 0.001$). In multivariable analysis, age ($p < 0.001$) and eGFR ($p < 0.001$) remained significantly associated with modality after adjustment for all other factors.

Conclusions: The SRMC enables patients to assess the various treatment modalities for their small renal mass in a single setting. By providing simultaneous access to the various specialists, it provides an invaluable opportunity for informed patient decision making.

PD8

To Cup or Not to Cup? Decisional Factors Influencing the Use or Non-use of Genital Protective Equipment among Young Male Athletes
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Introduction: Previous studies illustrated the lack of genital protective equipment usage among young male athletes; additional surveys demonstrated a lack of understanding regarding testicular health and examinations in the same population. This study was designed to further elucidate decisional factors influencing young male athletes to wear or not to wear genital protective equipment.

Materials & Methods: A self-administered questionnaire was distributed to male student-athletes at local high schools and colleges. Respondents were questioned regarding reasons they choose to wear or not wear athletic cups. Descriptive statistics were performed on the data obtained.

Results: Approximately 1700 surveys were distributed and 731 returned (43.0%). For the 554 respondents citing reasons for not wearing an athletic cup, the most common reasons reported were lack of knowledge about importance (34.7%), not owning (28.2%), not being trendy (15.0%), teammates not wearing (11.2%), and being uncomfortable (5.2%). Eighty-five student-athletes reported their reasons for wearing protective equipment: required by schools (41.5%) and parents (21.3%). In addition, 16.4% of the respondents reported a testicular injury outside of school related sports activities; most injuries occurred from deliberate trauma to the testes by another individual (46.7%).

Conclusions: Despite the high prevalence of sports related genital injuries that have been reported, young males have a low rate of genital protective equipment usage for a multitude of reasons. Education, athletic cup accessibility, and a better design may aid in increasing usage. Further education for this age group should focus on the importance of using athletic protective equipment and avoiding purposeful injury.

PD9

Inguinal Hernia Repair During Extraperitoneal Robot-assisted and Laparoscopic Radical Prostatectomy: Surgical Outcomes and Quality of Life Assessment

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Introduction: One third of men undergoing radical prostatectomy (RP) have a comorbid inguinal hernia (IH). Outcomes of extraperitoneal robot-assisted laparoscopic radical prostatectomy (eRARP) and total extraperitoneal (TEP) IHR are unknown. We compared outcomes and quality of life following eRARP+TEP, extraperitoneal laparoscopic RP (eLRP+TEP) and RARP alone.

Materials & Methods: Patients undergoing eLRP or eRARP with TEP-IHR were compared to age-matched controls with eLRP or eRARP only. Demographics, peri-operative, and follow-up outcomes data were compared between groups. A validated 0-5 pain/quality of life Carolinas Comfort Scale ™ (CCS) was assessed following TEP-IHR.

Results: Thirty-seven men underwent RP and TEP-IHR with mesh (11 eRARP, 26 eLRP). The majority of hernias were detected pre-operatively (88.5%), asymptomatic (59.5%), and unilateral (eRARP, 81.8%; eLRP, 80.8%). Unilateral TEP-IHR added 32 min to eRARP and 31 min to eLRP, while bilateral TEP-IHR added 80 min to eRARP and 36 min to eLRP. There were no statistically significant differences for TEP-IHR + eLRP/eRARP and controls with regards to EBL, time to diet advancement, length of stay, and post-operative complications. There were no hernia recurrences in either group. Average CCS ™ scores were < 1 (asymptomatic) in patients undergoing TEP-IHR + eLRP or TEP-IHR + eRARP, with no differences between these groups (p = 0.58).

Conclusions: Concurrent TEP-IHR and eRARP or eLRP, does not prolong hospitalization, and may improve quality of life.

Table 1a	**eLRP (n=52)**	**eLRP + TEP-IHR (n=26)**	**P value**
Age	58.7±7.9 years	58.7±7.0 years	0.96
BMI (kg/m^2)	27.3±3.5	26.6±2.8	0.36
PLND	30 (58%)	15 (58%)	n/a
Estimated Blood Loss	215.4±102.2 cc	223.7±144.7 cc	0.82
Diet	1±0 day	1±0 day	1.0
Length of Stay	1.4±0.5 days	1.5±0.5 days	0.35
Discharge hct	35.6±2.8%	36.1±3.9%	0.83
Table 1b	**eRARP (n=22)**	**eRARP + TEP-IHR (n=11)**	**P value**
Age	58.6±8.3 years	62.4±8.6 years	0.25
BMI (kg/m^2)	28.5±5.7	27.6±2.4	0.35
PLND	16 (73%)	8 (73%)	n/a
Estimated Blood Loss	202.4±55.8 cc	209.1±76.9 cc	0.80
Diet	1±0 day	1±0 day	1.0
Length of Stay	1.4±0.5 days	1.4±0.5 days	1.0
Discharge hct	36.5±3.5%	35.6±2.7%	0.41

PD10

Characterizing the Financial Cost of Managing Fournier's Gangrene in the Modern Era, a Single Institution Perspective

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Introduction: Current protocols have reduced mortality in patients with Fournier's gangrene at substantial financial cost. We characterize the cost of care for patients with Fournier's gangrene managed at our institution.

Materials & Methods: A retrospective chart review identified patients treated for Fournier's gangrene between 2005 and 2015. We evaluated the financial burden of hospital management using reported charges from billing and identified predictors of higher expense.

Results: Sixty-six patients with Fournier's gangrene were managed at our institution, of whom 59 (92%) survived. Major risk factors were obesity (70%) and diabetes (67%). Six patients (9%) had a Fournier's gangrene severity index (FGSI) > 9, predictive of mortality. Median hospital stay was 13.5 days (IQR 9.5, 22.5), median ICU stay was 4.5 days (IQR 3, 11), and median accrued charges were $94,554 (IQR $66,537, $151,241). On bivariate analysis the strongest predictors of higher charges were ASA score ≥ 3 (median $47,101 vs. $116,597; p = 0.006) and FGSI > 9 (median $84,823 vs. $297,351 p = 0.02). As a continuous variable, FGSI was only weakly correlated with hospital charges (0.41 [0.17, 0.6]; p < 0.001). Pre-treatment eGFR (-0.43 [-0.62, -0.20]; p < 0.001) and serum albumin (-0.32 [-0.55, -0.05], p = 0.018) demonstrated a weak inverse correlation with hospital charges. Only FGSI > 9 was a predictor of hospital charges on multivariable analysis (p = 0.007).

Conclusions: Successfully delivering complex medical care to Fournier's gangrene patients is reflected in decreasing mortality rates but with significant costs of care. FGSI can predict Fournier's gangrene related mortality, but also functions well as a predictor of the financial burden of care.

PD11

Transplant Through the Window: Initial Experience with Minimally Invasive Anterior Rectus Sheath Open Renal Transplant

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Introduction: As the surgical intervention for end-stage renal disease, renal transplant is a major operation on a diverse population of patients with chronic disease. Wound complications are a major concern and new minimally invasive techniques attempt to improve on these issues. This retrospective review quantified wound infection, complication, dehiscence, and fluid collection/hematoma rates for Conventional (CON) and Anterior Rectus Sheath approach (ARS) for recipient renal transplantation.

Materials & Methods: Data from the initial 22 ARS kidney transplants at the Charleston Area Medical Center (CAMC) was collected along with the 20 most recent CON and analysis was completed including univariate and multivariate regression.

Results: Demographics were not significantly different. The study's primary endpoints of wound complications were significantly lower in the ARS group. Secondary endpoints of surgical and transplant outcomes were also found to be similar in the groups. Surgical time and wound length were found to be more favorable in the ARS.

Conclusions: Anterior Rectus Sheath approach for open renal transplant recipients allows for a small, minimal incision with comparable overall graft outcomes and significant improvement on wound complication rates. This easily adopted modification of conventional technique is a safe, effective, and swift approach to renal transplantation with favorable graft results and improved surgical outcomes with lower post-operative wound complications.

	Number	Anterior Rectus Sheath Approach	Conventional Transplant	P value
Wound Complications				
Per patient	11	1(4.5%)	10 (50%)	0.0012
Types of Complications:				
Skin dehiscence	0	0 (0%)	0 (0%)	***
Fascial dehiscence	4	0 (0%)	4 (20%)	0.01
Infection or SSI	3	0 (0%)	3 (15%)	0.099
Incisional Hernia	7	0 (0%)	7 (35%)	0.003
Internal Hernia	1	1 (4.5%)	0 (0%)	>.99
Fluid Collections -Requiring intervention (urine leak, lymphocele, hematoma , seroma)	5	0 (0%)	5 (25%)	0.018
Delayed Graft Function	7	3(13.6%)	4 (20%)	0.69
Acute Rejection	2	1 (4.5%)	1 (5%)	>.99
Incision Length	41	9.0 (5.0,13.0)	18.3 (14.0,25.0)	<.0001
Drain (Y/N)	23	1 (2.5%)	22 (71.0%)	<.0001
Operative Time	41	154.0(110,206)	231.2(176,306)	<.0001
Graft Function (GFR)				
1 week	42	34.3 (9.0,75.3)	34.6 (7.0,80.0)	0.96
1 month	42	43.4 (14.0,98.0)	49.5 (5.0,108.0)	0.39
6 months	40	55.9 (25.0,121.0)	54.7 (30.0,93.0)	0.85
12 months	40	61.2 (30.0,103.0)	63.1 (35.0,108.0)	0.77
Graft loss (total)	2	1 (4.5%)	1 (5%)	>.99
Patient Death	5	2 (9.1%)	3 (15%)	0.66

PD12

Ex-Vivo Model of Human Penile Transplantation and Rejection: Implications for Erectile Function

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Introduction: Penile tissue loss is seen in wartime injuries and congenital anomalies. Penile transplantation may be a treatment option. How the rejection process and immunosuppression affects erectile function (EF) is unknown. Using a novel *ex-vivo* mixed lymphocyte reaction (MLR) model of human corporal tissue (hCT) we evaluated the EF effects of rejection and immunosuppression.

Materials & Methods: hCT from penile prosthesis operations (donor) and peripheral blood mononuclear cells (PBMCs) isolated from the donor and a healthy volunteer were cultured for 48 hours: hCT+Media (Ctrl), hCt+autologous-PBMCs (Auto), hCt+allogenic-PBMCs (Allo), hCt+allogenic-PBMCs+cyclosporineA (CsA). Additional hCt were cultured without PBMCs for 24 hours in the presence of media alone, cyclosporineA, or FK506. Tissues were evaluated by IHC and live confocal fluorescent imaging. Myography was used to examine nerve-mediated contraction and relaxation in response to electrical field stimulation. PBMC activation was assessed by flow cytometry and qPCR-array. This study was approved by the IRB.

Results: Microscopy demonstrated increased caspase-3/7 activation and TUNEL staining in tissues exposed to allogeneic PBMCs, which was prevented by CsA. Flow cytometry and qPCR-array demonstrated PBMC activation when exposed to allogenic hCt, which was prevented by CsA treatment. Myography demonstrated impaired contraction and relaxation in Allo compared to Auto. CsA treated Allo had similar contraction and surprisingly impaired relaxation compared to non-treated Allo tissues. Compared to media and FK506, CsA impaired nerve-mediated relaxation.

Conclusions: This model may be used to investigate the pathogenesis of rejection and to optimize immunosuppression for penile transplantation.

PD13

Use of Intralesional Collagenase Clostridium Histolyticum Injection Therapy for Peyronie's Disease: Results from the Private Practice Setting

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Introduction: In Peyronie´s disease (PD), disordered collagen deposition replaces the normal elastic fibers of the tunica albuginea, resulting in palpable plaque. Among the valid options for immature stage of PD, Collagenase Clostridium histolyticum (CCh), a chromatographically purified bacterial enzyme that selectively attacks collagen, seems to be safe and efficacious after Phase III studies. Recently approved by the FDA, we aim to investigate it in a clinical, private practice setting.

Materials & Methods: After obtaining IRB approval we conducted a retrospective chart review of patients who had CCh injections and completed treatment between 3/31/14 and 10/2/2014. Thirty patients were identified. Patients were offered 4 cycles of injections with modeling. Patients could elect to stop at any point based on satisfaction with improvement or complication.

Results: Mean age was 57.2 yrs +/- 8.13. Eight patients had history of trauma. Twelve patients received Verapamil injections prior to CCh. Results are shown in Table 1. There was 1 severe penile hematoma in the 1st cycle though the patient completed 4 cycles. Mean follow up after completion is 5.4 months +/- 3.39.

Conclusions: CCh Is safe and efficacious to treat immature PD and can be administered in the private practice setting with results similar to previously published data. Larger studies with longer follow up are needed for further validation.

Table 1: Degree of improvement based on number of cycles

Cycles	Patients	Curvature pre-Collagenase	Curvature post-Collagenase	Mean Improvement (degrees)	Percent improvement
2	7	37.14 +/- 6.96 (30-48)	23.29 +/- 9.86 (10-40)	13.85	37.2%
3	7	33.87 +/- 4.56 (30-40)	21.87 +/- 5.16 (15-30)	12.00	35.4%
4	16	37.19 +/- 6.57 (30-55)	24.93 +/- 7.57 (12-45)	12.26	33.0%

P13

Recurrence of Renal Cancer following Partial Nephrectomy: Comparison of Surveillance Guidelines, Cost and Survival

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Introduction: The CUA, EAU, AUA and NCCN have produced guidelines for surveillance following resection of a small (less than 4 cm) Renal Cell Carcinoma (RCC). The goal of this study is to quantify the differences in surveillance costs these guidelines.

Materials & Methods: This study examined the SEER Medicare database for patients with diagnoses of RCC, historic stage 0-2 between 1991 and 2007. Partial nephrectomy, recurrence events, and surveillance imaging were identified by ICD-9 and CPT codes. The surveillance guidelines were then plotted against these real patients, to describe when the guidelines would identify a recurrence. Finally, cost ranges for imaging modalities were captured.

Results: We identified 2848 patients, 90% of whom had stage 0 or 1 tumors and 126 (4.4%) had a tumor recurrence. The majority had a local recurrence (111 v 15) and 74% of recurrences occurred during the first 3 years. Thus, surveillance guidelines that end after 3 years (e.g. AUA for stage 1) may be missing up to 26% of recurrences. Despite surveillance for 6 years across all tumor stages, the CUA guideline represented the least expensive option.

Conclusion: Despite favorable survival and recurrence rates, patients undergo numerous radiating surveillance procedures. There may be a benefit to spacing out imaging over a longer follow up period as a cost effective method of post-operative surveillance that limits secondary risk of radiation exposure.

	Outcomes over 3 years					
	Number Diagnosed (out of 10,000)	Percentage Diagnosed Relative to Monthly Screening	Lowest Average Screening cost	Average Cost of Screening per Patient	Highest Average Screening cost	Additional Time (months) to be Diagnosed Relative to Monthly Screening
Monthly	402.86	-	$2,403.70	$4,895.77	$10,282.89	0.00
Every three months	402.86	100%	$801.67	$1,632.75	$3,431.68	1.04
Every six months	402.86	100%	$401.09	$816.86	$1,718.99	2.66
AUA/NCCN	402.86	100%	$505.78	$1,296.54	$2,016.28	4.33
CUA	402.86	100%	$200.08	$387.56	$493.17	6.36
EAU	402.86	100%	$1,349.48	$1,218.92	$1,349.48	4.13
	Outcomes over 6 years					
Monthly	547.016	-	$4,750.97	$7,243.04	$20,322.56	0.00
Every three months	547.016	100%	$1,584.25	$2,415.34	$6,779.64	1.03
Every six months	547.016	100%	$792.50	$1,208.28	$3,394.02	2.62
AUA/NCCN	402.86	74%	$505.78	$1,296.53	$2,016.28	4.33
CUA	547.016	100%	$394.91	$765.38	$973.49	6.14
EAU	505.932	92%	$2,007.33	$1,812.27	$2,007.33	4.41

PD14

Racial Disparities in Continence Rates for Men Following Robotic-assisted Radical Prostatectomy

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Introduction: We characterized the social (0-1 pads per day) and complete (0 pads per day) continence rates among Caucasian and African American (AA) men across different time intervals to determine if racial disparities exist.

Materials & Methods: By retrospective review, we identified patients who underwent robotic-assisted radical prostatectomy at a single institution and by a single surgeon between October 2011 and September 2014. Patients were excluded if they had additional pelvic surgery. Risk groups were defined using D'Amico risk classification tables.

Results: A total of 219 patients were available for analysis after exclusion with a median follow up of 17 months. AA men had more intermediate and high-risk cancer preoperatively (72% vs. 54%, p = 0.02) and a pathologic Gleason score ≥ 7 (90% vs. 77%, p = 0.04). More Caucasian men achieved social continence at 3, 6, and 12 months. Complete continence was higher at each time interval, but only significant at 3 and 6 months.

Conclusions: In our series, Caucasian men achieved social and complete continence quicker than AA men and at a higher overall rate. Although AA men tended to have higher pre-operative risk classification and pathologic Gleason score, we feel these pathologic differences do not completely explain why racial disparities exist for post-prostatectomy incontinence, and further investigation is required.

Table 1: Continence rates among Caucasian and African-American men

	Combined (%) N = 219	Caucasian (%) N =164	AA (%) N = 50	P-value
Social Continence				
3 months	84 (185/219)	88 (145/164)	72 (36/50)	0.007
6 months	89 (165/186)	93 (129/138)	72 (31/43)	0.0005
12 months	91 (143/157)	94 (110/117)	80 (28/35)	0.02
Overall	88 (193/219)	93 (152/164)	74 (37/50)	0.0008
Complete Continence				
3 months	58 (128/219)	63 (104/164)	44 (22/50)	0.02
6 months	74 (138/186)	80 (110/138)	58 (25/43)	0.008
12 months	76 (120/157)	80 (94/117)	66 (23/35)	0.10
Overall	75 (165/219)	79 (129/164)	66 (33/50)	0.09

P14

Low Amplitude Rhythmic Contractions in the Human Detrusor

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Introduction: Low amplitude rhythmic contractions (LARC) occur in mammalian detrusor smooth muscle (DSM) and may play a role in overactive or underactive bladder. We hypothesize that the influences of non-neuronal Ach and tissue strain during filling modulate LARC in the human detrusor.

Materials & Methods: Part I Carbachol (CCh) was titrated to generate LARC in tissue strips of human DSM (hDSM (n = 4). Part II In tissue strips with (U+, n = 5) or without (U-, n = 5) urothelium, spontaneous LARC was assessed. Tissues were stretched incrementally to determine strain effects. Atropine was added to inhibit Ach signalling. Fourier transforms identified LARC signal.

Results: Part I Spontaneous LARC was identified in 25% of hDSM strips. Titrated CCh induced LARC in the remaining 75% with a significant improvement in LARC signal:noise ratio (0.04 to 0.13, p = 0.001). There was no association between concentration of CCh and LARC. Part II When exposed to strain, 60% of U+ tissues exhibited a linear increase in both LARC frequency and amplitude (R2 = 0.68-0.97). Atropine had no effect on U+ LARC (p = 1.0) but abolished LARC in U- ($p < 0.05$) and significantly decreased actual to expected tension at 5 min post-exposure ($p < 0.05$).

Conclusions: CCh induces LARC in quiescent hDSM that is similar to spontaneous LARC, suggesting that non-neuronal Ach may play a partial (but not exclusive) role in the regulation of spontaneous detrusor rhythm. Tissue strain may increase LARC in a subset of U+ tissue, suggesting a tension-mediated LARC generator. LARC generators may provide targets for treatment of overactive or underactive bladder.

Moderated Poster II
P13 – P24

P15

Accuracy of the NSQIP Surgical Risk Calculator for Minimally-Invasive Partial Nephrectomy - A Comparison of Robotic versus Laparoscopic Approaches

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Introduction: The American College of Surgeons created the NSQIP Surgical Risk Calculator to estimate risk-adjusted 30-day outcomes following index procedures. We evaluated the accuracy of the NSQIP calculator for patients undergoing minimally-invasive partial nephrectomy (PN) for renal cell carcinoma (RCC) with a focus on robotic (RPN) versus pure laparoscopic (LPN) approaches.

Materials & Methods: A single institution, multi-surgeon, prospectively maintained database was queried for all patients undergoing LPN and RPN from 2003-2015. 21 designated patient predictors were analyzed with nine surgical outcomes reported. The difference between mean predicted risk and observed outcome rate was calculated using a two-sided one-sample t-test with significance set at $p < 0.05$.

Results: 111 LPN and 150 RPN were analyzed. The NSQIP calculator underestimated overall complications, cardiac events, UTI, return to OR, length of stay (LOS), and pneumonia for LPN ($p < 0.01$). Contrarily, severe complications, venous thromboembolism (VTE), acute renal failure (ARF), death, and discharge to rehab were overestimated ($p < 0.001$). Similar underestimations of overall complications, pneumonia, SSI, UTI, VTE, return to OR, and LOS were seen for RPN ($p < 0.001$). Conversely, severe complications, cardiac events, ARF, and death were overestimated ($p < 0.001$). (Table 1)

Conclusions: The NSQIP Surgical Risk Calculator, irrespective of surgical approach, had significant differences among observed and predicted surgical outcomes in our study. This emphasizes the need to develop urologic oncology-specific modules to better calculate key outcomes in this patient population.

	Laparoscopic PN (N=111)				Robotic PN (N=150)			
NSQIP Outcomes	Mean Predicted Risk %	Observed %	Predicted – Observed % (95% CI)	P-value*	Mean Predicted Risk %	Observed %	Predicted – Observed % (95% CI)	P-value*
Severe Complications	5.05	1.80	3.25 (3.11 - 3.39)	<0.001	4.99	3.33	1.66 (1.49 - 1.82)	<0.001
Overall Complications	6.88	15.32	-8.44 (-8.81 - -8.07)	<0.001	6.97	8.67	-1.70 (-2.06 - -1.34)	<0.001
PNA	0.77	0.90	-0.13 (-0.22 - -0.03)	0.009	0.74	1.33	-0.59 (-0.67 - -0.51)	<0.001
Cardiac Event	0.47	0.90	-0.43 (-0.51 - -0.36)	<0.001	0.41	0.00	0.41 (0.35 - 0.47)	<0.001
SSI	0.84	0.90	-0.04 (-0.01 - 0.09)	0.087	0.99	1.33	-0.34 (-0.38 - -0.29)	<0.001
UTI	0.91	3.60	-2.69 (-2.77 - -2.61)	<0.001	0.93	2.00	-1.07 (-1.14 - -1.01)	<0.001
VTE	0.59	0.00	0.59 (0.53 - 0.65)	<0.001	0.58	0.67	-0.09 (-0.12 - -0.06)	<0.001
ARF	0.48	0.00	0.48 (0.41 - 0.54)	<0.001	0.48	0.00	0.48 (0.41 - 0.56)	<0.001
Return to OR	2.00	2.70	-0.70 (-0.76 - -0.63)	<0.001	2.06	3.33	-1.27 (-1.34 - -1.21)	<0.001
Death	0.26	0.00	0.26 (0.22 - 0.31)	<0.001	0.23	0.00	0.23 (0.20 - 0.27)	<0.001
Discharge to Rehab	0.71	0.00	0.71 (0.60 - 0.83)	<0.001	0.63	0.67	-0.04 (-0.13 - 0.05)	0.424
LOS (days)	2.55	3.40	-0.85 (-0.95 - -0.74)	<0.001	2.38	2.90	-0.52 (-0.42 - -0.23)	<0.001

*One-sample t-test for mean predicted risk as compared to the observed value.

P16

Comparison of Bladder Volumes between 2D and 3D Ultrasound Calculations and Urodynamic Measurements in Women with Overactive Bladder

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Introduction: The ultimate goal of this research is to improve the diagnosis and treatment of overactive bladder (OAB) by developing non-invasive assessment methods. The aim of this project was to measure volume changes in the bladder using 2D and 3D ultrasound techniques and compare those results to infused bladder volume during urodynamics.

Materials & Methods: Female volunteers with OAB clinically indicated for urodynamics were recruited. The bladder was filled with saline at 10% bladder capacity per minute while ultrasound images were captured using a 3D abdominal probe (GE Voluson-E8) every 60 seconds. Bladder volume was estimated from 2D cross-sectional images in the sagittal and transverse planes assuming an ellipsoid geometry and from the volumetric ultrasound data by tracing the bladder outline in six planes with GE 4DView software.

Results: Preliminary data from five women showed that average volumes measured by the 2D method were consistently lower than the overall volume infused (fig.1). Average volumes from the 3D method were nearly identical to infused volumes at low bladder capacities. In middle-to-high bladder capacities, the 3D volumes underestimated the infused volume, but to a lesser degree than the 2D method.

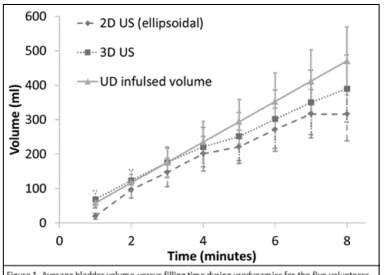

Figure 1. Average bladder volume versus filling time during urodynamics for the five volunteers. The error bars show standard error.

Conclusions: The ellipsoidal assumption used for the 2D method can underestimate bladder volume. 3D imaging better accounts for bladder geometry and may provide a more accurate volume estimate.

P17

Association of PSA and Number of Cores Positive to Likelihood of Adverse Pathology at Radical Prostatectomy Based on a 17 gene Expression Assay

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Introduction: The overtreatment of prostate cancer in Gleason score 6 (GS6) patients stems from uncertainty with current risk instruments. Volume of tumor and PSA are thought to be correlated with risk. The Genomic Prostate Score (GPS) is validated as an independent predictor of adverse pathology at prostatectomy. We report on the impact of volume of GS6 disease and PSA at biopsy on the biologic aggressiveness of the disease.

Materials & Methods: 1,055 pathology reports were retrospectively reviewed to record submitted GS, cores positive, and PSA.

Results: Of 803 GS6 cases, the median GPS for GS6 ≤2 cores positive was 24 (IQR 16.5 to 30.5) vs. 26 (IQR 20 to 34) for 4+ cores positive. After GPS incorporation, risk refinement occurred in 24% of cases with ≤ 2 and 26% of cases with > 4 cores positive. In 294 GS6 cases with PSA, 25% had a PSA < 4, 67% 4-10, and 8% > 10 ng/ml. No significant correlation was seen between PSA and GPS. The median GPS values for cases with PSA < 4, 4-10, and > 10 were 25(IQR 16-31), 24(IQR 17-32), and 25(IQR 17-39). Risk refinement following GPS occurred in 48% PSA < 10 and 23% PSA > 10.

Conclusions: GPS results highlight the spectrum of tumor aggressiveness in a series of 803 biopsies containing GS6, independent of % cores positive and PSA. The degree of risk refinement among all GS6 cases highlight the utility of GPS to provide predictive information beyond traditional clinical variables.

P18

Myofascial Trigger Point Dry Needling for Pelvic Pain and Urinary Symptoms: An Initial Single Center Experience

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Introduction: Myofascial trigger point dry needling (DN) is described to alleviate musculoskeletal pain. The objective was to assess effectiveness of DN in female patients with pelvic pain**.**

Materials & Methods: IRB approval was obtained. A retrospective chart review was performed on female patients with procedure code of 97140 from December 2013 to June 2014. Chart review revealed patients receiving DN. Degree of subjective improvement was assessed for DN**.**

Results: DN was performed on 20 patients. Average age waas 40.1 years (range 25-68). All patients reported pelvic pain, 75% had dyspareunia. Urinary complaints included 75% frequency, 30% nocturia, 35% dysuria, 10% urge urinary incontinence, 15% stress urinary incontinence, 15% history of recurrent urinary tract infections, 10% hesitancy, and no symptoms in 10%. Average length of symptoms was 36.9 months (range 12-60). Daytime frequency was 11.7 voids (range 6 to 14). Median pads per day was 0.35 (range 0-3) with 85% using no pads. A mean of 1.55 voids per night was found in 85% reporting nocturia. Average pain was 4.7 on a 1 to 10 scale (range 0-8). Median best day pain was 2.1 (range 0-5). Worst day pain average was 8.1 (range 5-10). Mean DN treatments was 6 (range 1-22). Mean improvement was 2.3 with a scale of 0 for no improvement (0% of patients), 1 for mild improvement (20%), 2 for moderate improvement (30%) and 3 for significant improvement (50%). Average follow up following DN therapy was 11.9 months.

Conclusions: DN is an effective adjuvant therapy in treatment of female pelvic pain/urinary symptoms.

P19

Effects of Venous Thromboembolism Prophylaxis on Urethral Reconstruction Outcomes

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Introduction: There is no standard for venous thromboembolism prophylaxis in urethral reconstruction. Recently our institution implemented Surgical Care Improvement Projects protocols to improve patient safety. Accordingly, we changed our practice to include administration of pre- and peri-operative heparin in urethroplasty. Here we evaluate the impact on urethroplasty outcomes.

Materials & Methods: We performed retrospective review of our urethroplasty database, comparing patients receiving or not receiving heparin. Outcomes analyzed included operative time, estimated blood loss (EBL), length of stay, and complications classified by the Clavien-Dindo system.

Results: From September 2012 to March 2016, 102 patients underwent urethroplasty. Forty-five patients received heparin. Patients receiving heparin had longer mean stricture length (7.9 vs. 4.3 cm), with statistically significant longer operative times (260 vs. 200 min) and higher mean EBL (347 vs. 238 mL). There was a significant increase in the number of higher risk complications in patients receiving heparin. The odds of a Clavien grade 3 complication was 2.8 times greater for patients who received heparin. Multivariate analysis found that only longer operative times had a significant correlation with increased complications. One patient developed a deep venous thrombosis despite receiving heparin.

Conclusions: Heparin prophylaxis may be associated with higher EBL, longer operating room times, and more severe complications. However, it is difficult to differentiate whether these findings were due to heparin or whether patients with more complex strictures and comorbidities were prone to complication and therefore more likely to receive heparin as a preventative measure. Further, prospective investigation may yield this information.

P20

Increased Transitional Zone Size Correlates with Increased Laser Energy Used in Holmium Laser Enucleation of the Prostate and Decreased Preoperative Urine Flow

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Introduction: Enlargement of the transitional zone (TZ) of the prostate accounts for lower urinary tract symptoms associated with benign prostatic hyperplasia (BPH). Holmium Laser Enucleation of the Prostate (HoLEP) is an effective surgical option for the treatment of BPH. We aimed to evaluate any correlation between TZ size and laser energy used during enucleation. We also sought to evaluate any corrselation between preoperative (preQmax) and postoperative (postQmax) maximum urine flow with regard to TZ.

Materials & Methods: We evaluated 127 consecutive patients who underwent HoLEP procedures at our institution from November 2014 to February 2016. 49 patients had TZ size, HoLEP energy used, preQmax and postQmax measured. Exclusion criteria included repeat HOLEP procedures. TZ size was measured using transrectal ultrasound. Total laser energy used was recorded utilizing a continuous laser power of 80 and 100 watts. PreQmax was measured in the outpatient setting prior to surgery. PostQmax was measured at follow-up 4 weeks post-operatively.

Results: There was a high positive correlation between TZ size and HoLEP energy used ($\rho = +0.60$, $P < 0.05$). A significant negative correlation was demonstrated between TZ size and preQmax ($\rho = -0.31$, $P = 0.031$). No correlation was found between TZ size and postQmax ($\rho = -0.15$, $P = 0.29$).

Conclusions: Laser energy used in HoLEP procedures increases with TZ size correlating to longer operative times. PreQmax rates tend to decrease as TZ size increases suggesting that an enlarging periurethral TZ may contribute to obstructing urine outflow. Importantly, TZ size does not impact postQmax rates after HoLEP procedures.

P21

Early Results from a Randomized Trial of Concentrated Proanthocyanidins (PACs) for Reduction of Bacteriuria in Catheter-Dependent Veterans with Spinal Cord Injury

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Introduction: Neurogenic bladder in patients with Spinal Cord Injury & Disorders (SCI&D) is associated with high rates of recurrent symptomatic UTIs. The purpose of this study was to evaluate the acute effects of proanthocyanidins (PACs) in the cranberry supplement, ellura®, on bacteriuria, pyuria, and subjective urine quality in catheter-dependent veterans with SCI&D.

Materials & Methods: This study was a double-blinded, placebo-controlled trial of the PACs compound, ellura® (36 mg/capsule), in veterans with SCI&D and neurogenic bladder requiring intermittent catheterization over a 15 day period. Participants with positive urine bacterial colonization (≥ 50-75K CFU/ml) were randomized to once daily ellura® or identical placebo and followed with daily (in-patients) or every-other-day (out-patients) urine cultures with colony counts (bacteriuria), microscopic urine WBC quantification (pyuria), and survey assessing urine clarity, odor, color, sediment, and overall satisfaction. A repeated measure analysis of variance was used to compare treatment vs. control and evaluate the serial trend.

Results: There were 13 participants, 7 randomized to ellura® and 6 to placebo. There was no significant decrease over the study period in CFU/ml ($94.26 \times 10^3 \pm 2.75 \times 10^3$ vs. $96.20 \times 10^3 \pm 3.17 \times 10^3$, $p = 0.652$) and log(WBC)/hpf (4.33 ± 0.40 vs. 3.36 ± 0.46, $p = 0.139$) in the treatment vs. the control group. Patients receiving ellura® rated the clarity (3.26 ± 0.08 vs. 3.10 ± 0.09, $p = 0.184$), odor (3.11 ± 0.04 vs. 3.00 ± 0.04, $p = 0.086$), color (3.20 ± 0.06 vs. 3.10 ± 0.07, $p = 0.334$), sediment (3.30 ± 0.10 vs. 3.13 ± 0.11, $p = 0.276$), and overall satisfaction (3.27 ± 0.08 vs. 3.13 ± 0.09, $p = 0.269$) of their urine as insignificantly improved compared to placebo.

Conclusions: Acutely, there was no reduction of bacteriuria and pyuria or improvement in subjective urine quality for SCI&D patients treated with ellura®.

P22

Consistent and Durable Improvements in Quality of Life With Long-Term OnabotulinumToxinA Treatment in Patients with Overactive Bladder

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Introduction: We evaluated the long-term effects of onabotulinumtoxinA 100U on quality of life (QOL) of overactive bladder (OAB) patients who were inadequately managed by an anticholinergic.

Materials & Methods: Eligible patients who completed either of two phase 3 trials could enter a 3-year extension study to receive onabotulinumtoxinA treatment 'as needed' for control of symptoms. Results are reported for up to 6 treatments. Assessments included change from baseline in Incontinence-QOL (I-QOL) total score and proportions of patients who achieved/exceeded the minimally important difference (MID) in I-QOL score (+10 points) after each treatment. Consistency of response over repeated treatments was evaluated by determining whether patients achieved ≥MID after the first treatment, and then analyzing the proportion who achieved ≥MID for all subsequent treatments.

Results: Of the 829 patients enrolled, discontinuations due to lack of efficacy/AEs were 5.7%/5.1%. After onabotulinumtoxinA treatments 1-6, QOL improvements were consistently 2-3X MID, with most patients achieving ≥MID (range: 65.2% to 76.1%). 72.9% of patients who achieved ≥MID after treatment 1 maintained I-QOL improvements ≥ MID in all subsequent treatments. Over one-third (38.3%) of patients who did not achieve ≥ MID after treatment 1 achieved improvements ≥ MID in all subsequent treatments. No new safety signals were observed.

Conclusions: The consistent improvements in OAB symptoms after long-term treatment with onabotulinumtoxinA corresponded with durable QOL improvements, with no new safety signals. Patients with clinically meaningful QOL improvements after treatment 1 had similar improvements in subsequent treatments, while lack of response to treatment 1 did not preclude positive response(s) in subsequent treatments.

P23

Low Amplitude Rhythmic Contractions Influence Sensations of Urgency in Patients with Overactive Bladder Syndrome

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Introduction: Low amplitude rhythmic contractions (LARC), visualized as phasic intravesical pressure (pves) changes, are commonly seen during urodynamics (UD). A significant rise in pves will increase bladder wall tension and can elicit an increase in sensation. This study aims to determine thresholds for pves amplitude elevations that trigger patient-reported changes in sensation during filling.

Materials & Methods: As part of an IRB–approved urodynamics (UD) protocol, patients with overactive bladder syndrome (OAB) underwent standard UD testing and simultaneously used a real–time sensation meter to record continuous changes in sensation from 0–100% during filling. Sensation values were time-linked to pves. Normalized pves was differentiated to identify inflection points, and baseline pves was calculated via polynomial regression. Significant elevation in pves from baseline was defined as ≥ 5% normalized value, while any elevation in patient-reported sensation was considered significant. Significant phasic rises in pves were juxtaposed to sensation changes to determine event coincidence.

Results: Twelve patients underwent UD with use of the sensation meter – 3 were excluded (transducer error, fill to 30 mL, only 10% sensation reached). Average phasic pves and sensation change event frequencies during filling were similar: 2.0 ± 0.2 & 2.1 ± 0.3 cycles/min, respectively ($p = 0.9$). Of sensation changes, 53 ± 8% were within 10 sec of significant pves elevations (average Δpves = 20 ± 3% normalized minimum).

Conclusions: The frequency of changes in patient-reported sensation during filling correspond with phasic pves elevations, generated by LARC. Further refinement of sensation thresholds may allow development of non-invasive techniques to better characterize a LARC-mediated subtype of OAB.

PD15

Ureteral Injuries: Two Decades of Experience at an Academic Center

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Introduction: Ureteral injuries can be devastating to a patient. We retrospectively reviewed ureteral injuries at our institution over the last 19 years, characterizing the type, location and initial management. We evaluated how often ureteral stents were utilized in initial management of both iatrogenic and traumatic injuries and their success rate.

Materials & Methods: We reviewed patient charts for ureteral injuries, identified by ICD-9 code, from 1997 to 2016.

Results: A total of 45 patients were identified. Blunt and penetrating trauma accounted for 9 (20%) and 3 (7%) respectively, while 33 (73%) were iatrogenic. Most blunt injuries were left sided (6/9, 67%) and 8 out of the 9 (89%) were initially managed with a ureteral stent with 100% success rate. Of the 3 penetrating injuries, 2 were immediately repaired and 1 was managed with stent placement. On review of Iatrogenic injuries, gynecologic accounted for 23 (70%), general surgical 7 (21%), urologic 2 (6%) and orthopedic 1 (3%). Most iatrogenic injuries occurred in the distal left ureter (16, 48%). Iatrogenic injuries were initially managed with stent placement in 14 cases (42%), nephrostomy in 9 (27%), and immediate surgical correction in 9 (27%). Stent placement was successful in 9 of 14 (64%) iatrogenic injuries. Diagnosis was delayed in 15 (45%) iatrogenic cases.

Conclusions: Gynecologic procedures accounted for the majority of ureteral injuries. Ureteral stents or nephrostomy were successful in managing iatrogenic injuries the majority of the time, although many required additional surgical intervention. Stent placement was successful in managing blunt ureteral trauma.

P24

Building a Physician Led Prostate Cancer Quality Improvement Regional Collaborative

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Introduction: Prostate cancer (CaP) detection, treatment and outcomes are subject to significant variation between providers. In 2014, we established the Pennsylvania Urologic Regional Collaborative (PURC), a physician led quality improvement collaborative focused on the evaluation/improvement of CaP care in the southeastern Pennsylvania.

Materials & Methods: Institutions in southeastern Pennsylvania were voluntarily enrolled in a regional collaborative, coordinated by Healthcare Improvement Foundation and supported by Independence Blue Cross. Each institution identified a physician champion and provided an abstractor for anonymous de-identified data collection and entry into a web-based portal. Previously validated and tested data collection platform was utilized. The collaborative was modeled after Michigan Urologic Surgical Improvement Collaborative (MUSIC).

Results: Five academic institutions and one private practice voluntarily enrolled in the physician led collaborative with 77 participating urologists. After comprehensive abstractor training and in strict compliance with IRBs data collection commenced on 5/28/2015. Quarterly collaborative-wide meetings were held and anonymous practice-level data reports discussed. Prostate biopsy and imaging work group committees were created to identify performance metrics and QI targets. 2,607 eligible patients were enrolled after one year of data collection. Variation in antibiotic prophylaxis for prostate biopsies, utilization of staging imaging for low risk CaP, and utilization of active surveillance was observed between participating practices.

Conclusions: PURC successfully enrolled more than 2,500 patients across six participating sites in its first year of data collection. Significant variation in healthcare delivery was observed between practices, identifying a number of targets for standardization of care and quality improvement. Further collaborative growth across Pennsylvania is in progress.

PD16

Penetrating Injuries are More Likely to Result in Intervention Following Low Grade Renal Trauma

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Introduction: Though the kidneys are the most commonly injured genitourinary organ, non-interventional strategies are often touted as the mainstay in management for the majority of renal injuries. Nevertheless, previously reported population-based data have described an overwhelmingly high rate of utilization of angiography and/or surgery for even the lowest-grade renal traumas. We evaluate presenting ER factors predictive of procedural intervention for isolated renal trauma.

Materials & Methods: We queried the prospectively maintained, largest statewide trauma registry in the country (PA Trauma-Outcomes Study) for all isolated renal injuries from 2000-2013. Therapeutic intervention and ICD-9 codes identified angiography and/or surgery immediately following ER presentation, while renal injury was stratified by AAST grade and designated through AIS codes. Multivariate models identified presenting factors associated with intervention.

Results: Of 449,422 patients, 1628 (0.4%) isolated kidney injuries were identified of which 1480 (91%) patients (77% male, median age 29 yrs [range 2-92]) had data available for analysis. Of these, 7.1% of low-grade (75/1062, AAST ≤ 3) and 36.6% of high-grade (153/418, AAST > 3) renal injuries underwent intervention with angiography being the more common procedural intervention (118/228, 51.7%). Controlling for presenting ER vital signs, GCS, demographics, trauma center level-designation, mechanism, and intubation status, penetrating trauma presentation (OR 9.6, CI [4.7-20.0]) was independently associated with immediate procedural intervention for low-grade renal trauma.

Conclusions: Although conservative management strategies are considered standard of care for low-grade renal trauma, penetrating traumas presenting to the ER appears to significantly influence provider decisions regarding procedural interventions for isolated low-grade renal trauma.

PD17

Monitoring Dendritic Cell Trafficking in Mice Using Multi-Spectral Imaging
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Introduction: Prostate cancer is a leading cause of cancer deaths, with no curative treatments once it spreads. Alternative therapies, including immunotherapy, have shown limited efficacy. We aimed to study trafficking of dendritic cells *in vivo*, and to modify the method of delivery of dendritic cells to optimize therapy effectiveness.

Materials & Methods: A novel DC labeling system was developed using 1,1′-dioctadecyltetramethyl indotricarbocyanine Iodine (DiR) for *in vivo* fluorescent imaging. DC harvested from mice were matured, labeled, and injected intravenously, subcutaneously, or intratumorally, with or without tumor lysate, into prostate cancer bearing mice. Signal intensity was measured *in* and *ex vivo*.

Results: Signal intensity at the tumor site increased over time, suggesting trafficking of DC to the tumor with all modes of injection. Subcutaneous injection showed trafficking to lymph nodes and tumor. Intravenous injection showed trafficking to lungs, intestines, lymph nodes and tumor. Intratumoral injection resulted in trafficking to spleen and lungs. Intravenous injection of unprimed DC had high signal within the tumor *in vivo.* Subcutaneous injection of primed DC resulted in the highest increase in signal intensity at the tumor site and lymph nodes, suggesting subcutaneous injection of primed DC leads to highest preferential trafficking of DC to the tumor site.

Conclusions: To our knowledge, this is the first experiment to track DC *in vivo* using a novel fluorescent imaging system. As little is known about trafficking of DC in immunotherapies, we hope this work will contribute to optimization of DC based vaccines for patients with advanced prostate cancer.

PD18

Increased Rates of Adverse Pathology in African American Men with Low and Intermediate Risk Prostate Cancer: Implications for Active Surveillance Eligibility
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Introduction: Active surveillance (AS) is gaining acceptance as a management strategy for early stage prostate cancer. We aimed to study the association between race and adverse pathology in men treated with RP for low and intermediate risk prostate cancer.

Materials & Methods: We reviewed data from men who underwent RP at our institution between September 2010 and June 2015. We identified patients who met the University of Toronto AS eligibility criteria, including PSA <2 0 ng/ml and biopsy Gleason score ≤ 3+4. We determined pathological outcomes and rates of adverse pathology (pathological Gleason score > 4+3, stage > pT3 or positive lymph nodes) after RP, and compared outcomes by race.

Results: Of 295 Caucasian and AA men who underwent RP, 186 men (63.1%) met AS eligibility criteria. Rates of adverse pathology were significantly higher in men who did not meet AS eligibility criteria compared to those that did (70.8% vs. 16.6%, $p < 0.01$). 216 men (73.2%) were Caucasian and 79 (26.8%) were AA. There was no significant difference in the percentage of Caucasian vs. AA men meeting AS criteria (61.9% vs. 66.2%, $p = 0.50$). Compared to Caucasians, AA men meeting AS eligibility criteria had significantly higher rates of adverse pathology after RP (27.5% vs. 12.3%, $p = 0.01$).

Conclusions: Among men with low and intermediate risk prostate cancer meeting liberal AS eligibility criteria, rates of adverse pathology were higher in AA men.

Pathologic Outcomes and Rates of Adverse Pathology After RP, by Race, for Men Meeting Liberal AS Eligibility Criteria

		White N (%)	Black N (%)	p-value
Pathologic Stage	T2a	24 (18.6%)	3 (5.9%)	0.08
	T2b	3 (2.3%)	1 (2.0%)	
	T2c	90 (69.8%)	36 (70.6%)	
	T3a	10 (7.8%)	9 (17.6%)	
	T3b	2 (1.5%)	2 (3.9%)	
Pathologic Gleason Score	3+3	52 (40.0%)	22 (43.1%)	0.65
	3+4	73 (56.2%)	25 (49.0%)	
	4+3	4 (3.0%)	3 (5.9%)	
	≥ 8	1 (0.8%)	1 (2.0%)	
Surgical Margins	Negative	98 (75.4%)	39 (76.5%)	0.88
	Positive	32 (24.6%)	12 (23.5%)	
Lymph Node Involvement	No	126 (97.7%)	43 (95.6%)	0.46
	Yes	3 (2.3%)	2 (4.4%)	
Adverse Pathology	No	114 (87.7%)	37 (72.5%)	0.01
	Yes	16 (12.3%)	14 (27.5%)	

PD19

The Use of Pericatheter Retrograde Urethrogram to Assess Urethral Healing After Urethroplasty
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Introduction: There is a relative paucity of literature concerning the application of pericatheter retrograde urethrogram (PUG) in evaluating post-operative healing following urethral reconstruction. Here we describe our technique and examine the outcomes of post-urethroplasty PUGs.

Materials & Methods: A retrospective study of our urethroplasty database was conducted and patients undergoing PUG following urethroplasty were identified. PUG was performed in a standardized fashion with patient in oblique position and penis on stretch, instilling contrast through an "angiocath" alongside indwelling urethral catheter under dynamic fluoroscopy. The image was then examined for extravasation of contrast.

Results: From September 2012 to March 2016, 101 urethroplasties were performed. Thirteen urethroplasties (13.9% of total urethroplasties) did not require PUGs based on the type of operation. Ninety-nine PUGs were done on 88 patients. Initial PUGs were done within 17-43 days (mean 26.0 days) following urethroplasty. Nine patients (9.1% of total patients undergoing PUG) required repeat PUGs and 1 patient required a third PUG. Only 1 patient (1.0% of total patients undergoing PUGs) presented with urinary leak and scrotal abscess after an initial PUG that showed no extravasation. There were no infectious complications related to PUG. We found PUG to demonstrate 94.4% sensitivity for detecting extravasation and 98.9% accuracy.

Conclusions: Our PUG technique is a safe, feasible, and reproducible technique to effectively assess urethral healing after urethroplasty and determine timing of catheter removal. This study suggests that PUG provides results comparable to voiding cystourethrography and retrograde urethrography, which have traditionally been used to assess healing after urethroplasty.

PD20

A Peri-Procedural Povidone Iodine Rectal Preparation Decreases Bacteriuria and Bacteremia following Prostate Needle Biopsy: Final Results from a Prospective Trial
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Introduction: Infectious complications following transrectal ultrasound-guided prostate needle biopsy (TRUS PNB) continue to rise. Povidone iodine is a topical antiseptic that reduces surgical site microorganism colonization. We evaluated the impact of a peri-procedural povidone iodine rectal preparation (PIRP) on bacteriuria, bacteremia, and infectious complications following TRUS PNB.

Materials & Methods: Between March 2013 and August 2015, a prospective cohort of patients comparing the impact of a peri-procedural PIRP versus standard of care for TRUS PNB was accrued. All patients received Ciprofloxacin 500 mg the day before and morning of the biopsy. Urine, blood, and rectal cultures were obtained post-procedure and measured by colony forming units (CFUs) after 48 hour incubation.

Results: 150 men were prospectively accrued with 95 receiving PIRP and 55 standard of care. The two cohorts were matched with respect to baseline or biopsy characteristics. In the PIRP cohort, rectal cultures before and after PIRP administration noted a 99.3% reduction in microorganism colonies (2.4×10^5 CFU/mL vs. 1.7×10^3 CFU/mL, $p < 0.001$). Mean urine bacterial counts following TRUS PNB were 0 CFU/mL for PIRP vs. 7 CFU/mL for standard cohort ($p < 0.001$). Blood bacterial counts following TRUS PNB were 0 CFU/mL for PIRP vs. 3 CFU/mL for standard of care ($p = 0.01$). Infectious complications occurred in 1% of the PIRP cohort vs. 5.5% in the standard cohort.

Conclusions: PIRP yields decreased rates of bacteriuria, bacteremia, and infectious complications following TRUS PNB making it a cost-effective strategy to reduce infections without need for rectal culture swabs or additional systemic antibiotics.

PD21

T Cell Responses to Intravesical Therapy in an Immune Competent Bladder Cancer Model

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Introduction: The objective of the present study was to understand the effect of intravesical BCG and chemotherapy on T cell subpopulations in an immune competent murine model of non-muscle invasive bladder cancer.

Materials & Methods: Fischer 344 rats aged 7 weeks received 1.5 mg/kg *N*-Nitroso-*N*-methylurea (MNU) every other week for 6 weeks (4 doses). Dysplasia begins by week 8 and by week 16 the majority of rats have a NMIBC phenotype. Beginning week 8 following the first MNU dose, rats were intravesically administered 0.3 ml of BCG (Tice®), cisplatin (1 mg/ml), Mitomycin C (2 mg/ml), MMC+ BCG, or saline (n = 10 for all groups) weekly for 6 total doses. Animals were sacrificed at week 16, and bladders were processed for histopathology and digested into single cell suspensions for flow cytometry. T lymphocyte subpopulations were then compared using unpaired two-tailed *t* tests.

Results: Rats treated with BCG had a 42% rise in CD4+ cells compared to saline controls ($p < 0.001$). Animals receiving intravesical cisplatin had no significant differences in CD4+ ($p = 0.15$), Foxp3+ CD4+ cells ($p = 0.25$), or CD8+ cells ($p = 0.85$) vs. control. While rats treated with MMC had a 30% reduction in CD8+ cells vs. control ($p = 0.03$), the group receiving BCG+MMC had an equal proportion of CD8+ cells vs. control ($p = 0.77$).

Conclusions: In an immune competent murine model of bladder cancer, our analysis of lymphocytes in the bladder wall suggests that BCG induces a large increase in CD4+ effector T cells, without a significant change in Foxp3+ regulatory T cells or CD8+ cells.

PD22

Sarcopenia is Associated with Increasing Tumor Stage in Patients Undergoing Radical Nephroureterectomy

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Introduction: Radical nephroureterectomy (RNU) remains the gold standard for upper tract urothelial carcinoma (UTUC) in patients with normal contralateral kidney function. Sarcopenia has been implicated as a novel surrogate for predicting surgical outcomes. We investigate the association between sarcopenia and adverse perioperative or oncologic events in patients with UTUC after RNU.

Materials & Methods: Retrospective review of our institutional UTUC database identified all patients who underwent RNU from 2000-2014. Skeletal muscle index (SMI) was measured at the L3 vertebral level and standardized according to patient height (cm^2/m^2). Sarcopenia was defined as < 55 cm^2/m^2 for men and < 39 cm^2/m^2 for women. Logistic regression and Wilcoxon Rank Sum tests examined the relationship between sarcopenia and several independent variables.

Results: 94 patients (62 men and 32 women) with a median age of 69 years, BMI 30, Charlson Comorbidity Index 4.5, tumor size 3.5 cm, and SMI of 50.8 cm^2/m^2 were included. 40 patients (42.6%) were sarcopenic. Median EBL was 150 mL, OR duration was 316 minutes, and length of stay was 5.0 days. Males had higher odds of sarcopenia than females ($p = 0.0004$). Sarcopenia was associated with increasing tumor stage ($p = 0.035$), but not with adverse perioperative events (Table).

Variable	Odds Ratio	P-value
Patient-specific:		
Age	1.17 (0.94, 1.45)	0.159
Gender (female vs. male)	0.14 (0.05, 0.42)	**0.0004**
Race	0.34 (0, 2.3)	0.254
BMI	0.74 (0.52, 1.06)	0.104
ECOG	1.50 (0.56, 4.0)	0.867
ASA score	1.40 (0.55, 3.5)	0.746
Charlson Comorbidity Index	1.19 (0.98, 1.45)	0.082
Pulmonary disease	1.56 (0.65, 3.74)	0.319
Coronary artery disease	2.11 (0.88, 5.06)	0.094
Diabetes mellitus	1.33 (0.52, 3.42)	0.557
Hyperlipidemia	1.51 (0.65, 3.48)	0.337
Perioperative outcomes:		
EBL	Wilcoxon Rank Sum	0.592
OR duration	Wilcoxon Rank Sum	0.967
Length of stay	Wilcoxon Rank Sum	0.813
30-day complications	0.91 (0.40, 2.05)	0.811
90-day complications	0.96 (0.28, 3.28)	0.947
Intraoperative transfusion	1.60 (0.49, 5.23)	0.433
Oncologic outcomes:		
Tumor stage	2.48 (1.07, 5.74)	**0.035**
Tumor grade	1.98 (0.72, 5.41)	0.184
Bladder cancer relapse	1.76 (0.75, 4.14)	0.198
Non-bladder cancer relapse	2.24 (0.77, 6.52)	0.140
Mortality of urothelial carcinoma	1.11 (0.21, 5.80)	0.901
All-cause mortality	1.23 (0.51, 2.96)	0.652

Conclusions: Sarcopenia is associated with higher tumor stage independent of disease-specific mortality. Larger studies are necessary to further define the effects of sarcopenia on RNU outcomes and patient prognosis.

PD23

Demographic and Utilization Trends in Cytoreductive Nephrectomy Before and After the Advent of Targeted Therapy for Metastatic Renal Cell Carcinoma

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Introduction: There is currently no level 1 evidence demonstrating a survival benefit for cytoreductive nephrectomy (CN) in the context of targeted therapy (TT) for patients with metastatic renal cell carcinoma (mRCC). We sought to evaluate CN practice patterns pre- and post-TT and identify demographic and clinical factors predictive of undergoing CN.

Materials & Methods: Surveillance Epidemiology and End Results Program data were used to identify patients diagnosed with mRCC from 2001-2012. Statistical analysis included multivariable logistic regression analysis to identify independent predictors of undergoing CN and tests for trend using both year of diagnosis and pre- (2001-05) vs. post-TT (2006-12) time periods.

Results: Of 17,782 mRCC patients, 6,672 (37.5%) underwent CN. There were no significant differences in CN utilization either by year of diagnosis or in the pre- vs. post-TT time periods, except for African-American females, who demonstrated a significant downward trend in CN utilization with year of diagnosis ($p = 0.005$). Demographic factors predictive of not undergoing CN included increasing age, African-American or Hispanic race, lack of private insurance, and being treated in the Eastern United States. Hispanic females were 21 percent less likely to undergo CN compared to Hispanic males ($p = 0.028$).

Conclusions: We analyzed a large population-based cancer cohort and found that utilization rates of CN remained similar after the introduction of targeted therapy despite lack of level 1 evidence demonstrating a survival benefit. African-American and Hispanic patients were less likely to undergo CN compared to Caucasians and a gender discrepancy existed within the Hispanic community.

PD24

Liposomal Bupivacaine to Control Post-operative Pain Following Buccal Mucosal Graft Harvesting: Short Term Results from a Randomized Controlled Trial

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Introduction: Pain following urethroplasty with buccal mucosal graft (BMG) is primarily at the harvest site and results in significant increases in patient morbidity and narcotic use. Lidocaine with epinephrine (LWE) is routinely injected for hydrodissection and hemostasis during harvesting, but contributes little to post-operative pain control. A novel liposomal formulation of bupivacaine (LB) has been introduced as a 96-hour delayed release. Infiltration of this medication may reduce post-operative pain.

Materials & Methods: A prospective, randomized, single blind controlled trial was organized with males requiring a urethroplasty and BMG. Patients were randomized to receive either LWE during BMG harvesting or LWE plus buccal infusion of LB.
A standardized pain and morbidity questionnaire was performed preoperatively, then daily for the first seven days post-op. The primary endpoint was pain reduction on the 10-point numerical rating scale, with a secondary endpoint being reduction in morphine equivalents used.

Results: Twelve patients were randomized to the LB group and fourteen for LWE group. Patients in the LB group had reductions in pain each of the first three postoperative days (POD). This difference was no longer significant by POD 7. Morphine equivalent use was also lower in the LB group. There were no intraoperative complications.

Conclusions: LB appears to lower postoperative pain at the BMG harvest site in the first 3 days after surgery and also lowers narcotic use during hospital stay.

	Pain Scores			Hospital Stay
	POD1	POD2	POD3	Opioid Use (Morphine Equivalents)
Liposomal Bupivacaine (LB)	1.75	1.75	1.75	26.6
Lidocaine with Epinephrine (LWE)	3.71	3.28	3.43	42.6
p-value	0.006	0.022	0.006	0.014

PD25

Utility of High Throughput Screening in Identifying and Repurposing Small Molecule Inhibitors for Urothelial Carcinoma

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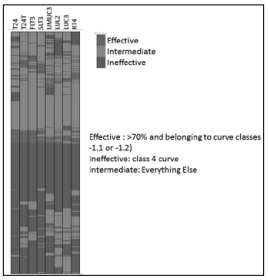
Introduction: In this study we performed the first identified quantitative high throughput screening to identify potential targets in urothelial cancer cell lines. We noted a potential new therapy (bardoxolone methyl) and validated this compound with further in vitro studies in cell lines not included in the screen.

Materials & Methods: We screened 8 bladder cancer cell lines against 1,912 oncology-focused drugs using a 48 hr cell proliferation assay with an ATP-based readout (CellTiterGlo), for activity and potency of the compounds in a dose response manner. We identified candidate drugs based on two parameters: 1) more than 70% inhibition at 48 hours 2) a curve class of -1.1/-1.2 indicating curve class with good fit (r2 > 0.9). Follow up assays in additional cell lines, including viability, invasion, cell cycle and NRF2 pathway activation were used as confirmation of efficacy of the bardoxolone methyl.

Results: Ward clustering analysis of the initial cell lines is demonstrated in figure 1.



Among the candidate drugs which were most active in all compounds, bardoxolone methyl was the most attractive based on IC 50 and previous human safety studies. Invasion assays and pathway activation analysis demonstrated dose dependent success in inhibition of urothelial cancer cell lines and cell cycle arrest.

Conclusions: Quantitative high throughput screening was successful in identifying bardoxolone methyl as a novel treatment of urothelial carcinoma in vitro.

PD26

New Prostate Cancer Grading System Predicts Long Term Survival Following Surgery for Gleason Score 8-10 Prostate Cancer

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Introduction: Newly proposed five-tiered Prostate cancer grading system (PCGS) divided Gleason score (GS) 8-10 disease into GS 8 and GS 9-10 based on biochemical recurrence (BCR) following radical prostatectomy (RP) as an outcome. However, BCR does not necessarily portend worse survival outcomes. We assess the long-term survival outcomes following RP for GS 8 versus 9-10 disease.

Materials & Methods: Of 23,918 men who underwent RP between 1984 and 2014, there were 721 men with biopsy (Bx) GS 8-10, and 1,047 men with RP GS 8-10. Clinico-pathologic characteristics were compared between men with GS 8 versus those with GS 9-10. We compared all-cause mortality (ACM) and prostate cancer-specific mortality (PCSM) risk between the groups, using competing-risk and Cox regression analyses adjusting for other perioperative variables, respectively.

Results: Among men with Bx GS 8-10, 115 died (82 due to PC) with a median follow-up of 4 years (range: 1-29). Of men with RP GS 8-10, 221 died (151 due to PC) with a median follow-up of 5 years (range: 1-28). PC-specific survival rates were significantly lower for men with GS 9-10 compared to men with GS 8 ($p < 0.01$ for all).

Conclusions: Men with GS 9-10 had higher ACM and PCSM rates compared to those with GS 8. GS 8 and GS 9-10 PC should be grouped separately as suggested by the new PCGS.

PD27

Metabolic Syndrome and its Components are Not Associated with Increased Likelihood of Prostate Cancer in Minority Populations

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Introduction: It remains unclear whether metabolic syndrome and its components (obesity, hypertension, dyslipidemia and insulin-resistant diabetes mellitus) are associated with an increased risk of prostate cancer. We aimed to characterize associations between the components of metabolic syndrome and the presence of prostate cancer, and assess whether these associations differ by race.

Materials & Methods: Patients undergoing prostate biopsy between July 2012 and November 2015 at our institution were included. Status and severity of the components of metabolic syndrome were noted at time of biopsy.

Results: 703 patients (mean age: 65.33, median PSA 5.9 ng/ml, median prostate volume 42 cc) comprised the cohort including 123 (17.5%) Caucasians, 426 (60.6%) African Americans and 107 (15.2%) Hispanic men. Associations between metabolic syndrome parameters and the likelihood of positive biopsy, with patients stratified by race, are shown in the table.

Conclusions: This data do not support strong associations between metabolic syndrome components and the risk of prostate cancer. For certain metabolic syndrome components, we noted a differential effect by race. Further research is needed to confirm or refute the variable effect among races of these comorbidities on prostate cancer risk.

	All Patients			Caucasians			African American			Hispanics		
Variable	Bx + Mean	Bx - Mean	P-Value	Bx + Mean	Bx - Mean	P-Value	Bx + Mean	Bx - Mean	P-Value	Bx + Mean	Bx - Mean	P-Value
BMI	28.065	28.436	0.3428	28.91	29.08	0.8696	27.85	28.37	0.307	28.26	28.71	0.665
HbA1c (%)	7.92	7.49	0.16	6.35	7.07	0.3085	7.96	7.29	0.114	8.46	7.94	0.34
Serum TG (mg/dl)	136	134	0.824	114.9	146	0.25	135	107	0.019	148	185.8	0.1235
Serum HDL (mg/dl)	47.73	46.77	0.565	53.1	49.48	0.467	48.63	48.26	0.87	43.47	41.16	0.4331

	All Patients			Caucasians			African American			Hispanics		
Variable	Bx + n (%)	Bx - n (%)	P-Value	Bx + n (%)	Bx - n (%)	P-Value	Bx +n (%)	Bx - n(%)	P-Value	Bx + n(%)	Bx - n (%)	P-Value
Hypertension	231 (32.8%)	274 (38.9%)	0.467	17 (13.82%)	50 (40.65%)	0.407	178 (41.59%)	161 (37.62%)	0.668	24 (22.02%)	51 (46.79%)	0.971
Patients without HTN	85 (12.11%)	114 (16.15%)		13 (4.64%)	38 (30.89%)		49 (11.45%)	40 (9.34%)		11 (10.09%)	23 (21.1%)	
Diabetes	85 (12.09%)	106 (15.08%)	0.884	2 (1.63%)	19 (15.45%)	0.035	66 (15.46%)	54 (12.65%)	0.634	13 (11.93%)	28 (25.69%)	0.944
Patients without DM	231 (32.89%)	281 (39.94%)		33 (26.82%)	69 (56.1%)		161 (37.7%)	146 (34.15%)		22 (20.18%)	46 (42.2%)	
Dyslipidemia	167 (24.59%)	215 (31.66%)	0.531	16 (13.44%)	51 (42.86%)	0.199	116 (28.02%)	108 (26.08%)	0.7	25 (23.81%)	46 (43.81%)	0.228
Patients without DLD	137 (20.18%)	160 (23.57%)		18 (15.13%)	34 (28.57%)		102 (24.64%)	88 (21.26%)		8 (7.62%)	26 (24.76%)	

PD28

African-American Men with Prostate Cancer have Larger Tumor Volume than Caucasian Men Despite No Difference in Serum Prostate Specific Antigen

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Introduction: Recent research suggests that among men with low-grade prostate cancer, African Americans (AA) produce less prostate specific antigen (PSA) than Caucasians. We investigated racial differences in PSA levels and tumor volume among men with prostate cancer, regardless of tumor grade.

Materials & Methods: We identified men from our institutional prostate cancer database that underwent radical prostatectomy between 2012 and 2015. Clinicopathologic parameters were compared by race. Multivariable linear regression was then performed to identify factors associated with PSA and tumor volume, adjusting for race, age, body mass index, and pathologic parameters.

Results: 178 men were included in the analysis, including 123 (69.1%) Caucasian and 55 (30.9%) AA. PSA did not differ significantly between AA and Caucasian men (9.1 vs. 7.8, $p = 0.41$). In contrast, tumor volume was significantly greater in AA men (13.3 vs. 9.0 cc's, $p = 0.01$). The results of the multivariable linear regression models are shown in the table. AA race was not associated with PSA ($p = 0.27$) but was associated with tumor volume ($p < 0.01$).

Conclusions: AA men who undergo radical prostatectomy have larger tumor volume than Caucasian men despite having similar PSA levels. This association suggests that prostate cancers in AA men may produce less PSA than in Caucasian men. These findings have implications for prostate cancer screening and treatment, as PSA may underestimate the presence or extent of cancer in AA men.

Table

		Factors Associated with PSA			Factors Associated with Tumor Volume		
Variable		Coef.	p-value	95% CI	Coef.	p-value	95% CI
Race	White	Ref	Ref	Ref	Ref	Ref	Ref
	Black	-1.46	0.27	-4.06 – 1.15	4.11	<0.01	1.31 – 6.90
Age		-0.01	0.92	-0.19 – 0.18	-0.01	0.90	-0.20 – 0.18
BMI		-0.28	0.02	-0.53 – -0.04	0.15	0.27	-0.12 – 0.41
T Stage	T2	Ref	Ref	Ref	Ref	Ref	Ref
	T3-T4	0.88	0.59	-2.34 – 4.10	3.78	0.03	0.29 – 7.27
Gleason score	3+3	Ref	Ref	Ref	Ref	Ref	Ref
	3+4	-0.66	0.67	-3.71 – 2.39	3.10	0.05	-0.02 – 6.22
	4+3	0.15	0.95	-4.61 – 4.90	10.50	<0.01	5.63 – 15.37
	4+4	-2.97	0.34	-9.06 – 3.11	9.16	<0.01	2.87 – 15.46
	≥ 9	2.55	0.41	-3.52 – 8.62	7.54	0.02	1.05 – 14.02
Prostate Volume		0.02	0.58	-0.05 – 0.09			
Tumor Volume		0.64	<0.01	0.49 – 0.79			

PD29

Tele-Cystoscopy: A Pilot Study to Widen Access to Bladder Cancer Surveillance

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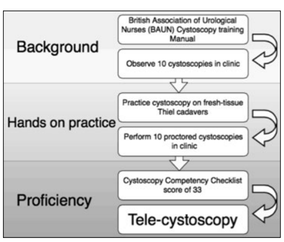
Introduction: Urology workforce shortages in rural areas lead to decreased access to surveillance cystoscopy. To address this, we developed a tele-cystoscopy infrastructure whereby allied health professionals (AHPs) perform surveillance cystoscopies that are transmitted real time for interpretation by a board-certified urologist. We hypothesized that after completing our training program; tele-cystoscopy and traditional cystoscopy findings will be comparable.

Materials & Methods: Once the AHP underwent training and demonstrated proficiency (Figure 1) we employed a sequential dual cystoscopy model. Patients followed for NMIBC received tele-cystoscopy and, prior to removing the scope, a urologist blinded to the findings performed a traditional cystoscopy. We compared the transmitted tele-cystoscopy images with traditional cystoscopy images.

Results: One AHP completed training and performed 50 cystoscopies in preparation. We performed 14 dual cystoscopies and found a 93% (13/14) concordance between the tele-cystoscopy and traditional cystoscopy findings, including one tumor seen in both. The only discrepancy was a bladder diverticulum identified by tele-cystoscopy but missed by traditional cystoscopy. Qualitatively, AHPs were most satisfied with training with fresh tissue cadavers, which offered high fidelity training and opportunities for repetitive practice.

Conclusions: The tele-cystoscopy model has the advantage that AHPs do not need to interpret the findings. The high concordance of findings in this pilot field study between tele-cystoscopy and traditional cystoscopy suggest that tele-cystoscopy is a feasible model to project urologic manpower to underserved areas.



PD31

Comparison of Urodynamics and Non-Invasive Accelerated Hydration in Characterizing Participants with Urinary Urgency

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Introduction: Diagnosis of overactive bladder (OAB) can involve an invasive urodynamic procedure. This study's objective was to compare real−time bladder sensation during urodynamics (UD) with non-invasive hydration in patients with OAB.

Materials & Methods: Distinct groups of volunteers with OAB were enrolled in accelerated hydration or standard UD studies. The hydration group drank 2L of Gatorade-G2® and complete two fill/void cycles. Both groups recorded standardized verbal sensory thresholds and real−time sensation (0-100% scale) using a novel "sensation meter."

Results: In the hydration group, filling duration decreased and voided volume did not significantly increase from fill1 to fill2. UD duration was shorter than either hydration fill; however, the UD fill volume was not statistically larger than the total volume of either hydration fill. Estimated volumes for sensory thresholds of First Sensation, First Desire, and Strong Desire in fill1 were not different from identical thresholds in the UD group. The UD sensation−volume curve was not statistically different from hydration fill1 at sensations ≥ 30%, but fill2 showed a left-shift compared to fill1 and UD at sensations 25%-50%.

Conclusions: This study demonstrates a non−invasive hydration protocol to characterize bladder sensation in participants with OAB, which provides data consistent with UD studies. Differences between fill1 and fill2 may reveal dynamic characteristics of the bladder that cannot be identified by a single UD fill and suggest that bladders in subjects with OAB may undergo acute changes in bladder compliance, tone, and/or sensitization. Multiple fill/void cycles may be useful in the sub-categorization of individuals with OAB.

PD30

Financial Relationships Between Urologists And Industry: An Analysis of Open Payments Data

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Introduction: The Physician Payment Sunshine Act was enacted to "shine" light on the financial relationships between physicians and the medical device and pharmaceutical industry. We sought to examine the non-research related financial relationships between urologists and industry in US using the latest Open Payments data.

Materials & Methods: A descriptive analysis of Open Payments data released by the Centers for Medicare & Medicaid Services for 2014 was performed. The payments were grouped into American Urological Association's sections based on the physicians' zip codes.

Results: There were 232,207 payments totaling $32,418,618 made to 8618 urologists (73.6% of practicing urologists in the US) during calendar year 2014. The median payment was $15. While the majority of the individual payments (68%) were ≤ $20, 82% of the urologists in the database received > $100 from industry during 2014. Most commonly reported payment type was food and beverages (88%), but this only represented 14.5% ($4.7M) of the sum of payments. Speaker fees constituted 24.3% ($7.8M) of the sum of payments. Southeastern section had the highest proportion of practicing urologists receiving payments at 82.8% (2,062/2,491) and the highest median annual payment per physician ($622). Mirabegron and sacral nerve neurostimulator was the most common drug and device respectively associated with payments.

Conclusions: Nearly 75% of urologists in US received non-research payments from industry in 2014. Most individual payments were less than $20 in value but the majority of urologists received more than 100 dollars in aggregate during the study year, with most of the money going toward speaker fees.

PD32

The Technique of V-Y Flap Scrotoplasty (VYFS): A Novel, Easy to Perform Ancillary Maneuver at the Time of Penile Implantion

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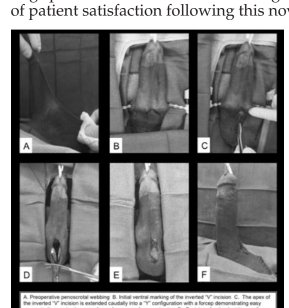
Introduction: Penoscrotal web reduction (PWR) at the time of inflatable penile implantation (PI) has demonstrated improved patient satisfaction and perception of phallic length. Nevertheless, previous PWR techniques often result in a large wound defect requiring complex closure and may pose technical challenges for lower volume implanters. Here, we describe our one-year experience with a novel approach, termed VYFS, for PWR at the time of PI.

Materials & Methods: From December 2014-December 2015, all patients undergoing PWR at the time of PI by a single surgeon (JS) were reviewed. All infrapubic/malleable implant cases, and/or patients without webbing were excluded. Surgical technique was performed as described in Figure 1. Postoperative outcomes were assessed.

Results: 26 patients underwent PI with VYFS. With a mean follow-up of 4.5 months, 2 (2/26, 7%) patients experienced minor wound complications and were managed successfully with local wound care. One device related complication (1/26, 3.8%) was noted in a patient that underwent ectopic reservoir placement with delayed reservoir herniation. Not directly related to the scrotoplasty, this patient required a reservoir revision to the space of Retzius.

Conclusion: Our approach to PI through VYFS offers optimal tailoring of the penoscrotal junction and is an easy alternative to previously described techniques that often result in a large penoscrotal wound necessitating complex closure. Additional objective assessment of patient satisfaction following this novel approach is currently underway.



A. Preoperative penoscrotal webbing B. Initial ventral marking of the inverted "V" incision C. The apex of the inverted "V" incision is extended caudally into a "Y" configuration with a forcep demonstrating easy access to the proximal corpora for performance of corporotomies D. Excision of redundant tissue after device insertion E. Closure is performed vertically in two layers F. Final result

PD33

Impaired Immunological Synapse In Sperm Associated Antigen 6 (SPAG6) Deficient Mice: New Insights Into Immune Infertility

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Introduction: Sperm-associated antigen 6 (SPAG6) was discovered as a target protein for anti-sperm antibodies. As a component of the "9+2" axoneme, SPAG6 is critical for ciliary and flagellar motility. Its role in immune system development and adaptive functions is unknown. While immune cells lack a cilium, the immunological synapse is a surrogate cilium as it utilizes the same machinery as ciliogenesis including the nucleation of microtubules at the centrosome. We hypothesize that SPAG6 regulates immunological synapse formation and function, which may provide insight into immune causes of infertility.

Materials & Methods: WT mice were irradiated and reconstituted with WT or *Spag6*KO bone-marrow. Actin clearance and centrosome polarization at the synapse between WT or *Spag6*KO CD8 T-cells and target cells was visualized using immune-cytochemistry. Humoral immunity, lymph-node architecture, and CD8 T-cell cytotoxicity were analyzed using immunohistochemistry, flow cytometry, ELISA, and cytotoxic assays.

Results: SPAG6 is associated with the centrosome in lymphocytes and its deficiency results in synapse disruption due to loss of centrosome polarization and actin clearance at the synaptic cleft. *Spag6*KO mice exhibited defective cytotoxic T-cell functions and impaired humoral immunity including reduced germinal centers reactions, follicular CD4 T-cells, and production of class-switched antibody, together with expansion of B1 B-cells.

Conclusions: SPAG6 is required for optimal immunologic synapse formation and function. This work reveals the potential comorbidity of immunodeficiency and immune infertility. Impaired immunological synapse formation in patients with SPAG6-associated infertility may precipitate chronic inflammation in the male reproductive tract and decrease immuno-modulatory factors that prevent sperm autoimmunization.

PD34

Failed Primary Bladder Exstrophy Closure with Osteotomy: A Multivariate Analysis of a 25-year Experience

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Introduction: A successful primary bladder exstrophy closure provides the best opportunity for patients to achieve a functional closure and urinary continence. Use of osteotomy during initial closure has significantly improved success rates, however failures can still occur. This study aimed to identify factors that contribute to a failed primary exstrophy closure with osteotomy.

Materials & Methods: A prospectively-maintained institutional database was reviewed for classic bladder exstrophy patients who were primarily closed with osteotomy at our institution or referred after primary closure from 1990 to 2015. Data were collected regarding gender, closure, osteotomy, immobilization, orthopedics, and perioperative pain control. Univariate and multivariate analyses were performed to determine predictors of failure.

Results: 156 patients met inclusion criteria. Overall failure rate was 30% (13% from the authors' institution and 87% from outside centers). Failure rates were significantly higher prior to 2000 compared to the years following (38.8% vs. 23.2%, p = .032). On multivariate analysis, use of Buck's traction (OR 0.11; 95% CI 0.02-0.60, p = .011) and immobilization time greater than 4 weeks (OR 0.19; 95% CI 0.04-0.86, p = .031) had significantly lower odds of failure. Osteotomy performed by non-pediatric orthopedic surgeons had significantly higher odds of failure (OR 23.47; 95% CI 1.45-379.19, p = .027). Type of osteotomy and use of epidural anesthesia did not significantly impact failure rates.

Conclusions: Proper immobilization with modified Buck's traction and external fixation, immobilization time > 4 weeks, and having the osteotomy undertaken by a pediatric orthopedic surgeon are crucial factors for a successful primary closure with osteotomy.

PD35

Robotic Ureteroplasty Using Buccal Mucosa Graft for the Management of Complex Ureteral Strictures

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Introduction: Buccal mucosa is well-suited for grafting in the urinary tract as it is easy to handle, compatible with a wet environment, and has a highly vascular lamina propria that facilitates imbibition and inosculation. Although buccal mucosa grafts are widely utilized in urethroplasties, their use in ureteroplasties is limited. We describe robotic ureteroplasty with buccal mucosa graft (RU-BMG) for the management of complex ureteral strictures not amenable to primary ureteroureterostomy.

Materials & Methods: We retrospectively reviewed 10 patients who underwent RU-BMG between September 2014 and March 2016. An omental wrap was performed concomitantly in all cases. Ureteral stents were removed 6 weeks postoperatively. On follow-up, patients were assessed for: clinical success, the absence of symptoms from ureteral pathology; and radiological success, the absence of ureteral obstruction on renal scan and serial ultrasounds.

Results: Six of 10 (60%) patients had proximal and 4/10 (40%) patients had mid ureteral strictures. Seven of 10 (70%) patients had previously undergone a failed ureteral reconstruction. All 10 patients underwent successful RU-BMG. The median length of stricture was 3 centimeters (range 2-5). The median operative time was 225 minutes (range 126-344) and estimated blood loss was 100 milliliters (range 50-200). There were no intraoperative complications. The median length of stay was 1.5 days (range 1-6 days). At a median follow-up of 5 months (range 1-19), all cases with follow-up > 6 weeks were clinically and radiologically successful.

Conclusions: RU-BMG is feasible and effective in managing complex proximal and mid ureteral strictures not amenable to primary ureteroureterostomy.

PD36

Anterior Urethral Stricture following Laser and Electrocautery Transurethral Prostatic Surgery

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Introduction: While anterior urethral stricture (AUSx) is a well-described risk of transurethral surgery, risk of AUSx after electrocautery (EP) vs. laser transurethral prostatic surgery (LP) has not been studied. We sought to compared rates of AUSx following EP and LP.

Materials & Methods: Claims data were used to identify 1) patients who underwent EP or LP for BPH at our institution (2008-2014) without a diagnosis of prostate cancer and 2) patients with a post-operative diagnosis of AUSx. Two-tailed t-test, Wilcoxon rank sum test, and chi-square tests were used for unadjusted analysis. Logistic regression with stepwise backward elimination produced a multivariate model, presented as odds ratios (OR) with 95% confidence intervals (CIs).

Results: The final cohort consisted of 585 men who underwent EP (n = 235) or LP (n = 350). Median follow-up days were 727 for EP and 493 for LP (p < 0.01). Pre-operative AUSx was present in 9 (4%) EP and 6 (2%) LP patients (p = 0.12). Post-operative AUSx was present in 16 (6.8%) of EP and 9 (2.6%) of LP patients (p = 0.02) with proximal bulbar/membranous urethra in 12 (48%), bulbar urethra in 7 (28%), meatus/fossa navicularis in 2 (8%) and not specified in 4 (16%). Adjusting for age and sheath size, LP was associated with a lower likelihood of AUSx (OR 0.34, 95% CI 0.12-0.98) in patients with no pre-operative AUSx.

Conclusions: In this modern single-institution cohort, LP was associated with a lower likelihood of post-operative AUSx than EP. This study demonstrates a novel advantage of LP over EP for BPH treatment.

PD37

One-stage Urethroplasty for Panurethral Stricture - the Washington Hospital Center Experience

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Introduction: Urethral stricture disease occurs most commonly in the bulbar urethra and treatment is fairly standardized. However, panurethral stricture (> 8 cm, or involving both bulbar and penile urethra) still presents a challenge, with a wide variety of approaches described. We review our experience using the Kulkarni technique, to access and repair the entire length of stricture in one-stage via perineal incision.

Materials & Methods: We retrospectively reviewed our urethral stricture database to identify patients with panurethral stricture disease treated with urethroplasty. We tabulated patient characteristics, peri-operative data and outcomes.

Results: Seventeen patients underwent single-stage full-length urethroplasty for panurethral stricture. Mean patient age was 55 years; mean stricture length was 13.6 cm, ranging from 8-20 cm; mean BMI was 28.7. Stricture etiology was idiopathic in 9 patients, Iatrogenic in 6, and Lichen Sclerosus in 2. All patients had undergone previous instrumentation for stricture disease; 1 patient had previous reconstruction using a scrotal flap. At a mean follow-up of 9.8 months, 4 patients had recurrence of stricture - a success rate of 76.5% . The recurrences were not full-length; 3 were meatal stenosis, 1 had a stenosis at the anastomotic junction of two oral mucosal grafts.

Conclusions: The one-stage urethroplasty described by Kulkarni is a reproducible and reliable option for managing long anterior urethral strictures. This small, early series appears to have success rates consistent with previously described series using this technique. In contrast to earlier series, lichen sclerosus was not a common etiology of panurethral stricture.

PD38

Day of Catheter Removal May Predict Cure Rates in Men Undergoing the Advance Sling for Post-Prostatectomy Incontinence at Extended Follow Up (≥ 24 Months)

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Introduction: The male urethral sling (MUS) is a minimally invasive procedure for managing post-prostatectomy incontinence (PPI) with excellent success. The optimal perioperative care of these patients is unknown. We investigated whether day of indwelling urinary catheter (IUC) removal was predictive of cure in those with ≥ 24 months of follow-up.

Materials & Methods: We performed a retrospective analysis of patients who underwent placement of the AdVance® MUS between 2008 and 2014 for PPI. Cure was defined as 0 pads per day (PPD).

Results: A total of 108 patients were available for analysis. Median follow-up was 29.8 months (IQR 19.5-42.6). Thirty-seven patients had sufficient follow-up (≥ 24 months) for inclusion in our analysis of cure rates (20 for POD#0, 17 for POD#1). IUC removal on POD#1 was associated with lower post-operative acute urinary retention (AUR) (3/17 (17.7%) vs. 11/20 (55%); p = 0.02), lower post-operative PPD (median 0 (IQR 0-1) vs. median 1 (IQR 0-1.5); p = 0.01), and improved cure rates (10/17 (58.8%) vs. 5/20 (26.3%); p = 0.048). In a multivariate analysis, only day of IUC removal (p = 0.04) and pre-operative PPD (p = 0.02) were predictors of cure.

Conclusions: IUC removal on POD#1 vs. POD#0 was associated with improvements in post-operative AUR and long-term cure rates in those undergoing the AdVance® MUS for PPI.

Table 1. Patient characteristics and outcomes based on day of IUC removal in patients with ≥24 months of follow-up

	Foley Day 0 (n=20)	Foley Day 1 (n=17)	P-value
Age (Years)	64.54 +/- 7.9	64.5 +/- 7.06	0.98
Prior Radiation	15% (3/20)	5.9% (1/17)	0.37
Prior PFMT	65% (13/20)	47.1% (8/17)	0.27
History of BNC	25% (5/20)	11.8% (2/17)	0.31
Clinical Urgency Pre-operatively	45% (9/20)	29.4% (5/17)	0.33
DO Pre-operatively	10% (3/20)	14.3% (1/17)	0.74
Pre-operative PPD	2 (IQR 1.5-3.5)	2.5 (IQR 1-3)	0.36
Post-operative PPD	1 (IQR 0-1.5)	0 (IQR 0-1)	**0.013**
AUR immediately Post-operatively	55% (11/20)	17.7% (3/17)	**0.020**
Cure Rates	26.3% (5/19)	58.8% (10/17)	**0.048**
Median follow-up (Months)	39.7 (IQR 33.5-49.0)	34.4 (IQR 27.9-47.3)	0.53

PD39

Effects of Adjuvant Radiotherapy on Survival of Patients with Upper Tract Urothelial Carcinoma

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Introduction: Upper tract urothelial carcinoma (UTUC) is an extremely rare urologic cancer with few formal studies in the literature. Large cancer databases such as the "Surveillance, Epidemiology, and End Results program" (SEER) are ideal for measuring the effectiveness of different treatment modalities in these rare cancers. The objective was to assess the effects of adjuvant radiotherapy (RT) on overall survival (OS) and cause-specific survival (CSS) in patients with locally and regionally advanced UTUC.

Materials & Methods: 6057 patients who underwent surgery for pathologically confirmed local or regional primary UTUC diagnosed between 1995 to 2012 were selected from the SEER database which covers 28% of the US population. Intervention: Patients were divided into two groups based on whether or not they received adjuvant RT (5840 and 217 respectively); then stratification was done based on disease extent into local and regional (2601 and 3456 respectively). Outcome Measurements and Statistical Analysis: Kaplan-Meier method and log-rank testing were used to calculate and compare survival rates. Cox proportional hazards models were used to adjust for potential confounding variables.

Results: OS and CSS for local disease at 5 years was 64.5% and 91.5% with surgery alone and 51.7% and 85.3% with adjuvant RT, respectively. OS and CSS for regional disease at 5 years was 42.6% and 80.7% with surgery alone and 31.3% and 66.9% with adjuvant RT, respectively. Adjuvant RT had a hazard ratio of 2.16 (p value < 0.0001). This study is inherently limited by its usage of non-randomized retrospective data.

Conclusions: In this nonrandomized population, adjuvant RT was used in a minority of patients with UTUC and was associated with a decrease in OS and CSS in both locally and regionally advanced disease.

PD40

Prognostic Implications of Renal Vein Involvement Versus Perinephric Fat Involvement in T3a Renal Cell Carcinoma

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Introduction: The TNM staging system is used globally as the standard for interpreting the extent of cancer. Currently, T3a renal cell carcinoma is classified as tumor extending into the perinephric fat or renal vein. Our hypothesis is that renal vein involvement portends a worse prognosis as compared to perinephric fat involvement.

Materials & Methods: Our data was gathered from the medical records of all patients who underwent radical or partial nephrectomy at our institution by a single group of urologists between 2000 and 2014. Overall and disease-free survival was compared among patients with renal vein involvement and perinephric fat involvement. Gender, smoking status, age at diagnosis, BMI, tumor grade, tumor size, and tumor histology were also analyzed.

Results: Of 140 patients, 42 patients were found to have renal vein involvement. Mean follow-up was 52.1 months (0.3-183.4) versus 28.8 months (0.3-98.0) for patients with perinephric fat involvement and renal vein involvement, respectively. Kaplan-Meier analysis using log rank comparison demonstrates lower overall survival (p < 0.048) and disease-free survival (p < 0.049) for patients with renal vein involvement.

Conclusions: In our study, patients with T3a renal cell carcinoma that have renal vein involvement as opposed to perinephric fat involvement have lower overall and disease-free survival. With this in mind, we propose that the TNM classification system should be amended to reflect the differences between these two very different disease states.

PD41

Evolution of Percutaneous Renal Mass Biopsy Techniques and Diagnostic Outcomes at Johns Hopkins Hospital

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Introduction: Renal masses are increasingly managed with observation or ablative techniques. In this setting, percutaneous fine-needle aspiration (FNA) and core biopsy (CB) may have a growing role. We sought to assess the diagnostic abilities of these techniques.

Materials & Methods: We reviewed pathology reports of renal mass biopsies performed over the last 10 years. Overall diagnostic rate (DR), as well as rates of RCC subtype and Fuhrman grade assignment were determined. Trends in the usage of FNA and CB over time were assessed.

Results: 328 biopsies were identified (100 FNA; 228 FNA+CB). DR was 81.4% overall (58% for FNA only; 91.7% for FNA+CB). For FNA+CB and FNA, samples were diagnosed as RCC, other cancers, and benign in 54.4%, 15.4% and 21.9%, and 21%, 17% and 20% of cases, respectively. RCC diagnoses included subtype in 86.3% of FNA+CB and 71.4% of FNA, and Fuhrman grades in 56.8% and 10%, respectively. Dividing all cases into tertiles by date of biopsy, the earliest, middle, and latest tertile used FNA+CB 44%, 80.7%, and 83.6% of the time, respectively. DR also increased by tertile: 75.2%, 84.4% and 84.5%, respectively, as did the rate of reported Fuhrman grade (11.8%, 62.7% and 61.7%) and RCC subtype (58.8%, 92.2% and 91.7%).

Conclusions: FNA+CB (vs. FNA alone), had higher DR and reporting rates of RCC subtype and Fuhrman grade. Throughout the study period, FNA was increasingly combined with CB; this was associated with an increase in DR as well as reporting of RCC subtype and Fuhrman grade.

PD43

Genitourinary Paragangliomas: An Analysis of Seer 18 (2000-2012)

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Introduction: Extra-adrenal paragangliomas (PGL) are infrequent, benign, neuroendocrine tumors arising from chromaffin cells of the autonomic nervous system. While most develop within the head, neck, and trunk, they have rarely been reported in the genitourinary (GU) tract. Due to the paucity of literature on the rates of GU paraganglioma, our study aims to describe demographic, pathologic, and clinical characteristics of GU PGL and compare them to non-GU sites of PGL.

Materials & Methods: Population based information on PGL from SEER 18 was used to compare data on GU and non-GU PGL diagnosed from 2000 through 2012. Descriptive analysis was performed.

Results: Of the 299 cases of PGL retrieved, 20 (6.7%) arose from the GU tract. GU PGL were less common in whites compared to PGL at other sites (p=0.034). As expected, most GU PGLs (83.3%) were located in the bladder. Only 50% of GU PGLs were organ confined at the time of presentation. There were 2 (10%) cause-specific deaths in GU PGL group. All PGLs were treated with surgery. Non-GU PGL tumors arose mostly within the endocrine system, and resulted in deaths in 24% of patients.

Conclusions: GU PGL represents around 7% of all PGL cases, and is found less commonly in whites compared to non-GU PGL. Bladder represents the most common site of involvement. Surgery is the mainstay of treatment of GU PGLs.

	GU PGL	Non-GU PGL
DEMOGRAPHIC		
N	20 (6.7%)	279 (93.3%)
Gender		
Male	13 (65%)	152(54.5%)
Female	7 (35%)	127 (45.5%)
Age at Diagnosis		
0-29	4 (20%)	39 (14%)
30-59	14 (70%)	163 (58.4%)
60-85+	2 (10%)	77 (27.6%)
Race*		
White	11 (55%)	213 (76.3%)
Black	5 (25%)	45 (16.1%)
American Indian/Alaskan Native	1 (5%)	1 (0.4%)
Asian/Pacific Islander	3 (15%)	17 (6.1%)
Unknown	-	3 (1.1%)
Radiation		
Performed	-	105 (37.6%)
Unknown	-	8 (2.9%)
None	20 (100%)	166 (59.5%)
Surgery	20 (100%)	279 (100%)
Lymph Node Dissection		
Number of Regional LNs Removed Unknown	1 (5%)	8 (2.9%)
1-3 LNs Removed	2 (10%)	28 (10%)
4+ LNs Removed	3 (15%)	39 (14%)
Unknown	-	41 (14.7%)
None	12 (60%)	42 (15.1%)
Death Due to PGL	2 (10%)	67 (24%)
PATHOLOGICAL		
Stage		
Local	10 (50%)	16 (5.7%)
Regional	5 (25%)	27 (9.7%)
Distant	-	25 (9%)
Unknown/Unstaged	3 (15%)	4 (1.4%)
Missing	2 (10%)	207 (74.2%)
Location		
Oral Cavity & Pharynx	-	4 (1.4%)
Digestive System	-	57 (20.4%)
Respiratory System	-	18 (6.5%)
Bone & Joints	-	3 (1.1%)
Soft Tissue including Heart	-	42 (15.1%)
Female Genital System	-	1 (0.4%)
Male Genital System	2(10%)	-

PD42

Evaluation of the ACS NSQIP Surgical Risk Calculator in Patients Undergoing Radical Nephroureterectomy for Upper Tract Urothelial Carcinoma

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Introduction: The National Surgical Quality Improvement Project (NSQIP) Surgical Risk Calculator is a tool created by the American College of Surgeons (ACS) to estimate risk-adjusted perioperative outcomes for commonly performed surgical procedures. Our objective was to evaluate the accuracy of the Surgical Risk Calculator in patients who underwent radical nephroureterectomy (RNU) for upper tract urothelial carcinoma (UTUC).

Materials & Methods: A prospectively maintained, institutional database was queried for all patients undergoing RNU for UTUC from 2002-2015. For each patient, 22 designated preoperative risk factors were entered into the NSQIP calculator to obtain estimates of 30 day perioperative mortality and post-operative complications. We calculated the difference between mean predicted risk and the observed rate of surgical outcomes in our cohort.

Results: 112 patients undergoing RNU for UTUC were included for analysis. Comparing observed to expected events, the NSQIP calculator significantly underestimated the risks of severe complications ($p < 0.001$), overall complications ($p < 0.001$), pneumonia ($p < 0.001$), cardiac events ($p < 0.001$), infections ($p < 0.001$), urinary tract infections ($p < 0.001$), return to OR ($p < 0.001$), and length of stay [LOS] ($p < 0.001$). Contrarily, the NSQIP calculator significantly overestimated the risk of venous thromboembolism [VTE] ($p < 0.001$) and death ($p = 0.001$).

Variable	Mean Predicted Risk %	Observed %	Predicted – Observed %	[95% CI]	P-value
Severe complications	12.0	19.6	ˉ7.6	[ˉ6.6 - ˉ8.6]	<0.001
Complications	16.8	43.8	ˉ27.0	[ˉ25.8 - ˉ28.2]	<0.001
PNA	2.1	3.6	ˉ1.5	[ˉ1.2 - ˉ1.8]	<0.001
Cardiac	1.7	4.5	ˉ2.8	[ˉ2.5 - ˉ3.1]	<0.001
Infection	1.9	4.5	ˉ2.6	[ˉ2.4 - ˉ2.7]	<0.001
UTI	4.1	5.4	ˉ1.3	[ˉ0.9 - ˉ1.6]	<0.001
Return to OR	3.0	6.3	-3.3	[ˉ3.1 - ˉ3.4]	<0.001
LOS (days)	4.1	5.2	ˉ1.1	[ˉ0.9 - ˉ1.3]	<0.001
VTE	1.5	0.9	+0.6	[+0.5 - +0.8]	<0.001
Death	2.6	0.9	+1.7	[+0.6 - +2.7]	0.001
ARF	3.4	3.6	ˉ0.2	[-0.4 - +0.7]	0.633

Conclusions: Patients undergoing RNU for UTUC had significant differences in several observed versus expected perioperative outcomes estimated with the ACS NSQIP Surgical Risk Calculator. All factors showed a significant ($p < 0.05$) underestimation by NSQIP except for ARF, VTE, and death.

PD44

Lymphadenectomy at the Time of Radical Nephroureterectomy for Upper Tract Urothelial Cancer Does Not Adversely Impact Perioperative Surgical Outcomes

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Introduction: Radical nephroureterectomy (RNU) is the referent standard for management of non-metastatic upper tract urothelial cancer (UTUC). The impact of lymph node dissection (LND) on operative morbidity of RNU is incompletely defined. We investigate perioperative outcomes associated with lymphadenectomy during RNU for UTUC.

Materials & Methods: A retrospective review identified 103 individuals who underwent a RNU for UTUC from 2002-2015. Wilcoxon Rank Sum Test and Chi-Square test were used to compare variables for patients with and without a lymphadenectomy. Within the lymphadenectomy cohort, the median number of lymph nodes removed was calculated to dichotomize this subset.

Results: Of the 103 patients who underwent RNU, 48 (47%) had a lymphadenectomy performed. Comparing the two groups (LND vs. no LND), there were no differences in estimated blood loss, operative time, length of hospital stay, comprehensive complication index (CCI), and total complications. (Table) Among the 48 patients that had lymphadenectomy performed, the median number of lymph nodes removed was 5.5. When dichotomizing by the median number of lymph nodes, there were no differences in estimated blood loss, operative time, or length of hospital stay. Additionally, CCI and total complications were found unexpectedly to be greater in the group with fewer lymph nodes removed.

Conclusions: In this RNU cohort, lymphadenectomy (and extent of dissection) was not associated with adverse perioperative outcomes.

Overall Cohort (n=103 patients)			
	No Lymphadenectomy, (55 pts)	Lymphadenectomy, (48 pts)	
Outcome	Median (Q1, Q3)	Median (Q1, Q3)	P-value*
EBL (cc)	200.0 (100.0, 375.0)	150.0 (100.0, 300.0)	0.1
OR duration (min)	324.5 (278.0, 376.0)	314.0 (279.0, 361.0)	0.93
Length of stay (days)	4.0 (3.0, 7.0)	4.0 (3.0, 6.0)	0.91
[1]CCI	0.0 (0.0, 20.9)	0.0 (0.0, 20.9)	0.75
Total complications	0.0 (0.0, 1.0)	0.0 (0.0, 1.0)	0.64
LND only Cohort (n=48 patients)			
	≤5.5 Nodes Removed, (24 pts)	>5.5 Nodes Removed, (24 pts)	
Outcome	Median (Q1, Q3)	Median (Q1, Q3)	P-value*
EBL (cc)	100.0 (75.0, 225.0)	150.0 (100.0, 300.0)	0.14
OR duration (min)	309.0 (270.0, 344.0)	341.0 (279.0, 389.0)	0.17
Length of stay (days)	5.0 (3.0, 6.0)	4.0 (4.0, 6.0)	0.95
[1]CCI	12.2 (0.0, 22.6)	0.0 (0.0, 8.7)	0.01
Total complications	1.0 (0.0, 1.0)	0.0 (0.0, 1.0)	0.03

* Wilcoxon Rank Sum test; [1]Comprehensive Comorbidity Index

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PD45

Application of Active Surveillance Threshold to Series of Samples Submitted for Commercial Testing

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Introduction: Active surveillance (AS) is an increasingly popular treatment modality for men with localized prostate cancer. A method to select men for AS has recently been developed based on the cell cycle progression (CCP) combined with CAPRA (combined clinical CCP risk (CCR) score). Here we apply the validated AS threshold to a series of samples submitted for commercial testing.

Materials & Methods: FFPE prostate biopsy samples and clinicopathological data from 7881 patients were submitted by their physicians for CCP analysis. The CCP score was calculated based on RNA expression of 46 genes and combined with CAPRA to generate the CCR score. The clinicopathological data of patients with a CCR score meeting the AS threshold were analyzed. The patients submitted for testing from Urology Health Specialists (UHS) were assessed separately (n = 75).

Results: 55/75 (73.3%) patients from UHS qualified for AS based on their CCR score, which is more than the remaining testing cohort (4703/7806, 60.2%) (p = 0.022) (Table 1). Notably, 32.7% of UHS patients and 46.7% of the remaining testing cohort would not have qualified for AS based on their clinical characteristics alone.

Table 1. Patients Qualifying for AS by CCR Score

		UHS Patients (N = 55)	All Other Patients (N = 4703)	p-value
Age at Diagnosis (yr)	n	55	4703	p = 0.906
	mean ± sd	65.1 ± 7.48	64.9 ± 7.92	
PSA (ng/mL)	0-4	12 (21.8%)	1139 (24.2%)	p = 0.717
	4.01-10	42 (76.4%)	3352 (71.3%)	
	> 10	1 (1.8%)	212 (4.5%)	
Positive Cores (%)	n	55	4703	p < 0.001
	mean ± sd	17.4 ± 10.75	22.8 ± 15.65	
Gleason Score	4	0	1 (< 0.1%)	Undefined
	5	0	10 (0.2%)	
	6	40 (72.7%)	3503 (74.5%)	
	3+4=7	14 (25.5%)	1162 (24.7%)	
	4+3=7	1 (1.8%)	19 (0.4%)	
	8	0	6 (0.1%)	
	9	0	2 (< 0.1%)	
Clinical Stage	T1a	2 (3.6%)	127 (2.7%)	Undefined
	T1b	0	37 (0.8%)	
	T1c	43 (78.2%)	3766 (80.1%)	
	T2a	8 (14.5%)	512 (10.9%)	
	T2b	2 (3.6%)	168 (3.6%)	
	T2c	0	93 (2.0%)	
AUA Risk Classification	Low Risk	38 (69.1%)	3170 (67.4%)	0.805
	Intermediate Risk	17 (30.9%)	1425 (30.3%)	
	High Risk	0	108 (2.3%)	

p-values could not be computed for variables with several levels and counts of zero for some of the levels.

Conclusions: We show that 73.3% of commercially tested patients from UHS qualified for AS, many of whom would not have qualified for AS based on their clinicopathological characteristics. For patients considering deferred treatment, the CCR score provides significant prognostic information at disease diagnosis.

PD46

Identification of Surgical Complications in Partial and Radical Nephrectomies: Assessment of the Traditional Surgical Morbidity and Mortality Conference and a Manual Chart Review Compared with the National Surgical Quality Improvement Program

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Introduction: Traditionally, surgical departments have tracked perioperative complications through Morbidity and Mortality (M&M) conferences or by Manual Chart Review (MCR), however more hospitals are moving towards utilizing a national database for this purpose. We compared the detection rate of perioperative complications for partial and radical nephrectomies reported in M&M and MCR to the National Surgical Quality Improvement Program (NSQIP).

Materials & Methods: We performed a retrospective MCR on all patients who underwent partial/radical nephrectomies from 4/2014-7/2015 in our IRB approved institutional database. The self-reported departmental M&M database was queried for partial/radical nephrectomies. We then determined the sensitivity of M&M and MCR compared to NSQIP for the identification of perioperative complications.

Results: 142 patients met the inclusion criteria. 128 received partial nephrectomies (90%) and 14 received radical nephrectomies (10%). From 128 partial nephrectomies, NSQIP reported 29 complications (19 patients), M&M revealed 12 complications (12 patients), and MCR detected 16 complications (16 patients). From 14 radical nephrectomies, NSQIP reported 4 complications (4 patients), M&M revealed 1 complication (1 patient) and MCR detected 3 complications (3 patients).

Conclusions: Compared with NSQIP, M&M and MCR have lower sensitivities for the detection of perioperative complications in our cohort. Complications arising from radical nephrectomies were more likely to be identified than partial nephrectomies irrespective of M&M or MCR. NSQIP may become a primary tool for urologic departments to learn from their performance.

The Event-Level and Patient-Level Sensitivity of M&M and MCR Compared to NSQIP

	Partial		Radical	
	Events	Patients	Events	Patients
M&M vs. NSQIP	41.4% (12/29)	63.2% (12/19)	25% (1/4)	25% (1/4)
MCR vs. NSQIP	55.2% (16/29)	84.2% (16/19)	75% (3/4)	75% (3/4)

PD47

The DiRECT: Use of a Novel Instrument to Teach the Digital Rectal Exam and Assess Proficiency in 2nd Year Medical Students

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Introduction: Digital rectal exams (DREs) are a well-known area of deficiency among medical students. We created the Digital Rectal Exam Clinical Tool (DiRECT) using a partial credit model to teach and assess trainees in the DRE. In order to evaluate construct validity, we administered the instrument to a urologist and second-year medical students and compared responses.

Materials & Methods: Six standardized patients consented to paired DREs by an attending urologist and second-year medical students who completed the DiRECT instrument. Each student examined only one standardized patient. The instrument was scored allowing for partial credit. The discrepancy between the urologist (expert) and student (novice) was calculated for each domain. Overall scores were grouped by pathologic findings and compared using a t-test.

Results: 137 students performed DREs along with the urologist. Table 1 shows the variability by domain for the six standardized patients. Symmetry, texture, and size had the most disparate results. On three of the six patients, the urologist noted a pathological finding. The mean student score on the DiRECT in patients with pathology was 74.1%, in comparison with 88.9% in those without pathology (p < 0.01).

	No Pathology			Pathology		
Domain	% with response differing from expert					
Palpable	10.5%	21.1%	33.3%	4.3%	18.5%	27.3%
Symmetric	0.0%	5.3%	14.8%	95.7%	81.5%	4.5%
Borders Palpable	31.6%	10.5%	7.4%	8.7%	29.6%	15.8%
Texture	10.5%	5.3%	3.7%	100.0%	18.5%	100.0%
Size	36.8%	10.5%	70.4%	73.9%	33.3%	45.5%
Nodule	5.3%	0.0%	0.0%	4.3%	11.1%	0.0%
Sphincter Tone	15.8%	0.0%	0.0%	13.0%	100.0%	4.5%
Hemorrhoids	0.0%	0.0%	3.7%	0.0%	81.5%	0.0%
Rectal Mass	0.0%	0.0%	0.0%	0.0%	0.0%	4.5%

Conclusions: The DiRECT instrument was able to discern greater differences in scores between the novice and expert when the expert identified pathology. Although more work is needed, preliminary evidence suggests that the DiRECT is an effective tool to discern proficiency on the DRE.

PD48

Cognitive Freehand Transperineal Prostate Biopsy

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Introduction: Interest in transperineal prostate biopsy (TPPB) due to decreased infection risk and improved cancer detection rates, and concurrently, interest in the use of prostate MRI for prostate cancer (PCa) diagnosis and surveillance (AS) has prompted increased research in the field. Currently, there is no widely available fusion platform for freehand TPPB. Platforms and stepper units increase cost and procedural time.

Materials & Methods: Retrospective review of FTPB procedures between January 1, 2012 and April 30, 2014 who underwent prostate MRI prior to biopsy. MRIs were obtained at a rural community radiology practice, utilizing a Philips Ingenia 3.0T HD MRI magnet, that provided target lesion location information without formal scoring.

Results: Patient, procedural and outcome data were assessed (table 1). 20 lesions were identified on 27 prostate MRIs. 27 cognitive TPUS biopsies were performed, in conjunction with the standard "12-core" biopsy. Overall cancer detection rate was 81.5% with MRI correlation of 18/20 (86%). New diagnoses of prostate cancer occurred in 10 patients with 6 positive after previous negative transrectal biopsy. No complications, Clavien grade ≥ 2 occurred.

Conclusions: Cognitive FTPB, for suspicion or AS of PCa, is feasible, effective and safe. Further studies to evaluate long-term effectiveness are recommended.

Tables:
Table 1: Patient and Procedural Results

	N(%) or Mean ±STD
Patient	
Total	27
Age (yrs)	67.2 ±7.4
BMI	29.9 ±5.4
Prostate Size (cm^3)	41.4 ±17.4
PSA (ng/dL)	11.4 ±6.4
FamHx	2 (7.4)
Abnormal DRE	4 (15)
Active Surveillance	14 (52)
Previous Biopsy	20 (74)
Procedure	
Total Procedures	27
Procedure time (min)	9.0 ±3.8
Number of cores	16.3 ±4.3
Time per core (seconds)	33
Positive for Ca	22 (81.5)
New Diagnosis	10
MRI Target Lesions	20
MRI Correlation	18 (90)

N: Number
STD: Standard Deviation
Ca: Cancer
BMI: Body Mass Index
PSA: Prostate Specific Antigen
FamHx: Family History
DRE: Digital Rectal Exam
MRI: Magnetic Resonance Imaging

PD49

Role of the 17-gene Genomic Prostate Score (GPS) Assay in Treatment Decisions in Men with Newly Diagnosed Clinically Low Risk Prostate Cancer (PCa): Early Experience from a Large Prospective Study in Community Urology Practices

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Introduction: The GPS Assay is a validated, biopsy-based gene expression assay that provides an individualized estimation of the likelihood of favorable pathology at the time of surgery. Herein we report patient and physician perceived value of the GPS and its impact on patients' decisional conflict in men with newly diagnosed low risk PCa.

Materials & Methods: PCa patients with NCCN® very low (VL), low (L), or intermediate (Int) risk received GPS in a prospective observational study. The first 298 study patients with evaluable GPS were included in this analysis. Urologists reported on perceived utility of the test and changes in confidence in treatment plan following discussion of the test results. Patients reported perceived utility of the test and completed the Decisional Conflict Scale (DCS, 0-100) before and after receiving the results. Low decisional conflict was defined as DCS < 25.

Results: Patients were enrolled from 22 community sites in US with 26% NCCN VL, 44% L and 30% Int. Physicians found the GPS useful in 91% of cases; in 93% of cases GPS increased confidence in treatment recommendations. 96% of patients found GPS useful in decision makings. Lower DCS was observed after GPS across all NCCN risk groups (pre- and post-GPS 29 and 16, respectively). Low DCS was reported by 60% of men after GPS compared to 36% before GPS.

Conclusions: For newly diagnosed patients with low risk PCa, the GPS assay can play a useful role in improving physician confidence in treatment recommendations and reducing decision conflict for patients.

PD50

Regional Variation In Prostate MRI Utilization: Results from the Michigan (MUSIC) and Pennsylvania (PURC) Urologic Collaboratives

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Introduction: Multi-parametric MRI (mpMRI) is being rapidly adapted in various clinical settings of prostate cancer (CaP) care. We evaluate regional variation in mpMRI utilization across Michigan Urological Surgery Improvement Collaborative (MUSIC) and Pennsylvania Urologic Regional Collaborative (PURC).

Materials & Methods: MRI utilization surveys were distributed electronically to urologists participating in MUSIC and PURC. Descriptive statistics were performed and notable trends reported.

Results: MRI utilization surveys were distributed to 50 MUSIC and 50 PURC participants on 1/2015 and 10/2015. Overall response rate was 58%, with 70% reporting MRI utilization for diagnosis/management of CaP, including 37% in MUSIC (10/28) and 100% in PURC (30/30), (p < .0001). Endorectal coil utilization was 56% (20% of MUSIC and 69% of PURC urologists, p = 0.025). Respondents reported mpMRI magnet power as 3.0Tesla (55%), 1.5Tesla (20%), or unknown (25%). When ordering MRI for staging, 74% indicated use in lieu of CT. Respondents estimated MRI use in 26% of patients with newly diagnosed CaP and 38% on active surveillance. Information of greatest interest to providers from mpMRI was determination of extraprostatic disease (38%), detection of high Gleason score lesions (35%), and staging information (15%). PURC had greater use of PI-RADS (63% vs.10%: MUSIC), while prostate lesions were more commonly characterized descriptively in MUSIC (80% vs. PURC: 23%, p = 0.002). Most common reasons for not utilizing MRI technology are described (Table).

Conclusions: Significant regional variation in indications, utilization, and reporting of mpMRI results is recognized across participants and between regional collaboratives with higher utilization among Pennsylvania urologists.

Table. Reasons indicated by 18 MUSIC urologists for not using mpMRI for the diagnosis or management of prostate cancer

Uncertain of the literature / data	50% (n = 9)
Too expensive	39% (n = 7)
MRI equipment not available	33% (n = 6)
Specially-trained radiologist not available	28% (n = 5)
Uncomfortable with accuracy of reports	22% (n = 4)
Difficulty with reimbursement	22% (n = 4)
Other	11% (n = 2)

PD51

Effect of Individualized Antibiotic Prophylaxis on Rate of Infection due to Prostate Needle Biopsy

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Introduction: Transrectal prostate needle biopsy (TPNB) carries a high risk of post-operative infection that is rising yearly, with antibiotic resistance of rectal bacteria a major contributing factor to this trend. To minimize infection due to TPNB, a course of two broad-spectrum oral antibiotics and one injectable antibiotic was adopted practice-wide as standard pre-procedure prophylaxis. While this strategy maintained historically low infection rates, over-use of antibiotics can adversely affect patients' health and promote growth of antibiotic-resistant organisms. In the interest of antibiotic stewardship, a policy of rectal swabbing and targeted prophylaxis based on individual resistance profile was implemented in April 2015. The effect of these changes on practice infection rates will help determine future prophylaxis protocols.

Materials and Methods: The data used for this report were gathered from electronic medical records, including rectal swab results and antibiotics used. Data were self-reported by practice physicians. Infection is defined as any adverse event requiring physician attendance, such as fever, hospitalization, or sepsis.

Results:

Results of Data from April 2015-March 2016 TPNB Cases

	Aggregate Values
Total Number of Patients Biopsied	268
Total Number of Patients Swabbed	228
Total Percentage of Patients Swabbed	**85.07%**
Total Number of Resistant Patients	60
Percentage of Resistant, Swabbed Patients	**26.32%**
Total Number of Patients Given PO Only	184
Total Percentage of Pts Given PO Only	**68.66%**
Total Number of Patients Given IM/IV	84
Total Percentage of Patients Given IM/IV	**31.34%**
Total Number of Infections	4
Total Percentage of Patients Infected	**1.49%**
Percentage of Infections April 2014-April 2015	**< 1%**

Conclusions: The results indicate that individualized antibiotic prophylaxis based on rectal bacterial culture findings may be an effective strategy to reduce antibiotic usage while maintaining a historically low infection rate. These data will be used to guide future practice protocols, and to contribute to the growing body of research concerning antibiotic prophylaxis for TPNB.

PD52

Analysis of PI-RADS Scoring on Predicting Prostate Cancer Grade using MRI-Fusion Targeted Biopsy

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Introduction: The Prostate Imaging-Reporting and Data System (PI-RADS) scale is utilized to quantify the suspicion level for a given lesion seen on multi-parametric magnetic resonance imaging (mpMRI). This modality has previously been shown to be capable of detecting clinically significant prostate cancer (sPCa), however its ability to determine prostate cancer (PCa) grade remains unclear. Using MRI-fusion targeted biopsy, we explored the ability of the PI-RADS scoring system to predict PCa grade.

Materials & Methods: We performed a retrospective study of 208 men (243 total PI-RADS lesions) who had MRI fusion-targeted biopsy using the UroNav™ system at our institution from Nov 2014 to March 2016. We assessed the ability of the PI-RADS score to predict Gleason grade using cumulative logistic regression analysis.

Results: Overall, PI-RADS scoring correlated with Gleason scores. The greater the PI-RADS score, the more likely sPCa was diagnosed. PI-RADS 5 lesions predicted a higher grade of PCa when compared to both PI-RADS 3 (p = 0.001) and PI-RADS 4 (p = 0.004). PI-RADS 4 scores similarly predicted a higher PCa grade than PI-RADS 3 (p=0.001). High grade PCa (Gleason ≥ 4+3, or Prognostic Category ≥ 3) was always associated with PI-RADS scores > 3.

Conclusion: PI-RADS scores (3-5) correlate with Gleason grade.

P25

BMI Does Not Impact Quality of Life Outcomes After Robotic Prostatectomy

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Introduction: Prior studies of body mass index (BMI) and quality of life after robotic-assisted laparoscopic radical prostatectomy (RALP) demonstrate mixed results. We hypothesized that men with BMI 25 or greater have poor recovery of urinary and sexual function.

Materials & Methods: We reviewed pre- and postoperative surveys from all men who underwent RALP (2004-2014). Surveys included: Sexual Health Inventory for Men (SHIM), Urinary Behavior, Leakage, and Incontinence Impact Questionnaire (IIQ). A repeated measures analysis with autoregressive covariance structure was employed with linear splines with 2 knots for the time factor. We fit unadjusted and adjusted models and stratified by BMI (under/normal weight, overweight, and obese). Adjusted models included age, race, smoking status, diabetes, operation length, PSA, pathologic stage, and nerve-sparing status.

Results: The cohort consisted of 712 men with mean age of 59 years. Most men were overweight (42%) and obese (41%). Under- and normal weight comprised 14% and 3% were missing. There were no significant differences by BMI category in baseline responses to all 4 surveys. All quality of life indicators demonstrated initial steep decline to 3 months after surgery followed by slow improvement over time. When stratified by BMI category, there were no significant differences in adjusted urinary or sexual function recovery trajectory.

Conclusions: There are no significant differences in quality of life recovery trajectory by BMI category after RALP. These results may inform perioperative counseling of overweight and obese men considering RALP for clinically localized prostate cancer.

P26

Clinical Behavior of Renal Cell Carcinoma Upstaged from T1 to T3a Due to Perinephric or Sinus Fat Invasion is Predicted by Preoperative Clinical Stage

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Introduction: Most incidentally discovered renal cell carcinoma are small and clinical stage T1. The 2010 AJCC staging system groups tumors with sinus fat, renal vein, and perinephric fat invasion into stage T3a regardless of size. Therefore, some patients experience postoperative upstaging due to tumor characteristics that cannot be reliably identified preoperatively. Based on clinical experience, many tumors upstaged due to perinephric or sinus fat invasion behave clinically like T1 tumors.

Materials & Methods: We reviewed the records of patients presenting to our center between 1/1/2006 and 6/1/2015 for partial nephrectomy of T1a or T1b renal masses. Final pathology, criteria for upstaging, follow-up, and evidence of recurrent disease was recorded.

Results: 250 patients underwent partial nephrectomy for T1a or T1b lesions. 11 patients had recurrent RCC during the average 23.7 month follow-up. 20 patients were upstaged to T3a, 13 due to perinephric or sinus fat invasion alone. 4 recurrences occurred in the upstaged group, only 1 of which was upstaged due to fat invasion alone. Patients with RCC upstaged to T3a had significantly more recurrences than those without upstaging. However, patients with T3a RCC due to fat invasion alone did not have significantly more recurrences relative to those without upstaging.

Conclusions: Patients with T1a or T1b RCC upstaged to T3a due to perinephric or sinus fat invasion alone have recurrent disease at a rate more similar to their clinical than their pathologic stage. Further investigation into the clinical course of patients with T3a RCC is required to validate the current staging system.

P27

Clinical Features and Outcomes of Tunica Vaginalis Mesothelioma: A Case Series from the National Institute of Health

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Introduction: Malignant mesothelioma of the tunica vaginalis is extremely rare, representing 0.3% to 5% of all malignant mesotheliomas. The disease has been linked to asbestos exposure and historically has poor prognosis even with aggressive surgical procedure.

Materials and Methods: Six patients from 2003 to 2014 with urogenital mesothelioma were identified from the NIH database. These charts were retrospectively reviewed and clinical features, surgical and pathological history, and follow up data were collected.

Results: Six patients with urogenital mesothelioma, average age at diagnosis 57.3 years. None of the patients had confirmed asbestos exposure. Three patients presented with hydrocele, one with scrotal mass, one with inguinal mass, one with spermatocele. Radical orchiectomy was performed in all patients and three received subsequent radiation. All patients were followed up with periodic imaging to assess recurrence. Five patients did not have recurrence, one had recurrence 12 months after surgical treatment.

Conclusions: Previous reported cases have shown poor prognosis despite aggressive surgery and adjuvant therapies. However, 5 of the 6 patients had no evidence of recurrence. This may suggest that prognosis of the disease may be affected by early diagnosis and treatment. Post treatment surveillance is imperative and should include imaging routinely within the first 2 years. Interestingly none of our patients had confirmed asbestos exposure thus negative screening history cannot rule this diagnosis out.

Table 1: Patient characteristics, treatment, and outcomes

Patient	Age	Age at Diagnosis	Most Recent Follow Up	Presenting symptom	Radical Inguinal Orchiectomy (y/n)	RPLND (y/n)	Adjuvant Therapy (y/n)	Recurrence (y/n)
1	74 yrs	70 yrs (11/2011)	12/14/2011	Left hydrocele	Y	N	Y	N
2	67 yrs	64 yrs (9/2012)	1/13/2016	Left scrotal mass	Y	N	N	N
3	58 yrs	51 yrs (6/2008)	11/20/2013	Right spermatocele	Y	N	Y	N
4	43 yrs	40 yrs (5/2012)	7/13/2013	Right inguinal mass	Y	Y	N	Y, recurrence 1 yr after surgery
5	47 yrs	35 yrs (12/2003)	9/03/2014	Right hydrocele	Y	N	Y	N
6	85 yrs	84 yrs (10/2014)	9/16/2015	Right hydrocele	Y	N	N	N

P28

Comparison of Transrectal Ultrasonography and Computed Tomography in Prostate Volume Estimation

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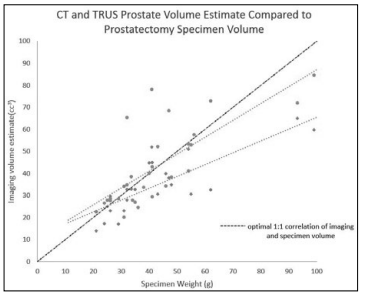
Introduction: Prostate volume can be estimated by transrectal ultrasonography (TRUS) or computed tomography (CT) measurements. We compared prostate volumes calculated by TRUS and CT to prostate specimen weight after radical prostatectomy to determine which modality is more accurate in pre-operatively assessing prostate volume.

Materials & Methods: We identified patients in our institutional database who underwent radical prostatectomy and had a CT scan within 1 year of surgery date. For each patient, we determined TRUS volumes using the ellipsoid formula (L*W*H *π /6). CT volumes were calculated using the ellipsoid formula and the bullet formula (L*W*H*5π/24). The volume assessments were correlated with prostate specimen weight after radical prostatectomy.

Results: 32 patients were included in the analysis. The figure shows TRUS and CT volume vs. specimen weight. On average TRUS volume differed from specimen weight by 21%. Using the ellipsoid formula, CT volume differed from specimen weight by an average of 21%, compared to 33.8% using the bullet formula. TRUS underestimated prostate volume 77.3% of the time, CT underestimated 48.3% of the time.

Conclusion: Error in predicting prostate volume was similar using TRUS (21%) or CT with ellipsoid formula approximation (21%). TRUS more often underestimated prostate volume. These findings have implications for surgical planning in both benign and malignant prostate disease.



P29

Compliance with Active Surveillance for Low-Risk Prostate Cancer in the Indigent, Urban Population

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Introduction: Active surveillance (AS) is an effective modality for managing low-risk prostate cancer. Men in indigent patient populations are less compliant with healthcare protocols. These populations are often African American (AA), with an increased risk of advanced disease. We assessed compliance with AS in our population of urban, indigent patients.

Materials & Methods: We analyzed a prospective database of men enrolled in AS from 2013-2015. Our protocol includes office visits every 120 days and repeat biopsy within 365 days. Strict compliance with was defined as attending two follow-up visits within 10 months of diagnosis and undergoing repeat biopsy within 14 months. Loose compliance was one follow-up visit within 6 months and biopsy within 14 months. Factors associated with compliance were assessed using chi-square analysis.

Results: 37 patients met inclusion criteria, including 27 AA men (82%). Median time on AS was 332 days (range 119-805). For patients with adequate follow-up, the compliance rate with the initial follow-up visit (within 6 months) was 80%, and compliance with at least two follow-up visits (within 10 months) was 50%. The rate of compliance with biopsy was 67%, with a median time to biopsy of 382 days. 20% of patients were "strictly compliant", while 40% were "loosely compliant." No significant associations were observed between patient age, race, or insurance status and compliance measures.

Conclusions: In an indigent, urban patient population, compliance with AS follow-up visits and surveillance biopsies was moderate. Improved patient education and additional ancillary support may help to improve compliance in this population.

P30

Concomitant Use of Glucocorticoids in Patients with Metastatic Castration Resistant Prostate Cancer (mCRPC) Treated with Oral Therapies

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Introduction: Glucocorticoids (GCs) are commonly used to offset the toxicities of chemotherapy and hormonal therapy in mCRPC patients. This study aims to assess whether there was an association between concomitant GC usage and dose reduction in mCRPC patients treated with oral therapies (i.e., abiraterone acetate [AA] or enzalutamide [ENZ]).

Material & Methods: The MarketScan® databases were used to identify mCRPC patients who were initiated on AA or ENZ (index date) between 10/2012 and 12/2014, eligible during a 6-month pre-index baseline, and with a PC diagnosis during the study period. Patients were followed up to 12 months during which dose reduction was measured using relative dose intensity (RDI) at two thresholds (i.e., RDI < 85%, < 80%). Multivariate Cox proportional hazards models were used to assess association between concomitant GC usage and risk of dose reduction in oral PC therapies.

Results: The study population included 2,591 and 807 patients initiated on AA or ENZ, respectively. During follow-up, GCs were used in 91% of AA patients and 32% of ENZ patients. Cox models showed that use of GC was associated with a lower risk of dose reduction (hazard ratio [HR] = 0.49, 0.39, 0.50 for RDI < 0.85 in all, AA and ENZ patients, respectively; and 0.44, 0.33, and 0.54 for RDI < 0.8; all $p < 0.01$).

Conclusions: GC usage was associated with a lower risk of dose reduction in oral mCRPC therapies for patients initiated on AA or ENZ. Additional research is needed to understand this protective effect of GC usage on oral mCRPC therapy dose reduction.

P31

Contemporary Analysis of Prostate Cancer Screening by Primary Care Practitioners Before and After the USPSTF 2012 Guidelines

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Introduction: In 2012, concern over the harms of over-diagnosis and over-treatment of low risk prostate cancer (CaP) led the United States Preventative Services Task Force (USPSTF) to release updated guidelines regarding prostate cancer screening (PCS). We sought to assess the effects of these guidelines on practice patterns among primary care practitioners (PCPs).

Materials & Methods: A self-administered survey, was distributed to the Internal and Family Medicine practitioners at the University of Pennsylvania Health System (UPHS) and Einstein Healthcare Network (EHN). The survey assessed providers' awareness of the guidelines, and comfort level with screening and digital rectal exam (DRE). Fisher's exact test was performed for statistical analysis.

Results: Of the 81 responders, 85% and 48 %, respectively reported that they were aware of the 2012 USPSTF guidelines and American Urologic Association (AUA) recommendations. Only 53% of responders correctly identified the USPSTF guidelines as a Grade D recommendation and only 54% reported they were mostly comfortable discussing PCS with their patients. 94% of those practitioners in practice > 5 years were at least moderately comfortable discussing PCS compared with just 65% of those in practice < 5 years ($p = < 0.05$). Additionally, 37% of providers in practice > 5 years were at least moderately comfortable with detection of a nodule on DRE compared with just 3% in practice < 5 years ($p = 0.001$).

Conclusions: Despite the 2012 USPSTF and AUA guidelines, there is a wide variety of practice patterns and comfort of PCPs regarding PCS. Early involvement of urologists in PCS may assist with improved screening and detection of CaP.

P32

Direct Pharmacokinetic and Pharmacodynamic Comparison of Subcutaneous Versus Intramuscular Leuprorelin Acetate Formulations in Male Subjects

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Introduction: Leuprolide acetate (LA) is the standard-of-care LHRH agonist used to suppress serum testosterone (T) to the level equivalent to surgical orchiectomy in the treatment of advanced prostate cancer. There are currently two LA formulations available: a viscous liquid that forms a solid, controlled-release implant injected subcutaneously (SC) or a microsphere intra-muscular (IM) injection. The study compared the pharmacokinetics (PK)/pharmacodynamics (PD) of both formulations at the 1-month dose (7.5 mg).

Materials & Methods: Thirty-two healthy men were randomized to receive a single 7.5 mg injection of SC-LA (n = 16) or IM-LA (n = 16) in this phase 1, open-label, parallel-group study. Serum LA, T, and leuteinizing hormone (LH) were assessed.

Results: The duration in which LA concentration was above the level of quantitation was longer in SC-LA (up to 56 days vs. 42 days for SC-LA and IM-LA, respectively). As a result, SC-LA demonstrated a longer duration of both LH and T suppression. Median LH concentration remained low until Day 56 in the SC-LA group, whereas LH levels began to rise by Day 35 in the IM-LA group. Serum T levels began to rise by Day 42 in the IM-LA group, whereas at Day 56, thirteen SC-LA patients maintained serum T levels below 50 ng/dL.

Conclusions: SC-LA demonstrated a consistent delivery of drug over time and a longer duration of action compared to IM-LA, despite the same 1-month dosing of active drug. As a result, subjects treated with SC-LA experienced a longer period of suppression of serum LH and T, up to 56 days post-injection.

P33

Effects of Reminder Phone Messaging on Improving Patient Adherence to Clinic Appointments in a Military Subspecialty Clinic

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Introduction: Missed appointments are a detrimental factor on healthcare causing inefficiency, increase costs and delays in diagnosis and treatment. This is especially troublesome in clinics with access to care limitations. Working on identifying modifiable factors is important to fully utilize our health care system. We analyzed whether a system contacting clinic patients 24 hours before appointments in addition to the command automated system would improve clinical care metrics.

Materials & Methods: Clinic records were retrospectively reviewed over a 6 month period comparing two 3 month periods. In Block 1 the patients were contacted by the automated reminder system only. In Block 2 all patients were contacted within 24 hours and by the automated system. No-show rates, facility cancellations, patient cancellations and access to care were evaluated from the two blocks.

Results: In Block 1 the no show rate was 5-6%, patient cancellation rate was 16%-17%, and the facility cancellation rate was 3%-8%. In Block 2 the no show rate was 4%-6%, patient cancellation rate was 17%-20%, and facility cancellation rate was 4%-7%.

	Block 1			Block 2		
	May	June	July	August	September	October
Total planned appt	738	842	837	739	807	1,013
Total encounters	662	709	730	661	699	881
Kept	644	684	709	646	679	859
Walk in	18	25	20	15	20	22
No-show	52/ 6%	57/ 6%	55/ 5%	35/ 4%	61/ 6%	54/4%
Pt cancel	143/ 17%	154/ 16%	164/ 16%	182/ 20%	165/ 17%	245/20%
Facility cancel	26/ 3%	69/ 7%	85/ 8%	45/ 5%	41/ 4%	81/7%

Conclusions: A reminder call the day prior to appointments did not improve clinic attendance rates for our practice and may not be the best utilization of personnel. Further studies to better characterize patients that do not show may allow targeted contact to improve no show rates.

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P34

Female Sexual Dysfunction and the Internet: A Lack of Patient-Oriented Information

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Introduction: With advances in the digital age, patients are utilizing the Internet to research medical options regarding their sexual health. Though there have been considerable advances in the evaluation and treatment of male sexual dysfunction, there is a generalized consensus regarding limited options for patients presenting with female sexual dysfunction (FSD).

Materials & Methods: Between 7/2015-9/2015, the websites of the US News and World Report top 50 Urology and OB-GYN programs were evaluated. Websites were surveyed for: practice type, practice location, availability of information on female sexual dysfunction including definition and types, treatment options, and psychosocial resources. Chi-square and Fisher's exact tests were used for analysis.

Results: 85% of Urology program websites had information on male sexual dysfunction, while only 5.8% of those programs had information on FSD. In comparison, 22% of OBGYN programs have information on FSD ($p = 0.022$). There was no statistical significance between geographic location and availability of information on FSD for both Urology and OBGYN programs. Between academic and community programs there was no statistically significant difference in information available ($p = 0.375$). There were only 2 websites that included information on treatment options for FSD.

Conclusions: While patients are using the Internet more than ever to search for treatment options, our data shows the paucity of information on FSD. There is significantly more information on male sexual dysfunction on the Urology websites than FSD. With more research being done on FSD, both Urologists and gynecologists have an opportunity to offer FSD information on their patient oriented websites.

P35

Gene Expression and Risk Refinement Within Gleason Score 7 (GS7) PCa at Biopsy Using a Validated 17 Gene Genomic Prostate Score (GPS)

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Introduction: A higher percentage of Gleason pattern 4 (GP4) disease and GP4 histological subtypes have been associated with adverse outcomes in men with biopsy GS7 prostate cancer. However, men with biopsy GS7 cancer are often downgraded at prostatectomy and outcomes for men with organ confined Gleason 3+4 cancer are considered favorable.

Materials & Methods: 1,143 GS7 biopsies were centrally reviewed for percentage GP4 (%GP4) and morphologic subtype. Specimens were subdivided based on %GP4 and morphological subtype. A median GPS was calculated for each subgroup.

Results: 1005 (88%) and 138 (12%) of GS7 biopsies were 3+4 (median GPS 31, IQR 23-40) and 4+3 (median GPS 37, IQR 27-47). Among 3+4 cases, median GPS was 29 (IQR 22-38), 33 (IQR 26-43), and 35 (IQR 27-46) for %GP4 1-10%, 11-25%, and 26-50%. Poorly formed glands was the most common GP4 morphology (PFG, 54%, n = 619), followed by fused glands (FG, 24%, n = 270), cribriform (19%, n = 214), and glomeruloid (3%, n = 40). Cribriform had the highest median GPS (34; IQR 26-44), followed by PFG (32; IQR 24-41), FG (30; IQR 22-40), and glomeruloid (25; IQR 20-32).

Conclusions: While there is a positive association between GPS and %GP4, widely overlapping GPS values suggest a biologic continuum beyond pathologic measures. GPS refines risk, helping to identify appropriate treatment in NCCN Intermediate patients.

P36

Improvement of Urologic Robotic Operating Room Turnover Time Using DMAIC Cycle

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Introduction: A quick turnover between surgical cases can improve operating room (OR) efficiency, maximize OR utilization and reduce costs. Robot-assisted laparoscopic prostatectomy (RALP) and nephrectomy (RALN) are common urologic procedures that typically take long turnover time (TOT). We performed a quality improvement (QI) project to reduce TOT between robotic urologic procedures at a tertiary referral center.

Materials & Methods: As part of a QI project, the DMAIC (Define, Measure, Analyze, Improve and Control) cycle was used to improve TOT. In 2013, a group from urology, nursing, and QI departments defined TOT as: time it takes to turn the room over from wheels out to the next case wheels in. We measured TOT by assigning a circulating nurse to document the TOT and the cause for delay, which were analyzed and reported daily by email. We held regular meetings to review results, re-educate and share ideas for improvement. Finally, we included this project as the urology QI dashboard measure for self-accountability.

Results: Initial TOT between urologic robotic cases was approximately 50 minutes. Gradually, the target TOT was lowered from 40 minutes to 35 minutes over a two year period. The TOT goal was reached in most months.

Conclusions: With persistence and planning, it was possible to improve TOT efficiency between urologic robotic cases while maintaining excellent patient care. The DMAIC cycle for this project was implemented in an academic setting but may be used in any institution. We plan to expand the TOT project to all urologic cases at our institution.

P37

Increasing Screening for Overactive Bladder (OAB) and Incontinence (UI) in At-Risk Patient Population

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Introduction: OAB and UI remain underdiagnosed and undertreated, despite existing evidence–based guidelines. Diabetic and obese women are particularly at risk. Advanced practice providers (APPs), nurse practitioners (NPs) and physician assistants (PAs), in primary care can improve outcomes by consistently screening patients and using strategies that promote patient adherence to treatment. The aim of this practice building activity was to increase APPs' communication and use of guideline–based screening tools to improve diagnosis, treatment adherence, and long–term monitoring of OAB and UI.

Materials & Methods: APPs (n = 54) reviewed medical records of 4 patients with type 2 diabetes (T2DM) and/or obesity and answered 7 questions about their care, online (baseline). APPs then received 4 email briefs reinforcing important aspects of optimal patient care and proceeded to complete an Action Plan. In the final phase, APPs reviewed charts of 4 new patients with T2DM and/or obesity and answered the same questions to determine whether a performance change occurred.

Results: There was a 141% increase over baseline in percentage of clinicians asking their 4 patients all 5 main questions ($p < .01$), and a 125% increase in the percentage of clinicians offering all 4 patients a voiding diary (Figure 1).

Conclusions: This activity, which requires clinicians to assess practice patterns before and after an educational intervention, led to significant improvements in OAB and UI screening and management of at-risk patients.

Summary of Performance Change for Each of the 5 Main Patient Questions

Question	% Asking All 4 Patients at Initial Phase	% Asking All 4 Patients at Final Phase	% Increase	P value
Did you ask this patient whether he/she has concerns about bladder control problems?	57%	83%	45%	<.01
Have you documented this patient's bladder complaints at every visit?	48%	72%	50%	<.01
Did you offer the patient a voiding diary?	24%	54%	125%	<.01
Do you bring up bladder symptoms at each subsequent patient visit?	44%	78%	77%	<.01
Did you provide this patient with printed handouts on behavioral and pharmacotherapeutic options?	33%	61%	85%	<.01

N=54 for each question, paired data, McNemar test

P38

Intraoperative Suprapubic Tube Placement in Patients at Risk for Post-Operative Retention after Artificial Urinary Sphincter Does Not Compromise Device Efficacy

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Introduction: Transient urinary retention occurs in up to 30% of patients following AUS placement, which may correlate with poor device survival. We studied the effect of intraoperative suprapubic (SP) tube placement in patients at risk for retention on device efficacy, patient satisfaction and rate of urethral erosion and infection.

Materials & Methods: We retrospectively examined medical records and telephone follow-up of 41 patients with AUS implantation for incontinence following prostatectomy or radiation therapy. 10 patients had a 12fr. SP tube placed intraoperatively based on retrograde leak point pressure > 70 mmH_2O across the deactivated cuff. Rates of erosion, infection, SP tube complications, pad use following AUS activation, satisfaction with the AUS (1-4 scale, 4 = very satisfied), and bother from the SP tube (1-5 scale, 5 most bother) were evaluated.

Results: Mean follow-up was 4.6yrs (1.3-7.5). Urethral erosion did not occur in either group. One device infection requiring explant occurred in the non-SP group at 1.7 yrs. There was no difference in mean pad use after AUS activation between SP tube (0.56) and non-SP tube patients (1.07) [p = 0.14]. There was no difference in mean satisfaction between SP tube (3.70) and non-SP tube (3.37) patients [p = 0.52]. There were no SP tube complications. Patients reported mean physical and mental bother of 1.4 and 1.9 from the SP tube.

Conclusions: Urethral erosion or device infection is not increased by placement of an SP tube in patients at risk for post-operative urinary retention after AUS placement. Device efficacy and satisfaction were comparable in patients receiving an SP tube.

P39

Longitudinal Assessment of TVTO in the Treatment of Stress Urinary Incontinence

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Introduction: TVTO is an effective treatment for stress urinary incontinence (SUI). While long-term investigation suggests significant improvement in incontinence in comparison to baseline, less clear is how symptom benefit evolves over the initial time period after sling placement. We sought to assess longitudinal outcomes over several time points across 2-year follow-up.

Materials & Methods: A retrospective analysis of prospective data on 96 patients undergoing TVTO was performed. Primary outcomes assessment comprised validated measure of urinary incontinence (ICIQ-FLUTS). Secondary outcomes included quality of life (IIQ-7), in addition to 3-day bladder diary (PPD) and cough test. Outcomes were assessed at baseline, 6-weeks, 12- and 24-months post-operatively.

Results: ICIQ domain score for SUI demonstrated significant improvements across all follow-up time points (0.7 ± 1.3, 6-week; 0.7 ± 1.3, 12-month; 0.9 ± 1.4, 24-month) in comparison with baseline assessment (3.8 ± 2.9) ($p < 0.05$, all analyses). Similarly, analysis of secondary outcomes demonstrated persistent improvements in IIQ-7, pad use, and cough test ($p < 0.05$, all analyses). No significant benefit was seen in comparison of ICIQ SUI domain and IIQ-7 scores in comparison of 6-week vs. 1-year and 1-year vs. 2-year outcomes (p = NS). Only 3 and 3 patients reported improvement or deterioration, respectively, in ICIQ SUI domain score ≥ 2 in comparison of 6-week and 1-year assessments.

Conclusion: TVTO placement is associated with improvements in a variety of measures of SUI and quality of life. Mean improvements in these outcomes appear to be stable through two-year follow-up. Further, our data suggest that incontinence outcome at 6-weeks is similar to that observed at longer-term assessment in most patients.

P40

Multiple Revisions of Penile Prosthesis Are Safe

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Introduction: There are numerous studies evaluating outcomes of re-do penile prosthesis implantation surgery. However, there is limited literature on patients undergoing multiple revisions. We reviewed our experience in high-risk patients undergoing penile prosthesis insertion.

Materials & Methods: We performed a retrospective review of patients undergoing penile prosthesis insertion at our institution between September 2012 and April 2016. We tabulated patient age, comorbidities, prosthesis type, and complications including infection, erosion, mechanical dysfunction, and any other need for intervention. We also tabulated the number of prosthesis the patient had previously. Any removal and reinsertion was done using the "Mulcahy mini-salvage" technique. We defined high-risk as any immunosuppressed patient or with 2 or more penile prostheses previously.

Results: There were a total of 23 patients who underwent surgery. Eight of these patients (mean age = 60.6; 48-72) underwent a multi-revision surgery. These 8 patients underwent a total of 25 multi-revision penile prosthesis between 1980 and 2016. The number of revision ranged from second to fifth, with a mean revision of 3.14 times per patient. Three were redo-insertion into obliterated corpora, the remainder were removal and replacement. Three patients had kidney transplants with active immunosuppression. At average 9.5 month follow-up, only one patient had prosthesis erosion requiring explanation. No device infections occurred. All three transplant patients have activated devices and use them without complaint.

Conclusions: Multiple revisions of penile prostheses are feasible and safe including multiple revisions in immunosuppressed patients. Further, prospective data accumulation and longer follow-up may yield further information that can help patient counseling and selection.

P41

Patient-reported Bother Correlates with Rate of Sensation Change During Filling
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Introduction: Urodynamic derivatives have been shown to correlate with sensory questionnaire scores. First sensation ratio (FSR) (volume at first sensation/maximum cystometric capacity (C_{Cap})) correlates with Urgency Perception Scores, suggesting that rate of sensory progression during filling is associated with more severe urgency symptoms. We sought to correlate FSR and a validated measure of overactive bladder (ICIQ-OAB) using a real-time patient-controlled sensation meter during urodynamics.

Materials & Methods: Individuals with overactive bladder (ICIQ-OAB question 5a≥3) underwent filling cystometry. Patients reported ICS sensory thresholds during filling. Sensation was also recorded via real-time patient-controlled sensation meter (0-100%, 1% increments). FSR was calculated as previously described and by using the first patient-reported sensation on the sensation meter (FSR_{meter}=volume at sensation meter≥1%/C_{Cap}). Both FSR and FSR_{meter} values were correlated with ICIQ-OAB sensory items (questions 3b and 5b).

Results: Ten patients (n=10) completed the protocol. There was no difference between average FSR and FSR_{meter} values (0.17 ± .04 and 0.19 ± .05, p = 0.23). Average ICIQ-OAB 3b and 5b scores were8.4 ± 0.6 and 9.2 ± 0.5, respectively. There was an inverse correlation between FSR and ICIQ-OAB 3b and 5b scores (R^2 = 0.50 and 0.42, respectively) as well as FSR_{meter} and ICIQ-OAB 3b and 5b scores (R^2 = 0.71 and 0.93, respectively).

Conclusions: FSR calculated with ICS thresholds and patient-controlled sensation meter inversely correlate with ICIQ-OAB sensation items in overactive bladder patients. These findings confirm prior investigation using alternate validated questionnaires of sensation. Sensory parameters/derivatives relate with urgency and bother level. Further studies are ongoing define sensory characteristics in a larger cohort and establish normal references.

P42

Perirenal Fat Invasion by Renal Oncocytoma: Academic Curiosity or Clinical Concern?
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Introduction: Renal oncocytoma is diagnosed in 3%-7% of resected renal masses. Though considered benign, some excised oncocytomas demonstrate histopathologic features encountered in malignant neoplasms such as vascular extension, perirenal fat invasion (T3), and calcifications. Our objective was to characterize the outcomes of patients diagnosed with pT3 renal oncocytoma.

Materials & Methods: We queried our institutional database for patients diagnosed with resected oncocytoma between 1994-2014. We performed a sub-group analysis on patients with histologic evidence of perirenal fat invasion. Radiographs were retrospectively analyzed. A chart review was performed to assess patient follow-up.

Results: 194/2684 (7.2%) patients were diagnosed with renal oncocytoma after extirpation. 8/194 (4.1%) were pT3 on final pathology. 7/8 (87%) were male, and all were Caucasian. Median age at surgery was 74 (range 53-85). All tumors were unilateral. Median tumor size in largest dimension was 3cm. 1 patient with pT3 oncocytoma had surgery for multifocal disease. No patient had a local or contralateral recurrence at median follow up of 72 months (range 1-177 months). 2/8 (25%) patients expired from unrelated causes during follow-up.

Conclusions: We present the first outcomes analysis of patients with pT3 renal oncocytoma. Available data do not show increased risk of tumor recurrence or mortality compared with oncocytomas of lower stage. This study supports existing evidence that perirenal fat invasion by renal oncocytoma is no more than an academic curiosity.

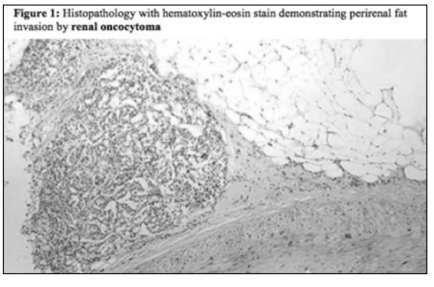
Figure 1: Histopathology with hematoxylin-eosin stain demonstrating perirenal fat invasion by **renal oncocytoma**

P43

Post-surgical Telephone Surveillance in Global Health Mission Work
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Introduction: Post-surgical follow-up in global health missions is often difficult. When providing urogynecological care, developing countries may lack significant exposure to this subspecialty. Based on experience suggesting telephone interview as an effective method of reaching surgical patients, we performed a pilot program to standardize post-operative interviews with visiting physicians.

Materials & Methods: Surgeries were performed in Belize over three separate trips by a visiting urogynecological team between April 2014 and May 2015. All patients were provided a discharge packet, including a specific date and time for 6-week post-operative telephone interview with visiting physician located in the US. Patients were also provided with access to free telephone minutes to minimize cost and facilitate compliance.

Results: Thirty-five patients undergoing surgery participated this initial experience. Eighteen (51%) patients were compliant with telephone interview at the specified time. Average length of telephone interview was 8 minutes. Three (17%) of 18 patients reported issues that were resolved by visiting physician assistance. Program costs for telephone minutes comprised $175 (USD). Local health care specialists were able to subsequently achieve follow-up with all but six patients. Three of these six patients were then located via new telephone numbers.

Conclusion: Our program achieved successful follow-up of approximately 50%. This follow-up allowed not only for more detailed outcome assessment, but also alerted visiting physicians to several patients who needed assistance or medical evaluation. Optimization of follow-up during international health missions remains difficult and is important to address adverse events/assess outcomes. Further development of this program is ongoing.

P44

Prospective Analysis of Positioning Injuries in Laparoscopic Robotic Surgery
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Introduction: Positioning injuries are a known surgical complication and can result in significant patient morbidity. Prior studies have shown a small, but significant number of neurovascular injuries associated with robotic surgery, due in part to patient factors (e.g. ASA class) and in part to case-specific factors (e.g. length, positioning). We sought to look prospectively at positioning injuries in a series of robotic surgeries.

Materials & Methods: Patients undergoing any robotic-assisted procedure were eligible for inclusion. For those patients who consented, we performed pre- and post-operative neurologic exams, hand grip tests, and subjective questioning to track the type and number of injuries. We followed the course of injury resolution or long-term sequelae.

Results: We enrolled a total of 26 participants and have full data on 24 patients, although 4 of these patients refused at least part of the post-op testing. Subjective injuries occurred in 4 patients (17%) and included: one left and one right shoulder injury, upper arm weakness, and bilateral leg pain. The neurologic exams correlated only with the latter two injuries. While the shoulder injuries recovered rapidly after surgery, the upper arm weakness resolved by the first outpatient post-op visit; the leg injury persisted 2 months later.

Conclusions: Retrospective analyses of positioning injuries have reported around a 3% rate for laparoscopic surgeries and we have previously reported a 6.6% rate in a series of robotic laparoscopic surgeries. Our prospective study, although small, suggests a higher rate of total injuries, but similar rate (1/24, 4.2%) of long-lasting injuries.

P45

Real-time Bladder Sensation Characterization in Participants with and without Overactive Bladder during an Accelerated Hydration Protocol

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Introduction: The current evaluation tool for overactive bladder (OAB) is multi-channel urodynamics, which is an invasive procedure. This investigation's objective was to develop a non-invasive and unprompted method to characterize real-time bladder sensation.

Materials & Methods: Volunteerss with and without OAB were enrolled in an accelerated hydration study. Participants drank 2L Gatorade-G2® and recorded standardized verbal sensory thresholds and real-time sensation (0-100% scale) using a novel, touch-screen "sensation meter". 3D bladder ultrasound images were recorded throughout fillings for a subset of participants. Sensation data were recorded for two complete fill and void cycles.

Results: Data were obtained from 12 OAB and 14 normal volunteers. Filling duration decreased in fill2 vs. fill1, but volume did not significantly change. In the normal group, adjacent verbal sensory thresholds (within-fill) did not overlap, and identical thresholds (between-fill) were similar, effectively differentiating between degrees of %bladder capacity. In the OAB group, within-fill thresholds overlapped and between-fill thresholds were different. In normals, real-time %capacity-sensation curves shifted left from fill1 to fill2, consistent with expected viscoelastic behavior, but in OAB unexpectedly shifted right. 3D ultrasound volume data showed fill rates that started slowly and accelerated with variable ending rates.

Conclusions: This study demonstrates a method to non-invasively characterize real-time bladder sensation using a novel sensation meter during a two-fill accelerated hydration protocol. Verbal sensory thresholds were inconsistent in OAB, and a right shift in OAB %capacity-sensation curve suggests potential sensitization and/or biomechanical alterations. This methodology could be useful in the sub-categorization of individuals with OAB.

P46

Sensation During Filling Cystometry Correlates with Detrusor Wall Tension in Patients with Overactive Bladder

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Introduction: In a compliant bladder, intravesical pressure (pves) increases minimally during filling but sensation increases dramatically. Detrusor smooth muscle is in-series with pelvic afferent nerves. We hypothesize that detrusor wall tension, rather than pves, better correlates with patient sensation during filling.

Materials & Methods: As part of an IRB–approved extended urodynamics (UD) protocol, patients with overactive bladder syndrome (OAB) (ICIq 5a ≥ 3) underwent standard UD testing and simultaneously used a real–time sensation meter to record continuous changes in sensation from 0–100%. Sensation values were time-linked with volume infused and pves. Bladder wall tension was calculated using recorded pves and infused volume, assuming spherical bladder filling. Normalized bladder wall tension and pves were sampled for each patient at 10% sensation increments. Regression analysis correlated bladder wall tension and pves to patient sensation.

Results: Twelve patients underwent UD with use of the sensation meter, and three were excluded (transducer malfunction, fill to only 30 mL, only 10% sensation reached). Based on regression analysis, bladder wall tension exhibited an improved correlation to patient sensation compared to pves (adjusted R^2 = 0.95 vs. 0.59, respectively, n = 9). Regression slope (β) also demonstrated a better correlation and was significantly different for bladder wall tension compared to pves (β = 0.56 vs. 0.15, $p < 0.0001$; ideal β = 1).

Conclusions: Bladder wall tension demonstrates an improved correlation with patient sensation during filling compared to pves. Development of techniques to more accurately measure detrusor wall tension such as combining real-time 3D ultrasound with UD may help identify and treat a subset of patients with tension-mediated OAB.

P47

Some Gunshot Wounds Can Wait

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Introduction: Traditionally, penetrating penile trauma has been treated emergently. Several studies have looked at immediate management of these injuries, and others have examined delayed repair after penile fracture. We reviewed our institutional experience of penetrating penile injuries for overall outcomes including those with delayed repair.

Materials & Methods: We performed a retrospective review of patients admitted after penile gunshot wounds from 2012-2015 at a single institution. Delayed repair was undertaken at 72 hours and was designed to allow 'blast effect' to manifest tissue viability. These patients were otherwise stable and had no other wound requiring emergent surgery. Urine was diverted before exploration by urethral or suprapubic catheter.

Results: A total of 13 patients were found to have penetrating penile injury, all had concomitant injuries. Average patient age was 26 years old. Six patients were found to have urethral injuries. Of those, 3 had immediate repair, 2 had delayed repair, and 1 had no repair and was lost to follow-up. Three of six patients had concomitant corporal injuries repaired at the time of surgery (1 during delayed repair). Both delayed repair patients had no voiding symptoms or stricture at 3 months. Of those with corporal injuries who followed up, none had issues with erectile dysfunction or penile curvature at 3 month follow up.

Conclusions: In highly select patients, exploration in penetrating penile trauma can be delayed to allow for injury "evolution". Although the sample size is small, primary delayed repair is feasible and can result in satisfactory outcomes.

P48

The Comprehensive Complication Index (CCI) is an Alternative Grading System for Classifying Morbidity Following Radical Nephrectomy

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Introduction: Approximately 20% of patients will experience a complication following radical nephrectomy (RN). The Comprehensive Complication Index (CCI) incorporates each post-operative complication to account for the cumulative effect of individual events. This study evaluates the association of patient- and disease-specific factors with increasing CCI score.

Materials & Methods: Retrospective review of our institutional kidney tumor database identified all patients who underwent radical nephrectomy for malignancy from 2000-2014. 30-day complications were reviewed and individual CCI scores were generated. Logistic regression examined the relationship between the CCI upper quartile (> 75%) with patient-specific, perioperative, and oncologic variables.

Results: 436 patients (270 men and 166 women) with a median age of 63 years and BMI of 30 were included. Median EBL was 200 mL, OR duration was 214 minutes, and length of stay was 4.0 days. Surgical technique included 48.5% open resection, 32.7% laparoscopic, and 18.8% robotic-assisted. Stage distribution included 37% T1, 15% T2, 42% T3, and 5% T4. 126 patients (29%) developed post-operative complications, with 26 (21%) classified as Clavien III or greater, and CCI distribution ranging from 8.7-100.0 (Table). The CCI upper quartile (>20.9) was associated with increasing patient age at surgery (p = 0.03).

Conclusions: CCI accounts for the collective effect of adverse post-operative events. Future studies comparing the CCI and Clavien-Dindo systems are important to assess the utility of continuous versus categorical systems in grading post-operative complications.

Comprehensive Complication Index (CCI)		
CCI	**Frequency**	**Percentage**
8.7	32	25.4
20.8	2	1.59
20.9	66	52.38
26.2	2	1.59
33.7	11	8.73
42.4	9	7.14
100	4	3.17

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The Effect of Pre-Operative Tamsulosin on the Rate of Ureteral Navigation during Ureteroscopy in Pediatric Patients

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Introduction: Balloon dilation of the ureteral orifice (UO) is not recommended in pediatric patients. Ureteral stents (US) are placed for passive dilation resulting in repeat ureteroscopy. We aim to evaluate whether pre-operative tamsulosin increases the rate of ureteral navigation for ureteroscopy (URS).

Materials & Methods: We retrospectively reviewed pediatric patients who underwent URS at our institution from January 2013 to November 2015. Cases were performed using a standard approach based on location of the stone; semi-rigid ureteroscope for distal ureteral, and flexible ureteroscope with or without a ureteral access sheath for proximal ureteral and renal stones. Patients were separated into 2 groups: those receiving 0.4 mg of tamsulosin daily for > 48 hours pre-operatively and those who didn't receive tamsulosin pre-operatively. Patients with previously placed US were excluded. The student T and Z tests were used for statistical analysis.

Results: 32 patients underwent URS with 9 having pre-operative tamsulosin, 13 without tamsulosin. 10 patients were excluded. There was no significant difference between the groups with consideration to age (3 - 16 years) and weight (12.2-110.5 kg) of the patients, or stone size. We were able to navigate the ureter in 8 patients (88.9%) in the tamsulosin group and 6 patients (46.1%) in the no tamsulosin group ($p = 0.04$). We did not observe any adverse effect from tamsulosin.

Conclusions: Tamsulosin did significantly increase the success rate of ureteral navigation for URS, thus decreasing the number of surgeries in our pediatric patients.

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Towards Reliable Tensioning of the Midurethral Sling: Polypropylene Mesh is not Weakened by Hemostat Fixation

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Introduction: Urinary retention following midurethral sling placement occurs in 1.9% to 19.7% of cases. Tensioning techniques vary widely. Accurate tensioning can be improved by grasping the mesh with a hemostat to avoid elastic loading or slippage with deployment. We measured the effect of hemostat clamping on the tensile strength of midurethral slings to determine risk of mesh damage.

Materials & Methods: Ten 15 × 1-cm polypropylene mesh strips (SPARC/Monarc Sling, AMS Inc.) were used. Five specimens were clamped once, midsubstance, with a standard hemostat to its tightest closure. The other 5 were controls and not clamped. All specimens were stretched until failure on a servo-hydraulic materials testing machine at 50 mm/minute. Tensile strength was defined as the load at which failure (complete loss of mesh continuity) occurred. We recorded location of failure and distance between grip markings to determine deformation. A t-test compared the clamped and control groups.

Results: No clamped specimens failed at the clamp site. In all specimens, failure occurred at the grip sites. There was no significant difference between the mean tensile strength of the clamped group (81.9 N [95% CI, 72.0-91.7 N]) and control group (80.9 N [95% CI, 73.1-88.8 N]). The average permanent deformation was 1.5 cm (95% CI, 1.3-1.7 cm), or 43% strain. The force necessary to cause mesh failure was greater than those encountered physiologically.

Conclusions: Clamping had no measurable effect on mesh tensile strength. Sling tensioning may be standardized and simplified safely by grasping exposed mesh with a hemostat during placement.