PD1

Impact of USPSTF Recommendations on Prostate Biopsy Characteristics and Disease Presentation at a Tertiary-care Medical Center

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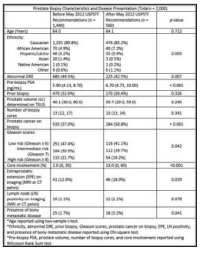
Introduction: In 2012, the USPSTF made recommendations against using PSA-based screening for prostate cancer. We evaluated early consequences of decreased PSA screening on prostate biopsy characteristics and presentation of prostate cancer.

Materials & Methods: A single tertiary-care institution, multi-surgeon, prospectively maintained database was queried for patients undergoing prostate biopsy from October 2005 - September 2016. Patient demographics, biopsy characteristics, and extent of disease were reported. Patient cohorts before and after USPSTF recommendations were compared using two-sample t-test, Chi-square, and Wilcoxon Rank Sum tests with significance at $p < 0.05$.

Results: 2,000 patients were analyzed, including 1,440 patients before and 560 patients after USPSTF recommendations were published. Following the recommendations, patients had a higher pre-biopsy PSA (5.90 vs. 6.70, $p < 0.001$). Overall, 817 (40.9%) patients had prostate cancer detected at biopsy with an increase from 37.0% before to 50.8% after ($p < 0.001$). Biopsies detected less low risk Gleason ≤ 6 prostate cancer (47.4% vs. 41.1%), more intermediate risk Gleason 7 cancer (30.9% vs. 39.7%), with comparable findings of high risk Gleason ≥ 8 cancer (21.7% vs. 19.2%), $p = 0.042$. Additionally, greater percent core involvement ($p < 0.001$) was seen. At time of diagnosis, extraprostatic cancer extension identified by pelvic imaging increased from 12.6% to 18.9%, $p = 0.039$, with a trend towards lymph node positivity (1.1% vs. 2.2%, $p = 0.078$). Of those with metastatic disease, bony involvement occurred more often (1.7% vs. 3.2%, $p = 0.041$). (Table)

Conclusions: After 2012 USPSTF guidelines, patients presented with higher PSA with prostate cancer detected more frequently. More adverse, pathologic prostate cancer features were found on biopsy with extent of disease implicating locally advanced or metastatic disease. Consideration towards these findings should be used in counselling patients about the importance of prostate cancer screening.



Prostate Biopsy Characteristics and Disease Presentation (Total n = 2,000)

	Before May 2012 USPSTF Recommendations (n = 1440)	After May 2012 USPSTF Recommendations (n = 560)	p-value
Age (Years)	63.0	64.1	0.152
Ethnicity:			
Caucasian	1,295 (89.9%)	476 (85.2%)	
African American	70 (4.9%)	40 (7.2%)	0.005
Hispanic	40 (2.8%)	30 (5.4%)	
Asian	20 (1.4%)	3 (0.5%)	
Native American	1 (0.1%)	1 (0.2%)	
Other	9 (0.6%)	9 (1.6%)	
Abnormal DRE	585 (40.6%)	225 (40.2%)	0.907
Abnormal PSA (ng/mL)	5.90 (4.15, 8.70)	6.70 (4.75, 10.00)	< 0.001
Prior biopsy	470 (32.6%)	170 (30.4%)	0.328
Prostate volume (cc) determined on TRUS	46.1 (30.0, 66.0)	39.7 (28.0, 59.0)	0.240
Number of biopsy cores	13 (12, 17)	13 (13, 14)	0.341
Prostate cancer on biopsy	533 (37.0%)	284 (50.8%)	< 0.001
Gleason scores:			
Low risk (Gleason ≤ 6)	251 (47.4%)	116 (41.1%)	0.042
Intermediate risk (Gleason 7)	164 (30.9%)	112 (39.7%)	
High risk (Gleason ≥ 8)	115 (21.7%)	54 (19.2%)	
Core involvement (%)	2.0 (0, 30)	13.0 (0, 60)	<0.001
Extraprostatic extension (EPE) on imaging (MRI or CT scan)	41 (12.6%)	46 (18.9%)	0.039
Lymph node (LN) positivity on imaging (MRI or CT pelvis)	10 (1.1%)	12 (2.1%)	0.078
Metastatic disease	25 (1.7%)	18 (3.2%)	0.041

Age reported using two-sample t-test.
*Ethnicity, abnormal DRE, prior biopsy, Gleason scores, prostate cancer on biopsy, EPE, LN positivity, and presence of bony metastatic disease reported using Chi-square test.
**Pre-biopsy PSA, prostate volume, number of biopsy cores, and core involvement reported using Wilcoxon Rank Sum test.

PD2

Utility of Emergently Placed IR Nephrostomy Tube Tracts for Percutaneous Nephrolithotomy

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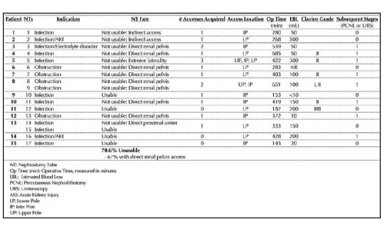
Introduction: Percutaneous nephrolithotomy (PCNL) is the gold standard for treating stones ≥ 2 cm. Debate persists regarding optimal percutaneous (PC) nephrostomy tube (NT) access, interventional radiology (IR) versus urologists, for PCNL. In acute settings, the goal of PC access is urinary drainage, most often accomplished by IR. How often NT tracts established for these indications are appropriate for subsequent PC stone removal is not well described. We aimed to determine the usability rate of emergent NT tracts previously obtained by IR for PCNL.

Materials & Methods: Retrospective review of our 2-center database of all PCNLs was performed between October 2012 and October 2016. Data on demographics, operative, post-operative and complications (Clavien-Dindo) were collected. NT tracts were defined as usable, if definitive therapy was able to be accomplished through them, and unusable if new access was required in order to perform the PCNL.

Results: 15 patients with 17 IR-placed NTs prior to PCNL were identified. NTs were placed for acute indications. Of these NTs, 5 (29.4%) were able to be utilized for PCNL; however, 12 (70.6%) of NTs were deemed unusable, requiring a new access. 8 (67%) of the unusable IR tracts were due to direct positioning into the renal pelvis. In total, 12 (80%) of patients required new, additional access to be obtained intraoperatively to perform PCNL optimally. Those with unusable access had increased mean operative times, 412.6 minutes versus 228 minutes ($p = 0.05$).

Conclusions: A low percentage of IR placed NT tracts, for acute/emergent indications are deemed usable for subsequent PCNL due to inappropriate positioning.



Patient	NTs	Indication	NT Fate	# Accesses Acquired	Access location	Op Time (min)	EBL (mL)	Clavien Grade	Subsequent Stages (PCNL or URS)
1	1	Infection	Not usable: Indirect access	1	IP	190	NS		0
2	2	Infection/AKI	Not usable: Indirect access	1	LP	268	500		0
3	3	Infection/electrolyte disorder	Not usable: Direct renal pelvis	2	IP	539	NS		1
4	4	Infection	Not usable: Direct renal pelvis	1	LP	685	50	II	1
5	5	Infection	Not usable: Extreme tortuosity	3	UP, IP, LP	422	500	II	1
6	6	Obstruction	Not usable: Direct renal pelvis	1	LP	283	NR		0
7	7	Obstruction	Not usable: Direct renal pelvis	1	LP	403	100	II	1
8	8	Obstruction	Not usable: Direct renal pelvis	2	UP, IP	501	100	I, II	1
	9	Obstruction	Not usable: Direct renal pelvis						
9	10	Infection	Usable	1	IP	153	<10		0
10	11	Infection	Not usable: Direct renal pelvis	1	IP	419	150	II	1
11	12	Infection	Usable	0	LP	197	200	IIIB	0
12	13	Obstruction	Not usable: Direct renal pelvis	1	IP	372	50		1
13	14	Infection	Not usable: Direct proximal ureter	1	LP	333	150		0
	15	Infection	Usable						
14	16	Infection/AKI	Usable	0	LP	428	200		1
15	17	Infection	Usable	0	IP	143	20		0
			70.6% Unusable - 8.7% with direct renal pelvis access						

NT: Nephrostomy Tube
Op Time (min): Operative Time, measured in minutes
EBL: Estimated Blood Loss
PCNL: Percutaneous Nephrolithotomy
URS: Ureteroscopy
AKI: Acute Kidney Injury
LP: Lower Pole
IP: Inter Pole
UP: Upper Pole

PD3

Adverse Pathologic Findings at Radical Prostatectomy: Is there a Favorable Intermediate-Risk Group?

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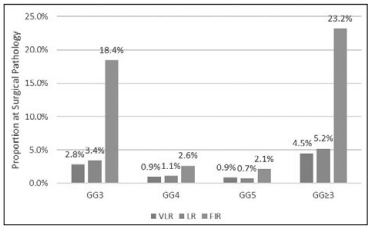
Introduction: Active surveillance is recommended for patients with very low-risk (VLR) and low-risk (LR) prostate cancer, but recent studies and guideline changes have attempted to identify a "favorable" intermediate-risk (FIR) group. We compare rates of adverse pathology at radical prostatectomy between VLR, LR, and FIR patients and evaluate criteria to define a FIR group that minimizes risk.

Materials & Methods: A prospective cohort of men (2005-July 2016) with clinically localized VLR, LR, and FIR (1-2 cores of Gleason 3+4=7,PSA < 20 ng/ml) prostate cancer undergoing radical prostatectomy was evaluated. Rates of adverse pathologic features (Gleason ≥ 4+3, ≥ pT3b, or pN1) were compared between groups. The FIR cohort was stratified by pre-operative disease characteristics to identify factors protective of adverse pathology. Log-binomial and logistic regression were utilized where appropriate.

Results: A total of 1264 VLR, 4849 LR, and 608 FIR patients met inclusion criteria. Rate of adverse pathology was significantly higher for FIR (150/608; 24.7%) compared to LR (5.8%; RR4.50 (95%CI 3.73-5.43, $p < 0.001$)) and VLR (4.7%; RR5.14 (95%CI 3.84-6.89, $p < 0.001$) men. Gleason grade groups at surgical pathology are shown in the Figure. Restriction of FIR men to additional criteria did not significantly impact results. There were no preoperative clinical or pathologic criteria which could identify a subgroup of the FIR population with rates of adverse pathology comparable to the VLR and LR cohorts.

Conclusions: Nearly 25% of men with low volume, Gleason 3+4 prostate cancer on biopsy are found to harbor adverse surgical pathology. These data do not support the presence of a "favorable" subgroup within the intermediate-risk population. Men with Gleason 3+4=7 disease should be informed as to the avoidable risk associated with use of AS.



PD4

Evaluation of Oral Inositol Hexaphosphate (IP6) As a Treatment for Bladder Cancer

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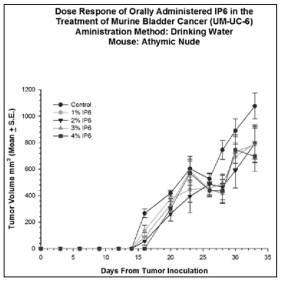
Introduction: Inositol Hexaphosphate (IP6) is a naturally occurring carbohydrate found in food sources high in fiber content. We have previously demonstrated the in vitro anti-cancer effects of IP6 against bladder cancer and based on those results we evaluated orally administered IP6 in an in vivo mouse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

Materials & Methods: Seventy-five female athymic nude mice were randomized to 5 groups (15/group). Mice received 1 x 10^7 UM-UC-6 bladder cancer cells on the right thigh. Animals then received the following oral treatments ad libitum: Saline, Oral IP6 1.0%, Oral IP6 2.0%, Oral IP6 3.0 % and Oral IP6 4.0%. All animals in the outlined experiment were checked 3 times a week for the tumor incidence and growth. Tumor volume is expressed as Means ± Standard Deviation. Statistical Significance was determined by ANOVA.

Results: All doses of Oral IP6 significantly reduced tumor volume compared to the Saline Control at day 33 ($P < 0.001$). There was no dose response observed, as there was no difference among the IP6 groups in tumor volume at day 33. ANOVA of tumor volume showed significant ($P < 0.001$) reductions in tumor volume at days 16, 20, 23, 26, 28, 20 and 33. When compared to control, there was a 25% reduction in tumor volume exhibited by the 1% IP6, 32.3% by the IP6 2%, 25.0% by the IP6 3% and 29.5% by the IP6 4%.

Conclusions: This represents the first report of the significant effects of oral IP6 in a mouse bladder cancer model. The results presented herein warrants further investigation leading to the initiation of Phase II clinical trials to evaluate the safety and clinical utility of this agent.



Resident Prize Essay Podium Session
PD1-PD9

PD5

A Cause for Alarm or Encouragement? Surprising Trend of Organ Utilization in a Geographically Isolated Transplant Center after the New Kidney Allocation System
Kevin Brown, Joseph Africa
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Introduction: On December 4, 2014, a new kidney allocation system (KAS) was implemented changing how kidneys are allocated for transplantation. This also eliminated a previous agreement with the United Network of Organ Sharing (UNOS) allowing our center to qualify as an Alternative Local Unit (ALU) which allowed greater access to kidney transplants from our center. There is an impression that the quantity and quality of kidneys being transplanted was far inferior when compared to those during the ALU.

Materials & Methods: We performed a retrospective chart review of deceased donor renal transplants done at our institution from January 1, 2013 to December 1, 2014 (pre-KAS) and from December 2, 2014 to December 31, 2016.

Results: We noted a statistically significant change in the number allografts imported from out of state, increase in cold ischemia time, higher level of Plasma Reactive Antibodies (PRA), higher rate of allografts with high infectious risk status, higher Estimated Post Transplant Survival (EPTS) score. We also noted worse short term outcomes defined by the number of acute rejection episodes and 30 day re-hospitalizations (Table 1).

Conclusions: The new allocation system results in a dramatic shift in the quality and quantity of deceased donor transplants performed at our institution. Due to being a small, geographically isolated program that serves a large socio-economically depressed population, these changes may have significant impact on our patients and the viability of our program.

Donor Characteristics	Pre-KAS# = 75	KAS# = 53	
Age (D Age) Mean	33.4 (+/-16.8)	40.1 (+/-14.9)	0.2181
Less than 65	68 (90.7%)	47 (88.7%)	0.7139
65 or older	7 (9.3%)	6 (11.3%)	
D Donor Type(Standard Criteria Donor (SCD)	68 (+6%)	21 (39.6%)	
Extended Criteria Donor (ECD)	54 (21.3%)	33 (26.4%)	P=0.0148
Donation after Cardiac Death (DCD)	13 (14.7%)	17 (32.1%)	
ECD and DCD	39	5 (11.3%)	
High Infectious Risk (D. PHS)	6 (8.0%)	13 (25.5%)	P=0.0095
Kidney Donor Profile Index (D_KDPI)	23 (30.7%)	10 (18.9%)	
0.20 and less	9 (12%)	9 (17%)	0.4916
0.21 to 0.35	15 (+6%)	26 (49%)	
0.36 to 0.85	19 (+3.3%)	8 (15.1%)	
0.86 to 1.00			
Cold Ischemic Time (hours) (D_Cold Ischemic Time_hours) Mean	14.4 (+/-13.6)	20.6 (+/-9.2)	
Up to 11.9	39 (52.0%)	7 (13.2%)	<.0001
12 to 23.9	28 (37.7%)	19 (34.7%)	<.0001*
24 to 35.9	7 (9.3%)	15 (28.3%)	
35 and over	1 (1.3%)	5 (9.4%)	
On pump (D_Kidney Pump)	51 (20%)	21 (39.6%)	P=0.0150
D_WY Donor)	75 (+00%)	39 (73.6%)	<.0001
Local Kidneys (1)		14 (26.4%)	
Import Kidneys (0) Info Missing			
Recipient Characteristics	Pre-KAS (n=75)	KAS (n=53)	
Age (R_Age) Mean	53.6 (+/-12.1)	55.1 (+/-12.7)	0.4995
Less than 65	63 (84%)	40(77.4%)	0.1630
65 or older	12 (16%)	12 (22.6%)	
Estimated Post Transplant Score (EPTS)			
0.20	1 (1.3%)	3 (5.9%)	
0.21 and less	16 (21.3%)	10 (19.9%)	
0.21 to 0.35	14 (18.7%)	3 (5.4%)	0.0256*
0.36 to 0.85	43 (57.3%)	33 (62.3%)	
0.86 to 1.00	1 (1.3%)	0 (2.6.6%)	
PRA (R_PRA CMN)			
0.20 and less	67 (89.3%)	32 (60.4%)	
0.21 to 0.35	4 (5.3%)	1 (1.9%)	
0.35 to 0.79	1 (1.3%)	1 (1.9%)	
More than 0.80	3 (4%)	9 (17.0%)	<.0001*
0.98	0	5 (9.5%)	
0.99	0	2 (3.7%)	
1.00	0	4 (7.5%)	
Delayed Graft Function (R_DGF)	8 (10.7%)	9 (15.1%)	0.4752
Length of Stay (R_LOS, Days)	6.0 (+3.5)	8.4 (+14.4)	0.4410
Rehospitalization within 1 month (30 day Readmission)	9 (10.7%)	13 (24.5%)	P=0.0436
Acute Rejection Episodes(R_Acute Rejection)	6 (8%)	12 (22.6%)	P=0.0172
Complications (other than rejection) (Other_comp)	21 (28%)	18 (34%)	0.5411
Graft Failures (Graft Survival) 0=Failure	8 (5.3%)	1 (1.9%)	0.4020*
Recipient Mortalities (R_Patient Survival) 0=Death	2 (2.7%)	4 (7.5%)	0.2399*

*Fisher's exact

PD6

Multi-Specialty Algorithm Reduces Emergency Department CT Use Without Increasing Urological Ambulatory CT Use
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Introduction: Applying guidelines to the management of acute renal colic in the Emergency Department (ED) represents a unique challenge that requires collaborative effort to incorporate multi-specialty recommendations. We sought to better incorporate guidelines in the management of acute renal colic in the ED through ED resident education and initiation of algorithms. After implementation, overall computed tomography (CT) use in the ED decreased by 13% ($p < 0.05$). Our hypothesis was that a decrease in CT use would be associated with an increase in ED ultrasound (US) use and an increase in ambulatory CT use.

Materials & Methods: We conducted a before and after study following introduction of the algorithm (Figure 1). A retrospective chart review was completed of patients diagnosed with nephrolithiasis in the ED at a single academic institution. Patients given a urology referral from the ED were tracked for compliance with follow-up and ambulatory imaging.

Results: 57 patients and 48 patients complied with urology referral in the pre-intervention and post-intervention groups. Results are summarized in Table 1. Prior to intervention, 60% of these patients received a CT in the ED, compared to 50% post-intervention. After intervention, ED radiology renal US increased by 30% ($p < 0.05$). Ambulatory CT use was 5% and 4% respectively.

Conclusions: US is the emerging imaging modality in the ED leading to concern of increased urological ambulatory CT. However, our results show that with the implementation of an algorithm, ambulatory CT use did not change despite increased ED US use. Multi-specialty teams must track downstream implications of practice changes.

PD7

Challenging Dogma: Risk of Ureteral Injury in Colorectal Surgery and Expended Indication for Prophylactic Ureteral Catheterization
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Introduction: Ureteral injury (UI) is an uncommon though significant complication of colorectal surgery. Many institutions have adopted elective prophylactic ureteral catheterization (PUC) prior to colorectal surgery to facilitate intraoperative recognition of UI. No study has yet demonstrated a decreased rate of UI in patients undergoing PUC prior to colorectal surgery. We reviewed the colorectal cases at our institution and the relationship between PUC and risk of UI.

Materials & Methods: An IRB-approved review of elective colorectal cases at a tertiary care center from January 2007 to March 2014 was performed. Patient data including operation, indication, surgeon, clinicopathologic patient characteristics, and PUC were obtained and compared to the outcome of ureteral injury. Associations between variables and the outcome were tested using chi-square, Fisher exact test, and univariate and multivariate analyses.

Results: 1,328 colorectal cases were identified, of which 431 (32.5%) underwent PUC. 18 cases of UI were identified, one being excluded due to tumor encasing the ureter requiring intentional ligation and diversion. 16 of the 17 remaining cases of UI occurred in patients who had not undergone PUC, and one case occurred in a patient with PUC ($p = 0.018$). When controlling for patient and disease characteristics, PUC remained significantly associated with decreased risk of UI on multivariate analysis (OR 0.05, 95%CI 0.007-0.443, $p = 0.006$).

Conclusions: While prophylactic ureteral catheterization prior to colorectal surgery has historically been performed to assist with intraoperative recognition of a ureteral injury, our data show that PUC is associated with decreased risk of ureteral injury. Further studies are warranted to evaluate the potentially protective role of PUC in patients undergoing pelvic surgery.

PD8

Readmissions and Hospitalization Costs after Radical Cystectomy with Urinary Diversion are Increased in Neobladders Compared to Ileal Conduits
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Introduction: Current studies have failed to show long-term differences between Ileal Conduit (IC) and neobladder (NB) after Radical Cystectomy (RC), however few have assessed healthcare utilization differences between diversion types. We analyzed the differences in readmission rates and hospital costs between NB and IC in a nationally representative sample.

Materials & Methods: The 2013-2014 Nationwide Readmissions Database (NRD) was queried for patients with bladder cancer undergoing RC. Sociodemographic characteristics, length of stay (LOS), hospital costs, and causes of readmission were compared between NB and IC. Multivariable logistic regression was utilized to assess the impact of urinary diversion type on outcomes.

Results: A sample of 8,620 patients were included in the analysis: 662 (7.7%) underwent NB reconstruction with 7,958 (92.3%) undergoing IC. NB patients were younger, had a lower Charlson Comorbidity Index (CCI), privately insured, and were more often treated at high volume centers. NB patients were more likely to be readmitted (49.2% vs. 40.4%, $p = 0.03$) and more commonly readmitted for infectious complications (e.g. UTI, pyelonephritis) and hydronephrosis. NB mean costs were higher for the initial hospitalization and at 30 and 90 days. On multivariable analysis, NB was an independent predictor of increased 90-day readmission and increased costs.

Conclusions: NB diversion after RC results in more frequent readmissions and is more costly compared to IC. The increased cost of care may be secondary to treatments for obstructive and infectious complications. In an era of potentially bundled payments, cost of diversion should be considered when defining healthcare reimbursements for bladder cancer.

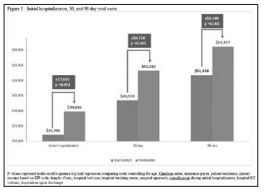

Table 1. Unavariable and multivariable logistic regression models.

Outcome	Unavariable OR (95%CI)	p-value	Multivariable OR** (95%CI)	p-value
Prolonged LOS During Initial Hospitalization (>75th percentile)**				
- Ileal Conduit	Ref		Ref	
- Neobladder Diversion	0.72 [0.49, 1.06]	0.1	1.15 [0.77, 1.71]	0.5
Elevated Hospital Costs During Initial Hospitalization (>75th)++				
- Ileal Conduit	Ref		Ref	
- Neobladder Diversion	2.19 [1.60, 3.01]	<0.001	2.27 [1.61, 3.19]	<0.001
90-Day Readmission++				
- Ileal Conduit	Ref		Ref	
- Neobladder Diversion	1.43 [1.03, 1.98]	0.03	1.62 [1.17, 2.26]	0.004
Prolonged LOS During Readmission (>75th percentile)				
- Ileal Conduit	Ref		Ref	
- Neobladder Diversion	1.11 [0.74, 1.66]	0.6	1.51 [0.97, 2.34]	0.07
Elevated Hospital Costs During Readmission (>75th percentile)				
- Ileal Conduit	Ref		Ref	
- Neobladder Diversion	1.55 [1.04, 2.31]	0.03	1.92 [1.01, 3.63]	0.046

**Controlled for age, gender, insurance, patient residence, patient income by ZIP code, hospital bed size, hospital location, hospital teaching status, Charlson comorbidity index, surgical approach, disposition upon initial discharge, complication during hospitalization, hospital RC volume category.
++Controlled for same variables as ** along with length of stay during initial hospitalization.

PD9

Population-Based Analysis of Upper Tract Urothelial Carcinoma Outcomes Based on Type of Definitive Surgery

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Introduction: The gold standard for high-grade or invasive upper tract urothelial carcinoma (UTUC) is nephroureterectomy, with segmental ureterectomy an option for distal ureteral tumors. Previous studies have demonstrated no difference in overall (OS) or cancer-specific (CSS) survival between open and laparoscopic techniques, but studies on robotic-assisted laparoscopy (RAL) are lacking. Our objective was to evaluate outcomes in patients undergoing surgical treatment of UTUC based on technique using a large, population-based cancer database.

Materials & Methods: Using the Surveillance, Epidemiology, and End Results (SEER)-Medicare linked database, we identified patients (65-85 years) who underwent surgery for UTUC between January 2004 and December 2013. Type of surgical technique was identified using CPT codes. Patients with metastasis at diagnosis, missing oncologic information, or history of cystectomy were excluded. Due to significant baseline differences between groups, we performed propensity score-weighted analyses. Survival outcomes were determined using Kaplan Meier methods and multivariable Cox proportional hazards regression.

Results: A total of 3801 patients met criteria. Patients in the RAL cohort had the largest number of lymph nodes removed ($p < 0.001$) and increasing lymphadenectomy improved CSS (HR 0.94, $p = 0.013$) in all groups. RAL had the highest in-hospital cost (median $63,186, $p < 0.001$) despite having the shortest length of stay (mean 4.2 days, $p < 0.001$). Both 30- and 90-day re-admission rates did not differ. Time to intravesical recurrence was similar ($p=0.35$) in a subset of 3211 patients with no previous bladder tumors. Relative to open, there was no difference in OS or CSS for the laparoscopic ($p = 0.09$) or RAL ($p = 0.74$) cohorts.

Conclusions: RAL surgery resulted in the shortest hospital stay but highest in-hospital cost compared to open or laparoscopic surgery. Although greater lymphadenectomy was performed in RAL, there were no differences in OS or CSS between groups. Therefore, we conclude that oncologic control is similar regardless of technique used for surgery in UTUC.

P2

Enhanced Recovery After Surgery Pathway for Open Radical Cystectomy with Urinary Diversion: A Single-Institution Retrospective Analysis of Post-Operative Outcomes

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Introduction: Enhanced recovery after surgery (ERAS) protocols based on principles of goal directed fluid resuscitation, multimodality pain control, early mobilization, and early enteral nutrition have been widely implemented in colorectal surgery with subsequent decrease in rates of ileus and length of stay (LOS). Data on ERAS in setting of cystectomy and urinary intestinal diversion (C&D) is limited, though a recent meta-analysis of 13 studies demonstrated that LOS, return of bowel function and postoperative complication rate were generally improved with standardized protocols. We report on outcomes following implementation of ERAS at a single academic institution.

Materials & Methods: We performed a retrospective chart review of patients undergoing C&D at a single academic center in the 9 months preceding (Pre-ERAS) and 6 months following (ERAS) implementation of an ERAS protocol. We assessed the impact of standardized perioperative management on time to flatus, rate of postoperative ileus, LOS, 30-day and 90-day readmission rates.

Results: Compared to the pre-ERAS group, the ERAS cohort had a shorter LOS (6d vs. 8d, $p = 0.034$). No significant differences were found between two cohorts with respect to time to flatus ($p < 0.07$), rate of postoperative ileus (32.0% vs. 28.6%, $p = 0.814$), 30-d readmission rate (30.6% vs. 31.4%, $p = 1.000$), and readmission beyond 31 days (25.0% vs. 44.4%, $p = 0.071$). Multivariable logistic analysis controlled for demographics, morbidities, and surgical outcomes showed that ERAS was associated with early discharge by postoperative day 5 (OR = 18.9, 95%CI = 2.2-160.9). Rate of postoperative ileus was not significant on multivariable analysis (OR = 0.36, 95%CI = 0.10-1.36).

Conclusions: The implementation of a standardized ERAS protocol for patients undergoing C&D led to a decrease in LOS without significant increase in readmission rates. Further adaptation of the pathway may lead to improved outcomes.

	Pre-ERAS (n=50)	ERAS (n=35)	p-value
Preoperative Demographics			
Age (y)*	67 (61-73)	71 (62-76)	*0.214*
Sex, n (%)			*0.869*
Male	37 (74.0%)	25 (71.4%)	
Female	13 (26.0%)	10 (28.6%)	
Race, n (%)			*0.714*
White	43 (86.0%)	30 (85.7%)	
African American	7 (14.0%)	4 (11.4%)	
Other	0	1 (2.9%)	
BMI, n (%)	26 (52.0%)	23 (65.9%)	*0.378*
DM, n (%)	9 (18.0%)	8 (22.9%)	*0.594*
Previous abdominal surgery, n (%)	35 (70.0%)	10 (28.6%)	*0.318*
Smoker, n (%)	36 (72.0%)	31 (88.6%)	***0.044***
BMI*	28.7 (24.9-32.5)	28.6 (26.6-31.5) (n=35)	*0.868*
Intra and Postoperative Parameters			
Total intraoperative IVF (L)*	4.1 (3 -5.1)	3.7 (2.6-4.8)	***0.012***
EBL (L)*	0.75 (0.5-1.0)	0.00 (0.5-0.8)	*0.273*
Surgical time (min)*	383 (286-533)	381 (275-533)	*0.718*
Total PCEA usage (POD)*	0 (0-3) (n=49)	30 (2-3) (n=32)	***0.003***
Time to NGT removal (POD)*	2 (1-2) (n=50)	1 (0-1) (n=33)	***0.0001***

*Values Reported as median (IQR 1-3)
HTN= hypertension, DM= Diabetes mellitus, BMI= body mass index, IVF= intravenous fluids, EBL= estimated blood loss, POD= Post of Day

P1

Raman Molecular Urinalysis: A Novel Bladder Cancer Screening Technology

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Introduction: Bladder cancer is one of the most expensive cancers to treat in the United States, and there is a clear need for screening tools to reduce costs and improve the accuracy of detection. A newly developed analytical/computational urine screening technology based on Raman spectroscopy called Raman Molecular Urinalysis (RMU) is able to improve bladder cancer detection.

Materials & Methods: Urine samples were collected from 35 healthy volunteers and from 27 patients with known bladder cancer or other urinary tract disorders. Samples were then analyzed using the Raman Molecular Urinalysis technology.

Results: In combination with multivariate statistics, Raman spectroscopy is able to detect patterns generated by hundreds of molecules in the urine metabolome. The multi-molecular spectral "signatures" are then used to differentiate bladder cancer from other lesions. Figure 1 demonstrates the differences in the RMU sentinel clusters of the 35 healthy individuals (blue dots). These are formed from computational reduction of Raman spectral peaks. Patients with urinary tract diseases, including bladder cancer are represented by red dots. Individuals within a central zone of overlap undergo repeat sampling, yielding additional dots on the graph. We then studied urine specimens from 27 patients with known GU diseases (mean age 64.96, range 36-91). Figure 2 shows how further analysis of RMU data differentiates sentinel clusters of low- and high-grade bladder cancer (n = 3 and 10 patients, respectively), prostatic carcinoma (n = 4), and non-neoplastic genitourinary tract diseases (n = 7) including retention, benign prostatic hyperplasia, and stricture disease.

Conclusions: While further testing and validation is needed, Raman Molecular Urinalysis using Raman spectroscopy has the potential to improve the cost and efficacy of bladder cancer detection, screening and follow-up by accurately detecting bladder cancer.

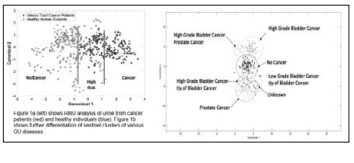

Figure 1a (left) shows initial analysis of urine from cancer patients (red) and healthy individuals (blue). Figure 1b shows further differentiation of sentinel clusters of various GU diseases.

P3

Enhanced Recovery After Surgery Pathway for Open Radical Cystectomy with Urinary Diversion: Development and Implementation of an Evidence-Based Pathway

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Introduction: Open radical cystectomy and intestinal urinary diversion (C&D) is a morbid procedure with postoperative complication rates between 27.3%-56.3%. Enhanced recovery after surgery (ERAS) pathways emphasize (a) stricter goal directed perioperative fluid management, (b) multi-modality pain control to limit systemic narcotic use, and (c) early enteral nutrition to reduce rates of postoperative ileus, a major contributor for extended length of stay (LOS). Current literature on cystectomy ERAS pathways is adapted from colorectal literature. The goal of this study was to develop and implement an evidence based, multi-disciplinary ERAS pathway at our institution to improve perioperative management in each of the index aims listed above.

Materials & Methods: A standardized perioperative ERAS pathway was implemented at a single academic center for patients undergoing C&D starting September 2016. We performed a retrospective intention to treat analysis of patients managed perioperatively in the 9 months preceding (Pre-ERAS) and 6 months following (ERAS) implementation. Patients undergoing planned C&D with a diagnosis of bladder cancer were included.

Results: Pre-ERAS (n = 50) and ERAS (n = 35) cohorts did not significantly differ in terms of age, sex, race, BMI, comorbid hypertension, or diabetes status. The ERAS group had more patients with a smoking history ($p = 0.04$). Compared to the pre-ERAS group, the ERAS cohort was associated with lower volume intraoperative fluid resuscitation ($p < 0.012$), use of perioperative epidurals ($p < 0.003$), and earlier average day of NGT removal with advancement of diet to sips of liquids ($p = 0.0001$).

Conclusions: A multidisciplinary enhanced recovery algorithm was developed and successfully implemented for patients undergoing C&D at a single academic institution. Future studies analyzing LOS, perioperative outcomes including ileus rates, and fiscal impact of ERAS after cystectomy could support widespread institution.

	Pre-ERAS (n=50)	ERAS (n=35)	p-value
Preoperative Demographics			
Age (y)*	67 (61-73)	71 (62-76)	*0.214*
Sex, n (%)			*0.869*
Male	37 (74.0%)	25 (71.4%)	
Female	13 (26.0%)	10 (28.6%)	
Race, n (%)			*0.714*
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BMI, n (%)	26 (52.0%)	23 (65.9%)	*0.378*
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Previous abdominal surgery, n (%)	35 (70.0%)	10 (28.6%)	*0.318*
Smoker, n (%)	36 (72.0%)	31 (88.6%)	***0.044***
BMI*	28.7 (24.9-32.5)	28.6 (26.6-31.5) (n=35)	*0.868*
Intra and Postoperative Parameters			
Total intraoperative IVF (L)*	4.1 (3 -5.1)	3.7 (2.6-4.8)	***0.012***
EBL (L)*	0.75 (0.5-1.0)	0.00 (0.5-0.8)	*0.273*
Surgical time (min)*	383 (286-533)	381 (275-533)	*0.718*
Total PCEA usage (POD)*	0 (0-3) (n=49)	30 (2-3) (n=32)	***0.003***
Time to NGT removal (POD)*	2 (1-2) (n=50)	1 (0-1) (n=33)	***0.0001***

*Values Reported as median (IQR 1-3)
HTN= hypertension, DM= Diabetes mellitus, BMI= body mass index, IVF= intravenous fluids, EBL= estimated blood loss, POD= Post of Day

P4

Racial Disparity In Bladder Cancer Treatment And Survival Outcomes

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Introduction: Black patients are at greater risk of death from bladder cancer than white patients. Potential explanations for this disparity include differences in treatment patterns. We investigated the association between race and treatment patterns in bladder cancer patients.

Materials & Methods: Using the Surveillance, Epidemiology, and End Results (SEER)-Medicare data set, we identified 5160 patients initially diagnosed with non-metastatic muscle invasive bladder cancer between 2004-2011. We fit a multivariable logistic regression model to assess the relationship between race and treatment patterns, adjusting for differences in patient characteristics. Survival was assessed by multivariate Cox regression model.

Results: Of the 5160 patients, 2004 (39%) received a radical cystectomy while 3156 (61%) received some alternative bladder sparing intervention. Black patients were significantly less likely to receive a cystectomy with an odds ratio of 0.54 (p-value < 0.001) when compared to white patients. No difference in perioperative chemotherapy utilization was observed based upon race. Similar rates of alternative bladder sparing therapy were also observed. Overall mortality was observed to be worse among black patients, but no difference was noted in bladder cancer specific mortality.

Conclusions: Our findings demonstrated a racial disparity in the probability of receiving a radical cystectomy for the management of non-metastatic muscle invasive bladder cancer. Black patients were found to be less likely to receiving a cystectomy than other racial groups. This disparity appears to contribute to the overall survival disparity observed between black and white patients with bladder cancer.

P5

Lymph Node Dissection During Radical Cystectomy Following Prior Radiation Therapy: Results From The SEER Database

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Introduction: Population studies of patients undergoing radical cystectomy (RC) for bladder cancer (BC) suggest that a more extended lymph node dissection (LND) increases survival. However, information regarding LNDs of patients undergoing RC with a history of radiation therapy for BC is largely unknown. We aim to define the lymph node yield (LNY) in patients undergoing RC for BC following bladder radiation using the surveillance epidemiology and end results (SEER) database.

Materials & Methods: Data was collected using SEER 18 registries from 1988-2013 to identify patients undergoing RC for BC. Cases undergoing RC with no radiation prior to RC were defined as being radiation naïve patients. Cases undergoing RC following radiation for bladder cancer were defined as being irradiated patients. LND status during RC and LNY during RC was obtained and analyzed. Multivariate Cox regression models were used to analyze overall survival.

Results: In total, 27,451 patients were identified, of which, 27,362 (99.7%) were radiation naïve and 89 (0.3%) had prior radiation therapy for BC. The average LNY in radiation naïve patients (15, SD [13.5]) was slightly higher than the LNY in patients with prior radiation (12.3 SD [9.2], p = 0.157). On Cox regression analysis, prior radiation was not an independent predictor of overall mortality (HR = 1.3, 95%CI [0.98-1.7]; p = 0.076). Conversely, a LNY of ≥ 10 nodes during RC independently was associated with a lower overall mortality (HR = 0.77, 95%CI [0.74-0.80]; p < 0.001).

Conclusions: The LNYs of radiation naïve patients, and those with a history of radiation, were not statistically different; however, there is a small number of irradiated patients. A history of prior radiation was not associated with mortality. Irrespective of prior radiation, a LNY ≥ 10 nodes was independently associated with increased overall survival. Further investigation will be required to elucidate the patient and provider characteristics that contribute to the similar LNYs.

P6

Evaluating the Accuracy of MRI in Bladder Cancer Staging

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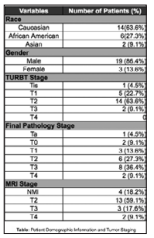
Introduction: In bladder cancer (BCa), primary tumor staging is currently based on the pathologic depth of tumor invasion seen on the specimen obtained during transurethral resection (TURBT). Clinical staging also takes into account findings from abdominal/pelvic imaging and bimanual examination. Due to multiple factors, pathology from TURBT is prone to under-staging. Moreover, TURBT is morbid and can delay the time to definitive treatment. MRI provides excellent soft tissue detail and is used in staging other urologic malignancies. In this study, we sought to determine the diagnostic accuracy of pelvic MRI in determining primary tumor stage in patients with BCa.

Materials & Methods: Using an IRB-approved institutional database, we retrospectively identified 150 patients who underwent radical cystectomy for BCa from 2010-2017. We then identified 22 patients who underwent a staging pelvic MRI just prior to surgery. Sensitivity/specificity analysis was performed to assess the performance of MRI in predicting primary tumor stage, using the final cystectomy pathology as the gold standard.

Results: Median age was 69 years and 55% of patients received neoadjuvant chemotherapy. Demographics and staging data is shown in Table 1. The sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of MRI in predicting muscle invasion or beyond (pT2 or greater) was 94%, 50%, 83%, and 75%. The sensitivity, specificity, PPV, and NPV of MRI in predicting pT3-4 was 50%, 100%, 100%, and 71%.

Conclusions: Pelvic MRI is an accurate tool that can be used to predict primary tumor stage in patients with BCa, particularly in those with locally advanced tumors. More studies are needed to determine whether pelvic MRI could supplant TURBT in primary tumor staging.



Variables	Number of Patients (%)
Race	
Caucasian	14(63.6%)
African American	6(27.3%)
Asian	2 (9.1%)
Gender	
Male	19 (86.4%)
Female	3 (13.6%)
TURBT Stage	
Tis	1 (4.5%)
T1	5 (22.7%)
T2	14 (63.6%)
T3	2 (9.1%)
T4	0
Final Pathology Stage	
Ta	1 (4.5%)
T0	2 (9.1%)
T1	3 (13.6%)
T2	6 (27.3%)
T3	8 (36.4%)
T4	2 (9.1%)
MRI Stage	
NMI	4 (18.2%)
T2	13 (59.1%)
T3	3 (17.6%)
T4	2 (9.1%)

Table: Patient Demographic Information and Tumor Staging

P7

The Utility of the CxBladder Detect Urine Test: A Single Surgeon's Experience

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Introduction: The gross hematuria and microscopic hematuria workup has classically included obtaining a urine sample for cytological analysis. The American Urologic Association has recently given a class 'C' recommendation to this analysis. However, many urologists still utilize urine cytology as a supplementary tool in diagnosing bladder urothelial cell carcinoma (UCC). CxBladder Detect is a urine mRNA biomarker test that deciphers the probability of harboring bladder cancer. We sought to compare the utility of urine cytology test to that of the CxBladder Detect urine test in the hematuria workup.

Materials & Methods: A total of 84 patients seen by a single Urologist with microscopic and/or gross hematuria between 2015 to 2016 had urine samples sent for cytological analysis and CxBladder Detect biomarker analysis. These patients also underwent cystoscopies. The positive endpoint was a definitive pathological diagnosis of bladder UCC via bladder biopsy and/or transurethral resection of bladder tumor.

Results: One patient was noted to have a positive urine cytology test indicating presence of malignant cells (three total positive urine cytology tests). This patient was also found to have a pathological diagnosis of high grade bladder UCC (sensitivity = 30.0%, specificity = 100%, positive predictive value (PPV) = 100.0%, negative predictive value (NPV) = 91.4%). Seven patients had positive Cxbladder Detect tests (a score greater than or equal to 0.23 indicating a high probability of urothelial carcinoma) and six of these patients had a pathologic diagnosis of bladder UCC with a total of ten 'positive' tests (sensitivity = 60.0%, specificity = 94.6%, PPV = 60.0%, NPV = 94.6%).

Conclusions: CxBladder Detect is a useful, non-invasive adjunctive urine test that provides value to the hematuria work-up. This biomarker test trends towards a higher specificity and NPV as compared to the urine cytology test.

P8

Preoperative Imaging Findings Predict Intraoperative Vascular Intervention and Perioperative Outcomes for Retroperitoneal Lymph Node Dissection

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Introduction: Retroperitoneal lymph node dissection (RPLND) remains critical to the multimodal treatment of germ cell tumors (GCT), often requiring extensive resection and vascular intervention. We aimed to identify preoperative imaging characteristics that are predictive of vascular intervention and perioperative outcomes for the purpose of preoperative planning and patient counseling.

Materials & Methods: From an institutional cohort of 139 men treated for GCT between 2013 and 2016, we retrospectively evaluated preoperative computed tomography imaging from 30 men who underwent RPLND. Retroperitoneal mass and great vessel characteristics were measured by blinded radiologists. Correcting for multiple comparisons, imaging parameters were compared with perioperative outcomes and need for vascular intervention.

Results: Of the 30 men, 73% were performed post-chemotherapy. We identified a mass circumferential involvement ≥ 150 degrees as the greatest predictor of vascular intraoperative reconstruction for both the aorta and inferior vena cava (IVC) (Table 2). IVC involvement ≥ 150 degrees significantly predicted a vascular surgery consult (54.6% vs. 9.1%, p = 0.012) and reconstruction (60% vs. 0%, p = 0.022). Aortic involvement ≥ 150 was associated with worse estimated blood loss (EBL) (3.2L vs. 0.64L, p = 0.042) and an ICU stay (Table 1). Number of masses, paracaval location, and largest mass were also radiographic predictors of worse perioperative outcomes (EBL, OR time, and ICU stay) (Table 1).

Conclusions: Preoperative imaging characteristics prior to RPLND can be used to predict perioperative outcomes and the need for vascular intervention. We identified a circumferential cutoff of ≥ 150 degrees around the great vessels as the greatest predictor of vascular intervention.

	EBL (L)			OR (mins)			ICU stay	
Vessel	mean	SD	p	mean	SD	p	%	p
IVC			0.108			0.124		0.152
<150°	580	229		577	85.2		27.5	
≥150°	2337	3229		479	178.8		54.6	
Aorta			0.015			0.053		0.047
<150°	645	435		576	75.9		27.5	
≥150°	5275	5403		506	194.5		45.5	
Any			0.042			0.007		0.032
<150°	670	380		507	76.9		36.4	
≥150°	2955.6	5050		464	170.1		61.6	
# of Masses			0.012			0.006		0.017
1	592	288		487	86.4		27.3	
2	792	877		491	178.4		18.2	
3	1750	1060		257	12		18.2	
4 or more	2090	2098		429	163.3		36.4	
Largest Mass (cm)			0.206			0.029		0.034
<2	593	256		509.4	65.3		0	
2 to < 3	1242	2870		418.4	103		72.7	
≥3	1908	2091		440.8	174.4		27.3	
Location								
Paracaval			0.033			0.009		0.156
Yes	2458	3807		566.1	188.2		63.6	
No	760	668		505.8	81.2		36.4	
Interaortocaval			0.274			0.72		0.45
Yes	730	615		505.7	92.0		36.4	
No	1470	2495		491.9	151.7		63.6	
Para-aortic			0.570			0.525		0.188
Yes	1550	2467		498.1	147.4		45.5	
No	650	615		479.5	80.3		54.6	

Table 1: Preoperative imaging characteristics and their association with perioperative outcomes. Significant values are in bold (p < 0.05). EBL = estimated blood loss, OR = operating room time, ICU = intensive care unit

	Vascular consult		Reconstruction	
Vessel	% (N)	p	% (N)	p
IVC		0.012		0.022
<150°	9.1 (1)		0 (0)	
≥150°	54.6 (6)		60 (3)	
Aorta		0.042		0.337
<150°	27.3 (3)		40 (2)	
≥150°	45.5 (5)		40 (2)	
Any		0.01		0.047
<150°	27.3 (3)		20 (1)	
≥150°	63.6 (7)		60 (3)	
# of Masses		0.003		0.427
1	18.2 (2)		40 (2)	
2	27.3 (3)		40 (2)	
3	18.2 (2)		0 (0)	
4 or more	36.4 (4)		20 (1)	
Largest Mass (cm)		0.281		1
<2	9.1 (1)		20 (1)	
2 to < 3	63.6 (7)		60 (3)	
≥3	27.3 (3)		20 (1)	
Location				
Paracaval		0.156		0.415
Yes	36.4 (4)		40 (2)	
No	63.6 (7)		60 (3)	
Interaortocaval		1		1
Yes	45.5 (5)		40 (2)	
No	54.6 (6)		60 (3)	
Para-aortic		0.128		1
Yes	72.7 (8)		60 (3)	
No	27.3 (3)		40 (2)	
Vessel Wall Invasion		0.015		0.075
Yes	45.5 (5)		40 (2)	
No	54.6 (6)		60 (3)	

Table 2: Preoperative imaging characteristics and their association with vascular intervention. Significant valuesare in bold (p < 0.05).

P9

Comparative Assessment of Pathologic Outcomes Following Early Intervention and Trends in Testicular Cancer: A Single-Institution Study of a Multidisciplinary "Go-Team" for Testicular Cancer

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Introduction: The multi-disciplinary, TC "Go-Team" initiative was started in 2014 to improve access to timely care at our hospital. It aims to have a treatment modality initiated within 2 weeks of presentation, regardless of stage or prior care. We discuss trends and outcomes from comparing our patients.

Materials & Methods: Data for all TC patients at our institution from 2003-2014 were retrospectively abstracted and prospectively afterward. Demographics, clinical characteristics, and management were stratified by pre- or post- "Go-Team". Hypothesis tests were performed to evaluate differences between both groups: Chi-squared and Fisher's exact tests for categorical variables, Student's t-test and Wilcoxon rank-sum test for continuous, distributed variables.

Results: 461 TC patients were reviewed: 302(65.5%) from 2003-2014, 159(34.4%) from 2014. Median number of patients per year: 28.0(IQR 24.0-32.0) pre-"Go-Team" vs. 18.0(IQR 13.0-35.0) after. Age at presentation was similar between groups (31(IQR 25-40) vs. 32(IQR 26-43), p = 0.4). However, the proportion of black and Hispanic/Latino patients increased over time (2.3% vs. 5.7% black; 4% vs. 9% Hispanic/Latino (p < 0.001)). Proportion of pure seminoma remained stable (30.8% vs. 27.0%); NSGCT increased (15.2% vs. 32.7%), mixed-GCT decreased (43.4% vs. 17.0%). Most men presented with Stage IA disease regardless of group; patients qualifying for active surveillance increased (14.6% vs. 20.8%, p = 0.15) and proportions with advanced stages decreased (IIA (9.9% vs. 5.0%), IIB (6.0% vs. 1.9%), IIC (4.3% vs. 2.5%), IIIA (4.3% vs. 2.5%), IIIB (4.0 vs. 3.8%), IIIC (5.6% vs. 3.1%), p = 0.18). Primary RPLND was used less post-orchiectomy (35.4% vs. 10.7%, p < 0.0001); an increase in adjuvant chemotherapy was noted (23.2% vs. 42.1%, p < 0.0001). Post-chemotherapy RPLND also increased (10.3% vs. 18.9%, p < 0.02).

Conclusions: Since the Go-Team's inception, there has been a shift toward early-stage disease, less primary RPLND and more post-chemotherapy RPLND. This likely reflects improved access to care and changing paradigms of TC management. Further analyses will delineate the Go-Team's role in oncologic and survival outcomes.

P10

Factors Predicting Overall Survival in Patients with Primary Adenocarcinoma of the Bladder: Insights from the Surveillance, Epidemiology, and End Results Database

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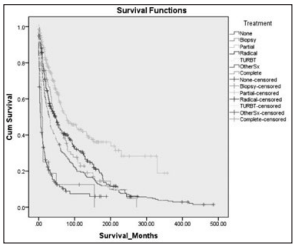
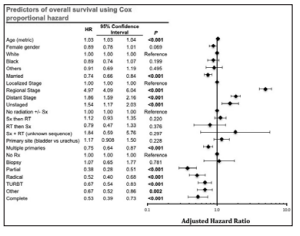
Introduction: Primary bladder adenocarcinoma (BA) is extremely rare and has dismal prognosis. This study analyzes the survival outcomes of different treatments for this disease.

Materials & Methods: Using the SEER 18 database (1973-2013), patients with BA were extracted. Those lacking treatment data and those with secondary BA were excluded. Descriptive statistics assessed disease characteristics. Kaplan-Meier (KM) analyses and log-rank tests assessed overall survival (OS) and cause-specific survival (CSS) across treatment groups. Multivariable Cox proportional hazard models were used to identify factors predictive of survival. Adjusted hazard ratios (HR), 95% confidence intervals, and p values are reported. Analyses performed using SPSS 24.0.

Results: 1524 patients of the 2263 identified met inclusion criteria. Overall, the mean age at diagnosis was 66.82 ± 14.7 years, and 64% of patients were male. 91% of patients were treated surgically: TURBT (647), partial cystectomy (n = 225), radical cystectomy (n = 196), complete cystectomy (n = 80), biopsy alone (n = 19), and unspecified surgery (n = 214). Median OS and CSS were 33 and 12 months, respectively. OS for localized, regional, and distant disease were 72, 34, and 5 months. Overall survival is depicted Figure 1. Factors predictive of survival are depicted in Figure 2.

Conclusions: Our study depicts OS using a population-based cancer registry. The overall median survival was poor. Those with regional disease are almost 5 times more likely to die from BA than those with localized. Patients who had partial cystectomy had a 62% reduction in risk of death compared to those who did not have treatment. Partial cystectomy is the best option for BA.





P11

WITHDRAWN

Moderated Poster Session 2: General Urology; Infertility
P14-P24

P12

Identifying Current Trends in the Urologic Oncology Workforce: Does Completion of Fellowship Significantly Change Future Practice?

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Introduction: ACGME-imposed duty-hour limits and focus on surgeon-specific outcomes have led to the perception that urologists-in-training receive less autonomy. Trainees increasingly seek adjunct subspecialty fellowships to further their education. We studied urologic oncology training, hypothesizing that fellowship-trained urologists (OF) perform more major oncology cases than their non-fellowship-trained peers (NF).

Materials & Methods: We identified all urologists with initial board certifications and re-certifications from the American Board of Urology between 2003 and 2017 using a de-identified data set. The outcome variable was major urologic oncology case volume. Exposure variables included fellowship status, city population and practice type. Data was analyzed using 2-sample t-test with significance defined at $p < 0.05$.

Results: 8,123 urologic surgeons met criteria for inclusion, of whom 338 were OF's. There were significant positive associations between OF and large practice area population and academic practice ($p < 0.0001$ for both) and negative associations with smaller population and private practice ($p < 0.0001$ for both), (Table 1). Furthermore, in more recent years, increasing OF's practiced in academics and/or larger cities. OF's performed more major cases in kidney, bladder, and prostate cancer across all certification time points compared to NF's, and continued to perform these cases with high frequency across all certification times, (Figure 1).

Conclusions: OF's perform significantly more major urologic oncology cases in all organ systems compared to NF's, maintained over the course of their careers, and are significantly more likely to practice in an academic center and/or in a more populated area. This information is useful to urology residents considering a career in urologic oncology.

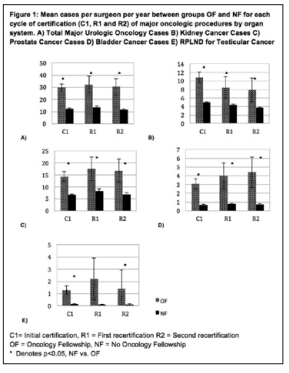

Figure 1: Mean cases per surgeon per year between groups OF and NF for each cycle of certification (C1, R1 and R2) of major oncologic procedures by organ system. A) Total Major Urologic Oncology Cases B) Kidney Cancer Cases C) Prostate Cancer Cases D) Bladder Cancer Cases E) RPLND for Testicular Cancer

C1= Initial certification, R1 = First recertification R2 = Second recertification
OF = Oncology Fellowship, NF = No Oncology Fellowship
* Denotes p<0.05, NF vs. OF

Table 1: Descriptive analysis between oncologic fellowship (OF) and no fellowship (NF) regarding Population Density of Practice Area and Practice Type.

PRACTICE AREA POPULATION	OF	NF	DIFFERENCE	95% CI	P value
<100k	4.7% (16)	13.1% (1021)	-8.4%	-10.8%; -6.0%	<0.0001
100-500k	18.3% (62)	29.5% (2299)	-11.2%	-15.4%; -6.9%	<0.0001
>500k	66.6% (226)	45.7% (3556)	21.2%	16.1%; 26.3%	<0.0001
PRACTICE TYPE	OF	NF	DIFFERENCE	95% CI	P value
Academic	38.2% (129)	8.6% (667)	29.6%	24.4%; 34.8%	<0.0001
Private	37.0% (125)	74.0% (5762)	-37.0%	-42.3%; -31.8%	<0.0001
Government	2.7% (9)	1.9% (151)	0.7%	-1.0%; 2.5%	0.4163
Mix	16.9% (57)	15.2% (1181)	1.7%	-2.4%; 5.8%	0.4148
Other	5.3% (18)	0.3% (24)	5.0%	2.6%; 7.4%	<0.0001

Bold = positive association, Grey = negative association
OF = Oncology Fellowship, NF = No Oncology Fellowship

P13

Fellowship Training In Minimally Invasive Urologic Oncology Minimizes The Learning Curve Of Robotic-assisted Radical Prostatectomy

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Introduction: Robotic-assisted radical prostatectomy (RARP) has a prolonged learning curve, with some advocating that RARP be reserved for experience surgeons at high volume centers. The newest generation of urologists has gained early exposure to robotic surgery during residency and fellowship, possibly shortening the learning curve. We present outcomes of the first 56 RARP performed by a single fellowship trained surgeon to determine if outcomes are comparable to national reported outcomes.

Materials & Methods: Perioperative and long-term outcomes were gathered in a prospectively collected database. Long-term functional outcomes were assessed using the Expanded Prostate Cancer Index-Clinical Practice (EPIC-CP) questionnaire. Linear and logistic models were used to assess association between numerical order of RARP and outcomes to determine any further learning curve affect.

Results: 56 men underwent RARP over 44 months with a median follow-up of 22.1 months. Median age was 63.3, median PSA 6.1, and median Gleason score was 3+4=7. 100% and 75% of men were preoperatively continent and potent, respectively, with 78% undergoing bilateral nerve-sparing. The median console time was 141 min (IQR: 108-158) and median estimated blood loss (EBL) was 391 mL (IQR: 200-500). 5.4% experienced complications within 30 days of surgery. Positive margin rate was 20% with 11% experiencing biochemical recurrence. Continence and potency at 3, 6, 12 and 24 months was 66%, 80%, 91%, and 84% and 35%, 49%, 63%, and 67% respectively. For bother scores, 16% and 26% of men reported their incontinence as a moderate/big problem at 12 months vs. 13% and 21% at 24 months. On adjusted analysis, only 3-month continence significantly improved with number of RARP while there were no significant changes in potency, console time, or EBL.

Conclusions: With early exposure and high volume fellowship training, newly graduated urologic oncologists can obtain similar outcomes as their high volume mentors, thus shortening the learning curve.

P14

Defining The Role Of Robot-assisted Simple Prostatectomy In Men With Prostates ≥ 100g

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Introduction: Robotic-assisted simple prostatectomy (RASP) has emerged as an effective surgical alternative in the management of BPH-related lower urinary tract symptoms in men with very large prostates. We compared outcomes among men with prostates measuring ≥ 100g undergoing transurethral resection of prostate (TURP), open simple prostatectomy (OSP) or RASP.

Materials & Methods: We completed a retrospective chart review of patients with prostates measuring ≥ 100g undergoing RASP, OSP or TURP from June 2010 to June 2016. Blood loss, length of hospital stay (LOS), percentage of prostate tissue resected, catheter duration and post-void residual (PVR) were compared.

Results: 60 men underwent TURP (n = 20), OSP (n = 19) or RASP (n = 21) with mean prostate volumes of 131.7g, 181.2g and 173.6g, respectively. Mean blood loss in the TURP group (47 cc) was significantly lower than in the RASP (311 cc) and OSP (492 cc). Mean LOS was lowest in the TURP group (2.5 days) followed by RASP (3.9 days) and OSP (5.4 days), with the difference in the RASP and OSP groups reaching statistical significance. The percent of tissue resected in the OSP (78%) and RASP (70%) groups were comparable; however, only 23% of tissue on average was resected in TURP group. PVRs were similar in the RASP and OSP groups and highest in the TURP group. Mean catheter duration was longest in the RASP group (11.3 days) compared the TURP (6.4 days) and OSP (5.4 days) groups.

Conclusions: RASP has emerged as an alternative to OSP and TURP in men with very large prostates. As with other robotic procedures, the cost difference is not insignificant, although our data suggest a benefit of RASP over OSP in term of LOS, which influences overall cost considerably. Additionally, there was a trend toward less blood loss with RASP. Further data are needed to clarify the role of RASP in men with very large prostates.

P15

Intraoperative Tranexamic Acid Infusion During Open Simple Prostatectomy: A Retrospective Analysis

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Introduction: Tranexamic acid has been shown to reduce the need for perioperative blood transfusions across numerous surgical procedures, with recent literature supporting its use in urologic surgeries. The purpose of this study was to evaluate the efficacy of intraoperative tranexamic acid (TXA) in reducing the need for perioperative blood transfusions (PBT) for patients undergoing open simple prostatectomy for benign prostatic hyperplasia.

Materials & Methods: Beginning in August 2016 we initiated a change in clinical practice whereby all patients undergoing open simple prostatectomy (SP) were administered intraoperative intravenous TXA. We reviewed all patients undergoing open SP at our institution between August 2016 and March 2017 (n = 8). This cohort was then compared to the 15 consecutive patients who underwent open SP prior to implementation of TXA protocol. All operations were performed by a single surgeon using a suprapubic approach.

Results: There was no significant difference between the TXA and control group in terms of age ($p = 0.259$), BMI ($p = 0.300$), operative time ($p = 0.718$), pre-operative hemoglobin ($p = 0.742$), or prostate size on cross-sectional imaging ($p = 0.38$). Importantly, there was a significant decrease in rate of perioperative blood transfusion with 0 of 8 patients requiring PBT in the TXA group (0%) vs. 7 of 15 patients in the control group (46.67%). Furthermore, EBL was significantly lower in the TXA group (487.5 mL vs. 1257.1 mL, $p = 0.009$) and intraoperative fluids were signficantly decreased (2886 mL vs. 3975 mL, $p = 0.039$). The POD 1 hemoglobin was not significantly different among groups ($p = 0.189$), nor was length of hospital stay ($p = 0.746$) or pathologic size of adenoma ($p = 0.632$). No perioperative DVT/PE were recorded in either the TXA or control group.

Conclusions: The use of intraoperative TXA during open simple prostatectomy was associated with a significant reduction in PBT, EBL, and intraoperative fluids. Though limited by a small cohort, the data supports the use of TXA in this setting.

P16

Predictors of Active Surveillance at a Multidisciplinary Small Renal Mass Conference
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Introduction: Active surveillance (AS) is an option for small renal masses (SRMs), typically up to 4 cm. The physician threshold for recommending treatment of such masses may be higher depending on renal function, age, and comorbidities. Patient goals and values determine the treatment ultimately chosen after shared decision making. We reviewed all available cases discussed at our monthly multidisciplinary SRM conference to identify independent predictors of the conference recommending AS for a patient.

Materials & Methods: Conference records were reviewed to identify patients discussed at the SRM conference and the treatment recommendation since its inception in April 2015 through January 2017. We queried a prospectively-maintained database for demographic variables, imaging characteristics, renal function, comorbidities, and biopsy results. Patients discussed more than once were considered distinct SRM cases. Two non-standard cases and three cases with non-cystic masses > 7 cm were excluded. We modeled the odds of the conference recommending active surveillance using a generalized estimating equation with an exchangeable correlation structure to account for patients discussed multiple times.

Results: A total of 104 cases met criteria. On univariate analysis, Charlson Index and age (both $p < 0.001$) were greater in patients chosen for AS. Our regression model showed that Charlson Index and male sex were significant predictors, adjusting for age, mass diameter, GFR, and biopsy (Table 1). In a separate regression of age categorized by quartiles and adjusted for GFR and sex, those > 75 years had much greater odds of being recommended AS (OR 13.4, $p < 0.001$).

Conclusions: Charlson Index predicts a conference recommendation of active surveillance, while male sex decreases the odds of an AS recommendation. Those > 75 years were much more likely to be selected for AS.

Table 1: Predictors of a Small Renal Mass Conference Decision to Recommend Active Surveillance

Variable	Odds Ratio	95% Confidence Interval	p-value
Age	1.02	0.97 - 1.08	0.45
Charlson Comorbidity Score	1.48	1.09 - 2.01	0.01
Male Sex	0.30	0.11 - 0.82	0.02
GFR	1.01	0.99-1.02	0.54
Biopsy Performed	0.56	0.21-1.48	0.24
Largest Mass Diameter	0.82	0.56-1.19	0.29
Number of Masses	1.59	0.72-3.49	0.25

P17

Creating A Prospective, Multidisciplinary Approach To Benign Prostatic Hyperplasia Treatment With Prostatic Artery Embolization
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Introduction: Prostate artery embolization (PAE) is an emerging treatment for benign prostate hypertrophy (BPH). The numerous BPH interventions expand opportunity to individualize BPH treatment. This descriptive study compared the characteristics of patients undergoing PAE, to those choosing other interventions following multidisciplinary evaluations with urology and interventional radiology (IR).

Materials & Methods: Review of patients from a prospective, single arm, ongoing study under an investigational device exemption from the FDA was performed. Trial announcements were made in local media using television, newspaper, and online ads. Eligible patients were evaluated in shared clinics by both specialties. Complete urologic evaluations were performed including an International Prostate Symptoms Score (IPSS) and digital rectal exam (DRE). Each specialist performed one-on-one counseling which included discussion of medications, Greenlight photovaporization, TURP, HoLEP, Urolift or PAE. Thereafter, specialist issued multidisciplinary recommendations. Inclusion criteria included gland size greater than 50 grams and flow rate < 12 ml/sec.

Results: Forty-six men attended the clinic. The mean age was 70 (range 53-92, SD 7), mean IPSS 23 (range 3-11, SD 6) and mean prostate size 56 grams (range 23-132, SD 26). Of the 46, 18% (n = 6) were disqualified from the PAE trial and 26% (n = 12) underwent PAE. Of the 34 who did not undergo PAE (including those excluded), 50% (n = 17) chose to continue conservative management, 29% (n = 10) started new medical therapy, and 9% (n=3) underwent urologic intervention (Greenlight, TURP, or Urolift). There were no significant differences between groups (Table 1).

Conclusions: Shared decision making in selecting individualized surgical treatment for BPH is crucial. Even patients self-selected for PAE will consider physicians recommendations for other therapies after multidisciplinary counseling. This descriptive study demonstrated the importance of a collaborative approach.

	No PAE	PAE	P value
Number of patients	34	12	
Mean Age (years)	71	68	
≥ 2 comorbidities % (n)	15%(11)	50% (6)	0.31
Anticoagulation use %(n)	6%(2)	16% (2)	
Average IPSS	28	28	
Prostate Size (grams)	50	71	
Prior Treatment %(n)			
None	18% (6)	17% (2)	1
Anti-muscarinic	6% (2)	8% (1)	1
5 Alpha Reductase Inhibitor	35% (12)	50% (6)	0.49
Alpha Blocker	74% (25)	83% (10)	0.7
Prior Transurethral Intervention	9%(3)	8%(1)	1

P18

Trigger Point Dry Needling as a Treatment for Orchialgia
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Introduction: Orchialgia is a challenging condition to treat. Physical Therapy (PT) is an effective treatment for orchialgia. Our objective was to assess outcomes in patients with orchialgia treated with pelvic floor trigger point dry needling (DN).

Materials & Methods: A retrospective chart review of men who presented with orchialgia and treated with PT from January 2009 to June 2016 was performed. Patients receiving DN as a part of multi-modal therapy were selected. Subjective global response measure was assessed based on patients' self-reports of improvement. NIH Chronic Prostatitis Symptom Index (NIH-CPSI) data was collected. Statistical analysis was performed where all p-values less than 0.05 were considered significant.

Results: Fifty-two out of 392 patients underwent DN as a component physical therapy. Average treatment duration was 6.4 months. 85% of patients indicated their orchialgia was better, 15% reported no improvement. Average number of DN treatments was 4.6 for those who improved; 6.5 for those who did not improve. There was no difference in NIH-CPSI pre-treatment pain and urinary scores between the group that improved compared to the group with no improvement ($p = 0.32$ and 0.25, respectively). Patients with no improvement had worse pre-treatment quality of life (QOL) scores ($p = 0.016$). Pain scores decreased from 17.3 to 11.5 and QOL scores decreased from 8.8 to 5.2 in those who improved. Improvement in pain and QOL scores was demonstrated in those who underwent dry needling as a part of their treatment compared to those with no improvement ($p = 0.0009$ and $p = 0.0003$, respectively). Urinary scores were not improved ($p = 0.689$). When comparing patients who underwent DN compared to those who did not have DN as a part of therapy, there was no significant improvement in NIH-CPSI pain/urinary/QOL scores ($p > 0.05$ for each).

Conclusions: DN is an effective treatment for orchialgia and should be a part of multi-modal PT.

P19

Physical Therapy for Orchialgia: Treatment Modalities
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Introduction: Chronic pelvic pain and orchialgia are challenging conditions to treat in urologic practice. Recent research and treatment programs have focused on musculoskeletal dysfunction as a major contributor to pelvic pain and orchialgia. Our objective was to assess the varying treatment modalities used in physical therapy for orchialgia.

Materials & Methods: A retrospective chart review was conducted on men who initially presented to our practice with orchialgia from January 2009 to June 2016 and referred for pelvic floor physical therapy. Each patient had a urologic assessment prior to physical therapy referral. Patients were evaluated and treated by our physical therapy team according to any presenting musculoskeletal impairments. Treatment included pelvic alignment exercises, therapeutic stretching/strengthening, manual therapy modalities, dry needling and biofeedback. Following treatment, a subjective global response measure was assessed based on patients' self-reports of improvement in symptoms.

Results: A total of 392 patient charts met inclusion criteria for this retrospective study. Average age was 42.8 years with mean symptom longevity of 32.8 months. Pre-treatment average day pain was 4.5 (analog scale 1-10); worst day pain was 7.6. 83.2% of patients indicated their testicular pain was better, 16.1% reported no change and 0.7% reported worsening of their pain at average follow up of 6.4 months. Percentage utilization of each treatment modality is shown in Table 1. Mean number to therapy sessions was 9.9 and mean duration of treatment was 4.3 months.

Conclusion: Physical therapy serves as a valid and effective treatment option for patients with orchialgia. Percentage utilization of varying treatment modalities suggests that a multi-modal approach to physical therapy for orchialgia should be used.

Table 1

Treatment Modality	Percentage
Manual Therapy	37.8%
Hot/cold Therapy	87.9%
Manual Trigger Point Release	37%
Pelvic Muscle Rehabilitation	86.6%
Muscle Energy Technique	50.9%
Therapeutic Exercises	96.7%
Massage/TP Release/MF Release/Skin Rolling*	84%
Trigger Point Dry Needling	24%

*Single modality or combination treatment with External Massage, Trigger point (TP) Release, myofascial (MF) Release, and/or Skin Rolling

Moderated Poster Session 2: General Urology; Infertility
P14-P24

P20

Comparing Single Agent and Dual Agent Prophylaxis for Transrectal Ultrasound Guided Prostate Biopsy: A Multi-Center Analysis

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Introduction: Transrectal ultrasound guided (TRUS) prostate biopsy (pbx) remains the gold standard for the diagnosis of prostate cancer (Pca). Appropriate prophylaxis is a significant concern as post-pbx infection and antibiotic resistance rates are rising. Our hypothesis was that the rates of post-pbx infection and sepsis between single-agent fluoroquinolone (FQ) therapy and dual agent antimicrobial therapy for prophylaxis are different.

Materials & Methods: We retrospectively evaluated the records of all consecutive men who underwent TRUS pbx between 2010 and 2014 at two separate institutions. The control institution's (CI) patients received FQ prophylaxis starting one day prior to the pbx for three days and the experimental institution's (EI) patients received three days of FQ with the addition of intramuscular (IM) ceftriaxone immediately preceding pbx. We reviewed patient visits to the emergency department within 30 days of pbx to evaluate for infections (positive urine or blood cultures) or sepsis (at least two of the four systemic inflammatory reaction syndrome (SIRS) criteria and a suspected source of infection).

Results: Of the 1,316 total patients who underwent TRUS pbx, 694 patients at the CI received a FQ alone and 580 patients at the EI received combination therapy. The rates of post-pbx infection were 1.03% at EI compared to 2.74% at CI (n = 6 and 19, respectively, p = 0.023). The rates of post-pbx sepsis were 0.0% at EI compared to 0.58% at CI (n = 0 and 4, respectively p = 0.045). The relative risk of acquiring infection with combination therapy compared to single therapy was 0.38 (p = 0.036) with a number needed to treat of 58.71.

Conclusions: Dual antimicrobial prophylaxis using IM ceftriaxone plus a FQ is more effective than FQ alone at preventing post-pbx infections and sepsis. Additionally, a NNT of 58.71 shows that there is clinical significance to adding dual antimicrobial prophylaxis in order to prevent infections.

P21

The Utility of Diuresis Rates in Analyzing Bladder Diaries

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Introduction: Bladder diaries are important diagnostic tools for evaluating patients with lower urinary tract symptoms (LUTS). This study aimed to examine whether renal diuresis rate (DR) – defined as the volume of urine produced per unit time – has an impact on severity of day and night time frequency and urgency of micturition.

Materials & Methods: A retrospective analysis was performed on 202 diaries obtained from patients who presented with LUTS to ambulatory urology clinics. Each diary was recorded over 24 hours and included the subject's bedtime and waking time, the time and volume of each void, and the urge perception score (UPS) associated with each void. Spearman's rho (ρ) was calculated to analyze the relationship of DR to UPS and nocturia severity, as measured by the actual number of nightly voids (ANV). Correlations for the entire cohort and individual subjects were examined.

Results: In total, 126 unique patients were evaluated (110 men, 16 women, ages 35-87). The mean (± SD) DR, UPS, and ANV were 1.93 ± 2.62 ml/min, 2.10 ± 0.98, and 1.96 ± 1.51, respectively. For the entire cohort, there was a moderate correlation between nocturnal DR and ANV (ρ = 0.45, p < 0.05), and a weak correlation between diurnal DR and diurnal UPS (ρ = 0.22, p < 0.05). There was considerable variation in individual correlations and for 53 (36%) subjects there was a moderate to strong correlation between DR and UPS at all times, both diurnal and nocturnal (ρ = 0.3 or greater, p < 0.05).

Conclusions: DR can be used to identify a cohort of patients for whom influencing rate of urine production may benefit LUTS. Further, the findings of this study challenge our understanding of the sensory stimuli that trigger the urge to void and support the hypothesis that urgency is multifactorial, with DR being one determinant.

P22

Pre-treatment Factors Predict Hormonal Response To Clomiphene Citrate Therapy

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Introduction: Clomiphene Citrate (CC) is a common treatment for hypogonadal men who wish to preserve fertility. Predicting biochemical response to CC, however, is not well defined. We sought to determine which men are ideal candidates for CC through an analysis of pre-treatment patient characteristics and lab values.

Materials & Methods: A retrospective review was conducted of 151 hypogonadal patients treated with CC between 2010 and 2014. Pre-treatment factors included demographics and baseline luteinizing hormone (LH), follicle stimulating hormone (FSH), and free and total testosterone (FT, TT). Testicular volume (TV) was recorded for 32 patients. Univariate analyses of these factors were performed to investigate their value in predicting response to CC. Non-responders were characterized as those with a post-treatment TT < 300 ng/dL or a decline in TT level. Receiver operator curves (ROC) for significant predictors were then applied.

Results: 115 patients had data sufficient for analysis. Mean age was 36 ± 8 years with treatment course averaging 4.2 ± 4.8 months. 88 patients were characterized as responders to CC with a mean rise in TT of 369 ± 214 ng/dL. On univariate analysis, LH was a significant positive predictor of CC failure (OR 1.05, p = 0.03) (LH ≥ 10.5), while larger testicular volume was associated with improved response (OR 0.63, p = 0.02) (TV ≥ 16.5). No other pre-treatment variables were significant predictors.

Conclusions: In this series, elevated pre-treatment LH was predictive of biochemical failure on CC, although ROC revealed it may not perform well as a predictive test. Testicular volume was a negative predictor of failure with good performance by ROC.

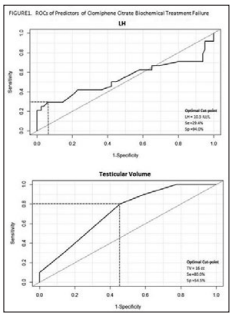

TABLE 1.

	Response (n=88)	Failure (n=27)
Age	36 ± 7	36 ±7
Race		
White	90%	89%
Black	9%	9%
Other	1%	0%
BMI	30.9 ± 14.8	30.0 ±5.5
Smoker	7%	13%
Alcohol use	58%	57%
Pre-treatment (mean ± SD)		
LH (IU/L)	4.0 ± 2.9	10.5 ± 17.9
FSH (IU/mL)	4.4 ± 4.9	7.8 ±15.3
Hgb (g/dL)	15.4 ±1.2	15.3 ±1.2
TT (ng/dL)	271 ± 115	385 ± 334
TF (ng/dL)	26.6 ± 24.3	12.3 ± 10.9
LOT (months)	4.39 ±5.09	4.7 ±5.0
TV	17.4 ±2.5	15.3 ±2.2
Post-treatment (mean ± SD)		
TT (ng/dL)	640 ± 199	298 ± 170
TF (ng/dL)	40.5 ±73	15.7 ±19
Change in TT (ng/dL)	368 ± 214	−87 ± 245

P23

Predictors of Improvement in Semen Parameters in Men Treated with Clomiphene Citrate

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Introduction: Clomiphene Citrate (CC) is an off-label treatment for hypogonadal men who wish to preserve or improve fertility. CC has been shown to improve semen parameters in some men, but defined parameters for patient selection remain elusive. Elucidating predictors of response would enhance shared decision making between clinicians and patients. We examined the relationship between demographic factors, pre-treatment laboratory values, and duration of CC therapy on changes in semen parameters in hypogonadal men receiving CC.

Materials & Methods: A retrospective chart review was conducted for 151 hypogonadal men treated with CC at two institutions from 2010 to 2014. Patient age, race, pre-treatment LH, FSH, estradiol, and total testosterone, pre-treatment testicular volume, and duration of CC therapy were examined. Patients were excluded if they lacked this data or pre- and post-treatment semen analyses. Univariate analyses were conducted to evaluate the relationship between each aforementioned factor and changes in sperm motility, concentration, and semen volume.

Results: A total of 81 patients met criteria for analysis. Paired T-tests showed improved motility (P < 0.05), a trend toward improved sperm concentration (P = 0.059), and no change in seminal volume (P = 0.95) in men after treatment. Univariate analysis showed that none of the studied factors were predictive of change in semen parameters.

Conclusions: Patient age, race, pre-treatment LH, FSH, estradiol, and testosterone, pre-treatment testicular volume, and length of CC therapy were not predictive of changes in sperm motility and sperm concentration observed in our study sample. While CC remains a viable treatment for male infertility, the ideal patient for this therapy remains elusive. Larger studies may help clarify predictors of success.

P24

Utilization of Sperm Cryopreservation Before and After Implementation of an Institutional Fertility Preservation Program

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Introduction: Fertility Preservation (FP) options are underutilized among reproductive-aged cancer patients considering cancer treatment. Formal programs may increase FP awareness and participation among clinicians and patients. We examined whether the implementation of a FP program increased sperm cryopreservation among reproductive-aged cancer patients at our institution.

Materials & Methods: A retrospective chart review was conducted for patients seen for FP from 2014-2016 at the University of Virginia. Data captured included number of consultations, patient demographics, cancer type, utilization of sperm cryopreservation, and reasons for forgoing cryopreservation. Consultations from 2014 served as a baseline prior to FP educational efforts in 2015, including inter-disciplinary lectures and Epic prompts. The primary outcome was the number of consultations seen annually thereafter. The secondary outcome was the number of men utilizing sperm cryopreservation.

Results: In 2014, 6 men were seen in consultation for FP with all 6 (100%) utilizing cryopreservation. Fourteen and 22 men were seen in consultation in 2015 and 2016, with 13 (93%) and 14 (64%) utilizing cryopreservation, respectively. The mean patient age was 26 years old. Cancers were hematologic (45%), genitourinary (26%), neurologic (12%), head/neck (7%), and other (10%). Reasons for forgoing cryopreservation included prior initiation of chemotherapy (44%), lack of interest (22%), physical inability to provide a sample (22%), and excessive stress (11%). Men forgoing cryopreservation did not report financial limitations as a deterrent.

Conclusions: The number of consultations per year for FP increased threefold after implementation of a FP program at our institution. The majority of men seen in consultation utilized cryopreservation. The most common reason for forgoing cryopreservation was exclusion due to prior initiation of chemotherapy. We conclude that our FP program increased awareness of and participation in sperm cryopreservation. Education efforts should continue in order to optimize outreach and utilization, specifically focusing on the need to perform cryopreservation prior to chemotherapy.

P25

Prostate MRI-Fusion Biopsy Results In a Large Community Practice

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Introduction: MRI-Fusion-guided biopsy (TBx) is increasingly utilized for detection of clinically relevant prostate cancer in academic settings. This study examines whether Tbx demonstrates improved detection of relevant prostate cancers (PCa) compared to 12-core standard biopsy (StdBx) in community practice and includes active surveillance (AS) cohorts.

Materials & Methods: Prostate MRI and Tbx experience of 400 patients over a 3-year period were reviewed. Outpatient MRI's were assessed by radiologists specializing in prostate MRI. UroNav Fusion Biopsy System (Phillips, InVivo) was used. Outpatient biopsies were performed using standardized clinical pathways.

Results: Overall cancer detection rate was 73% (n = 400). Cancer detection rates were: Tbx [61% (245/400)]; GS ≥ 7 [61% (149/245)], and StdBx [57% (208/364)]; GS ≥ 7 [44% (92/208)]. Alone, TBx missed 46 tumors, StdBx missed 56 (Table 1). Transition/anterior lesions demonstrated in 38% (151/400). PI-RADS were used to classify 350 lesions. In TBx, PCa detection rates for GS ≥ 7 (3+4), PI-RADS 3/4/5 were [9% (9/99)], [28% (37/131)], and [53% (63/120)], respectively (Table 2). Of AS patients with prior GS6 diagnosis by STDBx, TBx detected PCa in 83/126 (67%); with upgrading in 36/83 (43%). Of 47/83 (57%) without upgrading on TBx, 12 had tumor core volume ≥ 50%, and 49/83 (59%) proceeded to definitive treatment.

Conclusions: Tbx can be successfully integrated into a large, community-based urology practice. Data supports the value of Tbx in detection of clinically relevant prostate cancers. Our current PI-RADS scoring/biopsy concordance rates compare to published results. Examination of AS cohort supports use of MRI/TBx platform.

Table 1

StdBx n(%) \ TBx n(%)	Benign	GL 6	GL≥7	Total
No StdBx	9 (2.3%)	6 (1.5%)	21 (5.3%)	36 (9.0%)
Benign	100 (25.0%)	27 (6.8%)	29 (7.3%)	156 (39.0%)
GL 6	33 (8.3%)	49 (12.3%)	34 (8.5%)	116 (29.0%)
GL≥7	13 (3.3%)	14 (3.5%)	65 (16.3%)	92 (23.0%)
Total	155 (38.8%)	96 (24.0%)	149 (37.3%)	400 (100%)

Table 2

PI-RADS	# of Scores	TBx +	GL ≥7	GL 6	GL7 (3+4)	GL7 (4+3)	GL>7
3	99	22 (21%)	9 (9%)	13 (13%)	6 (6%)	2 (2%)	1 (1%)
4	131	67 (51%)	37 (28%)	30 (23%)	25 (19%)	5 (4%)	7 (5%)
5	120	95 (79%)	63 (53%)	32 (27%)	23 (19%)	21 (18%)	19 (16%)

P26

Underestimation of Prostate Cancer Risk Using the Prostate Cancer Prevention Trial Risk Calculator Using the Prostate Cancer Prevention Trial Risk Calculator

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Introduction: The Prostate Cancer Prevention Trial risk calculator (PCPT-RC) is commonly employed to estimate prostate cancer risk and determine the need for prostate biopsy. Our objective was to assess the accuracy of the PCPT-RC in estimating cancer risk in our predominantly African American (AA) patient population.

Materials & Methods: Patients undergoing biopsy at our institution between July 2012 and November 2015 were included. The PCPT-RC 2.0 formula, was used to determine the predicted risk of any and high-grade prostate cancer for each patient. Calibration plots were generated to compare PCPT-RC predicted risk vs. observed biopsy outcome stratified by race. The Hosmer-Lemeshow goodness of fit test was performed on each cohort, and the area under the receiver operating characteristic curve (AUC) was calculated for each outcome of interest.

Results: 616 patients met inclusion criteria, including 373 (60.5%) AA and 243 (39.4%) non-AA men. Positive prostate biopsies and high-grade cancers were more common in AA men (table 1). Calibration plots for the prediction of prostate cancer and high-grade prostate cancer, with the corresponding AUC and Hosmer-Lemeshow p-value for each outcome of interest, are shown in the figure. The observed prevalence of cancer exceeded the PCPT-RC predicted risk in men of all races.

Conclusions: In our patient population, the PCPT-RC underestimated the presence of prostate cancer and high-grade prostate cancer in men of all races. Further investigation is needed to determine whether this risk underestimation is observed in other patient populations, as these findings have significant implications when using the PCPT-RC to counsel patients.

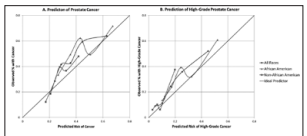

Figure 1A: Prediction of any prostate cancer: AUC - All Races 0.68 (p=0.01), AA 0.64 (p=0.07), Non-AA 0.65 (p=0.26).
Figure 1B: Prediction of high-grade prostate cancer: AUC - All Races 0.74 (p=0.06), AA 0.70 (p=0.13), Non-AA 0.73 (p=0.59).

		Non-African American N (%)	African American N (%)	p-value
Biopsy Positive	No	163 (67.1%)	175 (46.9%)	<0.01
	Yes	80 (32.9%)	198 (53.1%)	
High Grade Cancer	No	206 (84.8%)	247 (66.2%)	<0.01
	Yes	37 (15.2%)	126 (33.8%)	

P27

Hospitalization and Emergency Department (ED) Visits Following 2000 Consecutive Prostate Needle Biopsies

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Introduction: Transrectal ultrasound-guided prostate needle biopsy (TRUS-PNB) is essential for diagnosis of prostate cancer. Complications remain a valid patient concern. We reviewed a contemporary cohort of patients undergoing TRUS-PNB at a single institution to determine the incidence and predictors of complications requiring hospital admission or ED visits.

Materials & Methods: The charts of 2000 consecutive patients undergoing TRUS-PNB at a tertiary care academic medical center were reviewed. All patients received antibiotic prophylaxis. Indications, management, and outcomes for hospital admission and ED visits within 30 days of PNB were identified. Patient and biopsy characteristics were reviewed for association with complications.

Results: Fifty patients (2.5%) required ED visit or hospitalization within 30 days of TRUS-PNB. (Table 1) Twenty-four (1.2%) patients were admitted for urosepsis with eight (0.4%) requiring ICU level care. Patients with urosepsis had a mean hospitalization of 4 days and 75% (16 of 24) carried quinolone-resistant E. coli organisms. Thirteen patients (0.7%) presented with acute urinary retention requiring catheterization. Twelve patients (0.6%) presented with gross hematuria, half requiring bedside clot evacuation. Complications among 1-1000 and 1001-2000 patients were comparable except for the number of Clavien grade IV complications, which were two and six respectively. Diabetes (p = 0.02) and anticoagulation (p = 0.046) were the only patient variables associated with ED visit or hospital admission on univariate analysis. (Table 2)

Conclusions: In this large series of TRUS-PNB, we observed a 2.5% rate of complications requiring hospital admission or ED visit. Patients with diabetes or on anticoagulation may be at higher risk for complications following TRUS-PNB.

Table 1 – Clavien-Dindo grading and management of TRUS PNB complications requiring ED visit or admission

Grade	Complication	Management
I (n=24)	Acute urinary retention (n=11)	Bladder catheterization
	Incidental gross hematuria, urinary retention (n=2)	Bladder catheterization
	Gross hematuria without clot retention (n=3)	Observation with hydration
	Gross hematuria with clot retention (n=5)	Bladder irrigation plus clot evacuation
	Hypotension related to procedure (n=1)	Observation with hydration
	Hematospermia, erectile dysfunction (n=1)	Observation
	Rectal bleeding (n=1)	Observation with hydration, colorectal surgery consult
II (n=16)	UTI with signs of bacteremia (n=14)	Intravenous antibiotics
	Gross hematuria, UTI, signs of bacteremia (n=1)	Intravenous antibiotics
	UTI with signs of bacteremia, mastoiditis (n=1)	Intravenous antibiotics
III (n=2)	Gross hematuria with clot retention and renal insufficiency (n=1)	Renal imaging, hydration, supportive care
	Transient ischemic attack (n=1)	Head MRI, initiation of anticoagulation, supportive care
IV(a (n=8)	Sepsis (n=7)	ICU admission, intravenous antibiotics
	Sepsis, NSTEMI (n=1)	ICU admission, intravenous antibiotics

Table 2 – Demographic and biopsy factors associated with TRUS PNB complications

Demographic variables	Complications (n=50)	No Complications (n=1950)	*P-value*
Age (years), mean (range)	63.3 (45-84)	63.9 (36-92)	0.92
Caucasian race, n (%)	39 (78)	1566 (80)	0.69
Diabetes, n (%)	12 (24)	248 (13)	***0.02***
Immunosuppression, n (%)	2 (4)	54 (3)	0.61
Anticoagulation, n (%)	23 (46)	636 (33)	***0.046***
History of prostatitis, n (%)	0 (0)	50 (3)	0.25
Hospitalization within 6 months of biopsy, n (%)	1 (2)	106 (5)	0.29
Antibiotic therapy within 3 months of biopsy, n (%)	5 (10)	215 (11)	0.82
Prior prostate needle biopsy, n (%)	20 (40)	628 (32)	0.23
Biopsy variables			
No. of cores, mean (range)	16.6 (8-30)	15 (8-40)	0.55
Gland size (cm^3), mean (range)	54 (18-154)	47.5 (12-250)	0.10
Biopsy positive for prostate cancer, n (%)	14 (28)	821 (42)	***0.047***

P28

A Simple Povidone Iodine Gel Rectal Prep for TRUS Biopsy of the Prostate

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Introduction: Previous studies have strongly supported the use of a pre-TRUS biopsy bowel prep of povidone iodine (topical, enema or suppository) to reduce post TRUS biopsy infections. Our retrospective study uses a commercially available 10% povidone iodine gel at the time of prostate biopsy as a lubricant and topical antiseptic. This study primarily assessed the incidence of post procedural infections requiring hospitalization or admission for treatment of sepsis.

Materials & Methods: A 3 year retrospective study of consecutive TRUS biopsy patients performed by 2 urologists in a community office and surgery center setting. A total of 410 patients underwent the procedure. Every patient received Cipro 500 mg p.o., 2 hours before the biopsy, 12 hours and 24 hours later for a total of 3 doses. ASC patients received 1 gm Ancef IV concurrently with their procedure as well. All patients had a DRE prostate using the 10% povidone iodine gel to palpate the prostate for abnormalities and "paint" the anterior rectal wall. This was followed by a generous application of the 10% povidone-iodine gel to the rectal transducer prior to anal insertion.

Results: A total of 410 consecutive patients over a 3 year period were studied, 287 patients performed in the office under local and 123 patient's performed in the ASC under IV sedation. No patients were hospitalized for infectious complications requiring treatment, including sepsis, for an incidence of 0%.

Conclusions: By using an inexpensive, commercially available 10% povidone iodine gel at the time of TRUS- biopsy we had no reported infections requiring hospitalization for 410 consecutive patients over a 3 year period. The 4 ounce bottle of 10% povidone iodine gel is approximately $1.59/bottle yielding 2 or 3 patient doses per bottle. Recommend a prospective study to further evaluate this simple approach for the reduction of post TRUS-prostate biopsy infectious complications.

P29

Trends in Prostate Cancer Surgical Pathology and the Impact of Active Surveillance

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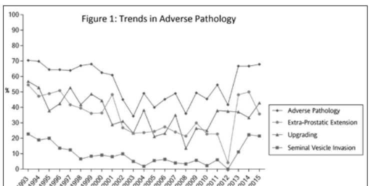
Introduction: Active surveillance (AS) is an important management strategy for low risk (LR) prostate cancer (CaP). Oncologic outcomes have been encouraging, but a subset of patients demonstrates adverse pathology at radical prostatectomy (RP). This study describes temporal trends in adverse pathology at RP and evaluates the impact of AS on those trends.

Materials & Methods: This retrospective cohort study evaluated CaP patients undergoing RP from 1993-2015 at an equal access military institution. AS patients met NCCN LR criteria, were aged ≤ 75 years, and had RP > 6 months after CaP diagnosis with no other prior treatment. Whole mount prostatectomy specimens were examined using the 2014 ISUP Gleason grading. Adverse pathology (AP) was defined by Gleason upgrading (GU) from biopsy to RP, extra-prostatic extension (EPE), or seminal vesicle invasion (SVI). Rates of AP over time were evaluated with Wilcoxon Mann-Whitney test. Chi-square test was used to compare AP among AS and all other LR CaP patients from 2005-2015.

Results: There were 1,772 who patients underwent RP from 1993-2015. Trends in AP are shown in Figure 1. From 2005-2015, 426 LR patients underwent RP, of whom 43 (10%) met AS criteria. AS patients had a longer time to surgery (9.5 vs. 2.9 months, $p < 0.01$), and AS management increased from 2005-2015 (9.1% vs. 25.0%, $p = 0.025$). There were no significant differences in any AP parameter for those on AS versus all other LR CaP.

Conclusions: Patients managed on AS did not have an increased risk of AP when compared to those undergoing immediate RP. PSA screening practices and patient selection for surgery may better explain recent adverse trends.



P30

Treatment Patterns and Variation in Care across Different Urology Practice Sites Treating Patients with Metastatic Castration-resistant Prostate Cancer

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Introduction: Nationally recognized treatment guidelines have been established for the treatment of advanced prostate cancer patients, but little is known about guideline adherence and treatment sequencing. This study described treatment patterns and sequences across five community urology practices located in the United States.

Materials & Methods: Electronic medical records from five practices (located in MD, TN, AL, IL, OR) were used to identify adults diagnosed with metastatic castration-resistant prostate cancer (mCRPC) who were initiated on an mCRPC therapy (i.e., oral mCRPC therapies [abiraterone acetate plus prednisone and enzalutamide], sipuleucel-T, and radium-223) between 01/2014-09/2016. Treatment patterns were retrospectively evaluated from mCRPC diagnosis to the earliest between end of clinical activity, death, or data cut-off.

Results: A total of 540 mCRPC patients were included. The mean age was 75.8 years (range: 74.1-77.4 across practices) and 36.5%, 17.8%, 17.8%, 14.8%, and 13.1% of patients were treated in MD, TN, AL, IL, and OR practices, respectively. The majority of patients were initiated on sipuleucel-T (47.8%; range: 23.8%-66.0%) or oral mCRPC therapy (47.6%; range: 28.4%-73.8%). Moreover, radium-223 was the first mCRPC therapy for 4.6% of the population (range: 1.0%-12.7%). During the 6-month baseline period, in patients with reported tests, the mean PSA level was 73.7 ng/ml (range: 36.4-97.6), and the mean testosterone level was 15.9 g/dL (range: 14.9-17.8). The mean observation period was 290 days and observed treatment sequences varied across practices (Table).

Conclusions: This retrospective EMR study suggests that while there may be variations in baseline characteristics of mCRPC patients and in administration of mCRPC therapies amongst large urology groups, there appears to be a learning curve in adopting the best treatment practices for the administration of these pharmaceuticals.

Treatment Sequences of mCRPC Therapies

	Observation period[1], days, mean±SD	Treatment sequence of mCRPC therapies, n (%)[1,2]					
		Overall Population	Maryland	Tennessee	Alabama	Illinois	Oregon
	N = 540	N = 540	N = 197	N = 96	N = 96	N = 80	N = 71
Observation period[1], days, mean±SD		290±247	315±241	247±271	288±203	274±251	301±273
Oral mCRPC therapy	167±177	191 (35.4%)	35 (17.8%)	45 (46.9%)	44 (45.8%)	40 (50.0%)	27 (38.0%)
Sipuleucel-T | Oral mCRPC therapy	403±266	112 (20.7%)	62 (31.5%)	19 (19.8%)	11 (11.5%)	9 (11.3%)	11 (15.5%)
Sipuleucel-T	285±240	99 (18.3%)	44 (22.3%)	16 (16.7%)	20 (20.8%)	4 (5.0%)	15 (21.1%)
Oral mCRPC therapy | Oral mCRPC therapy	345±157	29 (5.4%)	9 (4.6%)	4 (4.2%)	6 (6.3%)	10 (12.5%)	0 (0.0%)
Oral mCRPC therapy | Sipuleucel-T	325±288	17 (3.1%)	2 (1.0%)	0 (0.0%)	5 (5.2%)	6 (7.5%)	0 (0.0%)
Sipuleucel-T | Oral mCRPC therapy | Oral mCRPC therapy	500±240	16 (3.0%)	7 (3.6%)	1 (1.0%)	5 (5.2%)	3 (3.8%)	0 (0.0%)
Radium 223	117±101	15 (2.8%)	10 (5.1%)	2 (2.1%)	0 (0.0%)	0 (0.0%)	1 (1.4%)
Sipuleucel-T | Radium 223	353±135	13 (2.4%)	7 (3.6%)	4 (4.2%)	0 (0.0%)	0 (0.0%)	2 (2.8%)
Oral mCRPC therapy | Radium 223	200±157	9 (1.7%)	4 (2.0%)	3 (3.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Sipuleucel-T | Oral mCRPC therapy | Radium 223	606±156	9 (1.7%)	5 (2.5%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	2 (2.8%)
Radium 223 | Oral mCRPC therapy	282±162	8 (1.5%)	1 (0.5%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	6 (8.5%)
Other treatment sequences	580±231	22 (4.1%)	11 (5.6%)	1 (1.0%)	5 (5.2%)	7 (8.8%)	7 (9.9%)

1. Evaluated from the mCRPC diagnosis to the earliest date between death, end of clinical activity, or data cutoff among patients initiating a mCRPC therapy in 2014, 2015, or 2016.
2. Included the following mCRPC therapies: sipuleucel-T, docetaxel, radium-223, and oral mCRPC therapies (i.e., abiraterone acetate plus prednisone or enzalutamide).

P31

Associations of Chronic Kidney Disease with Prostate Cancer Severity and Treatment

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Introduction: The association between chronic kidney disease and prostate cancer (CaP) risk and severity remains unclear. We studied associations of CKD severity with CaP risk, CaP treatment modality, and pathological outcomes for those receiving radical prostatectomy (RP).

Materials & Methods: Patients undergoing prostate biopsy between 2012-2015 were retrospectively identified from our institutional database. Associations between CKD stage and biopsy results were assessed. For patients with positive biopsies, treatment modality and clinicopathologic parameters were compared by CKD stage. For those that underwent RP, clinicopathologic factors and measures of disease risk were analyzed.

Results: For 645 men who underwent biopsy, CKD stage was not associated with the likelihood of positive biopsy, Gleason Score, PSA values, or number of positive biopsy cores (table 1). In CaP patients, advanced CKD stage was associated with higher use of radiation therapy as opposed to RP. For 314 patients receiving RP, CKD patients trended toward higher pathological Gleason scores and CAPRA-S scores (table 2).

Conclusions: In men who underwent prostate biopsy, severity of CKD was not associated with the likelihood of positive biopsy or high -grade cancers. For men receiving RP, trends were observed towards more advanced tumors in patients with CKD. These trends may be attributed to selection bias. Men with severe CKD were less likely to undergo surgery, suggesting surgery may be reserved for CKD patients with advanced or aggressive disease.

Table 1: Prostate Biopsy Outcomes and Cancer Treatments by CKD Stage

		CKD Stage			p-value
		1	2	3-5	
PSA (Mean)		9.4	8.8	10.6	0.35
Biopsy Result	Negative	111 (51.2%)	171 (59.6%)	70 (49.7%)	0.07
	Positive	106 (48.9%)	116 (40.4%)	71 (50.4%)	
Biopsy Gleason Score	3+3	40 (37.7%)	46 (39.7%)	31 (43.7%)	0.13
	3+4	32 (30.2%)	35 (30.2%)	15 (21.1%)	
	4+3	14 (13.2%)	22 (19.0%)	15 (21.1%)	
	4+4	4 (3.8%)	8 (6.9%)	5 (7.0%)	
	≥ 9	16 (15.1%)	5 (1.3%)	5 (7.0%)	
% Positive Biopsy Core (Mean)		0.44	0.40	0.41	0.56
Treatment Modality	RP	62 (58.5%)	53 (45.7%)	21 (29.6%)	< 0.01
	Radiation	17 (16.0%)	33 (28.5%)	29 (40.9%)	
	Active Surveillance	15 (14.2%)	15 (12.9%)	11 (15.5%)	
	Other	7 (6.6%)	5 (4.3%)	6 (8.5%)	
	Unknown	5 (4.7%)	10 (8.6%)	4 (5.6)	

Table 2: Demographic and Clinicopathologic Parameters by CKD Stage in Men Treated with Radical Prostatectomy

		CKD Stage			p-value
		1	2	3-5	
Age at Surgery (Mean)		58.5	63.1	64.6	< 0.01
Race	AA	40 (28.4%)	29 (21.8%)	8 (32%)	0.35
	White	101 (71.6%)	104 (78.2%)	17(68%)	
PSA (Mean)		9.3	7.8	9.6	0.34
Pathological Stage	pT2	109 (75.2%)	103 (75.2%)	22 (71.0%)	0.88
	pT3-4	36 (24.8%)	34 (24.8%)	9 (29.0%)	
N Stage	N0	124 (86.7%)	126 (91.3%)	26 (86.7%)	0.44
	N1	19 (13.3%)	12 (8.7%)	4 (13.3%)	
Pathological Gleason Score	3+3	43 (29.7%)	34 (24.8%)	3 (10.0%)	0.06
	3+4	68 (46.9%)	61 (44.5%)	17 (56.7%)	
	4+3	14 (9.7%)	29 (21.2%)	8 (26.7%)	
	4+4	9 (6.2%)	4 (2.9%)	1 (3.3%)	
	≥9	11 (7.6%)	9 (6.6%)	1 (3.3%)	
Surgical Margins	Negative	94 (64.8%)	84 (60.9%)	16 (51.6%)	0.37
	Positive	51 (35.2%)	54 (39.1%)	15 (48.4%)	
Extraprostatic Extension	No	113 (77.9%)	112 (81.2%)	22 (71.0%)	0.44
	Yes	32 (22.1%)	26 (18.8%)	9 (29.0%)	
Seminal Vesicle Invasion	No	124 (85.5%)	116 (84.0%)	26 (83.9%)	0.93
	Yes	21 (14.5%)	22 (16.0%)	5 (16.1%)	
CAPRA Risk	Low	52 (37.7%)	42 (33.1%)	8 (28.6%)	0.86
	Intermediate	51 (37.0%)	53 (41.7%)	12 (42.9%)	
	High	35 (25.4%)	32 (25.2%)	8 (28.6%)	
CAPRA-S Risk	Low	74 (51.0%)	65 (47.1%)	11 (35.5%)	0.23
	Intermediate	44 (30.3%)	46 (33.3%)	11 (35.5%)	
	High	27 (18.6%)	27 (19.6%)	9 (29.0%)	

P32

Variation in Prostate Cancer Risk by County Population Density
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Introduction: The association of population density with prostate cancer risk has not been studied as extensively as other characteristics like age, race, and family history. We aimed to evaluate the differences in prostate cancer between men residing in rural, suburban, metropolitan, and urban United States counties.

Materials & Methods: Using the Surveillance, Epidemiology, and End Results (SEER) 18 Registries from 2010-2013, we identified patients with prostate adenocarcinoma. Population density was classified in order of decreasing density as urban, metropolitan, suburban, or rural. Demographic, socioeconomic, and disease-specific data were analyzed, and compared by population density.

Results: Of 162,876 total patients, 100,517 (61.8%) resided in urban counties, 44,749 (27.5%) in metropolitan counties, 9,595 (5.9%) in suburban counties, and 7,900 (4.9%) in rural counties. Rural patients were older, more often white, had lower incomes, and were less likely to have a high school education as compared to patients of other counties (Table 1). Patients in rural regions additionally showed the highest incidence of elevated PSA, advanced Gleason scores, advanced stage, and higher NCCN risk group (Table 2).

Conclusions: This analysis of the SEER database suggests that men from rural counties are diagnosed with more advanced and aggressive prostate cancer than the suburban, metropolitan and urban counterparts. These rural areas may benefit from community outreach to increase prostate cancer awareness, and to promote the early detection and aggressive treatment of prostatic malignancies.

Table 1: Demographic and Socioeconomic Characteristics by County of Residence

	Urban	Metro	Suburban	Rural	P-Value
	100,517	44,749	9,595	7,900	
Age (#)					< 0.001
< 55	11,757 (11.7%)	4,556 (10.2%)	815 (8.5%)	638 (8.1%)	
56-64	35,935 (35.8%)	15,726 (35.1%)	3,228 (33.6%)	2,532 (32.3%)	
> 65	52,825 (52.6%)	24,467 (54.7%)	5,552 (57.9%)	4,710 (59.6%)	
Race (#)					< 0.001
White	74,401(74.0%)	35,413 (79.1%)	8,040 (83.8%)	7,026 (88.9%)	
Black	17,407 (17.3%)	6,342 (14.2%)	1,382 (14.4%)	595 (7.5%)	
Other	8,709 (8.7%)	2,994 (6.7%)	173 (1.8%)	279 (3.5%)	
Median Household Income ($)	65,330	55,432	44,676	40,569	< 0.001
Persons < Poverty (%)	10.03	12.37	14.82	15.65	< 0.001
Persons < HS Education (%)	11.83	13.06	14.26	15.09	< 0.001
Marital Status (#)					< 0.001
Single (Never Married)	10.949 (10.9%)	4,158 (9.3%)	824 (8.6%)	630 (8.0%)	
Married	63.488 (63.2%)	30,034 (67.1%)	6,499 (67.7%)	5,440 (68.9%)	
Other	11,417 (11.4%)	5,300 (11.8%)	1,287 (13.4%)	1,013 (12.8%)	
Unknown	12,663 (12.6%)	5,257 (11.7%)	985 (10.3%)	817 (10.3%)	

Table 2: Disease Severity by County of Residence

	Urban	Metro	Suburban	Rural	P-Value
	100,517	44,749	9,595	7,900	
PSA (#)					< 0.001
< 10	76,691 (76.3%)	33,481 (74.8%)	6,928 (72.2%)	5,511 (69.8%)	
10-20	14,280 (14.2%)	6,771 (15.1%)	1,512 (15.8%)	1,375 (17.4%)	
> 20	9,546 (9.5%)	4,497 (10.0%)	1,155 (12.0%)	1,014 (12.8%)	
Gleason Score (#)					< 0.001
<= 6	44,391 (44.2%)	19,135 (42.8%)	3,819 (39.8%)	3,205 (40.6%)	
7	39,319 (39.1%)	17,428 (38.9%)	3,820 (39.8%)	3,092 (39.1%)	
>= 8	16,807 (16.7%)	8,186 (18.3%)	1,956 (20.4%)	1,603 (20.3%)	
T-Stage (#)					< 0.001
TI	44,274 (44.0%)	18,439 (41.2%)	4,245 (44.2%)	3,176 (40.2%)	
TII	44,671 (44.4%)	20,950 (46.8%)	4,198 (43.8%)	3,708 (46.9%)	
TIII	10,890 (10.8%)	5,021 (11.2%)	1,069 (11.1%)	953 (12.1%)	
TIV	682 (0.7%)	339 (0.8%)	83 (0.09%)	63 (0.8%)	
NCCN Risk* (#)					< 0.001
Very Low	19,964 (19.5%)	7,573 (17.4%)	1,633 (17.7%)	1,153 (15.1%)	
Low	8,108 (8.3%)	3,825 (8.8%)	756 (8.2%)	661 (8.7%)	
Intermediate	45,394 (46.5%)	20,138 (46.4%)	4,140 (44.8%)	3,439 (45.2%)	
High	25,140 (25.7%)	11,896 (27.4%)	2,712 (29.3%)	2,358 (31.0%)	
Lymph Node Involvement (#)					0.03
N0	97,803 (97.3%)	43,636 (97.5%)	9,349 (97.4%)	7,666 (97.0%)	
N1	2,714 (2.7%)	1,113 (2.5%)	246 (2.6%)	234 (3.0%)	
Evidence of Metastasis (#)					< 0.001
M0	97,706 (97.2%)	43,434 (97.1%)	9,241 (96.3%)	7,611 (96.3%)	
M1	2,811 (2.8%)	1,315 (2.9%)	354 (3.7%)	289 (3.7%)	

* Patients without metastatic disease

P34

Subharmonic Imaging: Pilot Study of a Novel Contrast-enhanced Ultrasound Modality for Prostate Biopsy
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Introduction: Subharmonic imaging (SHI) is a new imaging technique with microbubble ultrasound contrast with improved tissue suppression. We conducted a pilot study to optimize contrast enhanced subharmonic imaging of the prostate.

Materials & Methods: Five patients referred for prostate biopsy participated in this pilot study. Each patient was imaged with a transrectal IC5-9D ultrasound transducer on modified Logiq E9 system (GE Healthcare; Milwaukee, WI) that was modified to allow SHI. Ultrasound contrast was infused intravenously using Definity™ (Perflutren Lipid Microsphere, Lantheus Medical Imaging, Inc; N. Billerica, MA) diluted in 50 ml of saline. Images were obtained with transverse sweeps through the prostate using conventional gray scale, color Doppler, power Doppler, and conventional contrast harmonic imaging as well as SHI using 8 different pulse shapes. Flash replenishment imaging was evaluated with conventional contrast harmonic and SHI modes. Doppler flow and contrast enhancement were rated on a 5 point subjective scale for each prostate sextant.

Results: Contrast enhancement was observed with both harmonic and SHI techniques in all 5 subjects. There was extensive variation in subharmonic signal among the subharmonic waveform shapes. We identified an optimal subharmonic waveform shape and pulse power which provided improved contrast signal and tissue suppression. Contrast enhanced imaging demonstrated areas of focal contrast enhancement in 2/5 patients; areas of focal enhancement were better delineated with flash replenishment imaging. Biopsy cores obtained from these patients demonstrated high grade prostate cancer in biopsy cores targeted to areas of focal contrast enhancement.

Conclusions: This first in-vivo application of contrast enhanced SHI demonstrated contrast enhancement in 5/5 patients, with focal contrast enhancement corresponding to high grade prostate cancer in 2/5 patients. SHI provided improved contrast signal and tissue suppression relative to conventional harmonic imaging. SHI may allow improved detection of high grade prostate cancer based upon improved visibility of tumor vascularity.
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P33

PSA Screening History and Prostate Cancer Aggressiveness
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Introduction: Following the USPSTF recommendations against PSA screening for prostate cancer (CaP) in 2008 and 2012, PSA screening has decreased with concomitant increases in advanced CaP at diagnosis. This study examined the association between PSA screening history and CaP aggressiveness in a military cohort with equal health care access.

Materials & Methods: This retrospective cohort study evaluated CaP patients undergoing radical prostatectomy (RP) from 1994-2014 at a single institution. Excluding the diagnostic PSA, screening history was categorized as: ≥ 6 PSA's prior to CaP diagnosis (uppermost quartile), 1-5 (lower 3 quartiles), vs. no screening history. Whole-mount prostatectomy specimens were classified using 2014 ISUP Gleason grading system. Multivariable logistic regression (MLR) was used to examine NCCN risk strata (intermediate-high vs. low) and Gleason upgrade from biopsy to RP. Multivariable Cox proportional hazards (Cox PH) analyses were used to model time to biochemical recurrence (BCR).

Results: There were 1,742 eligible patients with a median follow-up and age at RP of 7.1 and 59.6 years, respectively. Prior to CaP diagnosis, 42% and 19% of men had 1-5 and ≥ 6 PSA screenings, respectively.

Conclusions: An absence of PSA screening may lead to more aggressive disease at presentation and poorer clinical outcomes. PSA screening remains the most important aspect of CaP detection in this era. Further research in prognostic indicators may improve clinical decision-making.

Table 1. Multivariate Logistic Regression for NCCN Intermediate or High Risk Presentation	OR	95% CI		p-value
Diagnosed Age (year)	1.04	1.02	1.05	**<0.0001**
PSA Screened				
None vs. 1-5	1.33	1.03	1.72	**0.0287**
None vs. ≥ 6	1.17	0.84	1.63	0.3419
Race				
African American vs. Caucasian/Others	1.27	1.00	1.59	0.0528
Obese				
Yes vs. No	1.05	0.81	1.37	0.7144
Family History				
Yes vs. No	0.95	0.76	1.19	0.6806

Table 2. Multivariate Logistic Regression for Gleason Group Upgrading	OR	95% CI		p-value
Diagnosed Age (year)	1.06	1.04	1.08	**<0.0001**
Largest Tumor Size	2.98	2.48	3.57	**<0.0001**
PSA Screened				
None vs. 1-5 PSA	1.23	0.91	1.67	0.1767
None vs. ≥ 6 PSA	1.75	1.20	2.70	**0.0038**
Race				
African American vs. Caucasian/Others	1.14	0.85	1.51	0.3852
NCCN				
Intermediate/High risk vs. Low risk	0.14	0.10	0.19	**<0.0001**
Family History				
Yes vs. No	0.93	0.71	1.22	0.5930

Table 3. Multivariate Cox Proportional Hazards Model for Biochemical Recurrence	HR	95% CI		p-value
Time from Diagnosis to Surgery (months)	0.98	0.94	1.03	0.4286
NCCN Intermediate/High Risk vs. Low risk	3.03	2.38	4.00	**<0.0001**
Diagnosed Age (year)	1.03	1.01	1.05	**0.0010**
PSA Screened				
None vs. 1-5 PSA	1.37	1.05	1.79	**0.0204**
None vs. ≥ 6 PSA	2.08	1.41	3.13	**0.0003**
Race				
African American vs. Caucasian/Others	1.21	0.93	1.56	0.1602
Obese				
Yes vs. No	1.61	1.23	2.10	**0.0005**
Family History				
Yes vs. No	1.00	0.78	1.30	0.9767

Moderated Poster Session 3: Prostate Cancer
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P35

Impact of the Oncotype DX Genomic Prostate Score on Treatment Decision-Making in Men with Low/Intermediate Prostate Cancer

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Introduction: The Oncotype DX Genomic Prostate Score (GPS) test is a biopsy-based 17-gene assay that predicts adverse pathology in men with NCCN low and intermediate risk prostate cancer. Here we analyze the impact of the GPS test on treatment decision-making in men with prostate cancer considering active surveillance (AS).

Materials & Methods: We identified men with NCCN very low, low, and intermediate risk (Gleason score 3+4) prostate cancer evaluated by a single surgeon from 2013-2016. We further identified men in this group with GPS testing and analyzed how GPS results influenced selection of initial treatment modality.

Results: Of 175 men with NCCN very low, low, and intermediate risk prostate cancer, 62 (35.4%) had GPS testing. 100 men (57.1%) were initially placed on AS after receiving diagnostic biopsy results, with 62 of these men (62%) having GPS testing for further risk assessment. GPS results changed recommended treatment modality in 10 men (16.1%) initially planning to undergo AS, including 4 who underwent radical prostatectomy (RP) and 6 who received radiation therapy. Table 1 shows NCCN risk groups and GPS results with men stratified by whether GPS testing changed recommended treatment modality. Table 2 shows disease characteristics of the 4 men who underwent RP.

Conclusions: Results of the Oncotype Dx GPS test changed recommended treatment modality in 16.1% of men considering active surveillance, and were most likely to alter decision-making in men with intermediate risk disease. Further studies are needed to determine whether patients benefit from the changes in treatment strategy dictated by GPS results.

Table 1:

	All GPS (n=62)	Management change (n=10)	No change (n=52)	% Change	p-value
NCCN (#,%)					<0.01
Very low	22 (35.5%)	0	22 (42.3%)	0	
Low	26 (41.9%)	3 (30%)	23 (44.2%)	11.5%	
Intermediate	14 (22.6%)	7 (70%)	7 (13.5%)	50%	
NCCN + GPS Risk (#,%)					<0.01
Very low	31 (50%)	0	31 (59.6%)	0	
Low	14 (22.6%)	2 (20%)	12 (23.1%)	14.3%	
Intermediate	17 (27.4%)	8 (80%)	9 (17.3%)	47.1%	
Genomic Prostate Score (Mean ± SD)	25.0 ± 9.1	35.0 ± 7.0	23.4 ± 8.3		<0.01
GPS Likelihood of Favorable Pathology (Mean ± SD)	74.1 ± 13.5	56.4 ± 9.1	77.5 ± 11.5		<0.01
GPS Likelihood of Low Grade Disease (Mean ± SD)	84.8 ± 8.0	75.1 ± 6.7	86.6 ± 6.9		<0.01
GPS Likelihood of Organ Confined Disease (Mean ± SD)	82.5 ± 10.6	68.7 ± 6.8	85.2 ± 9.1		<0.01

Table 2:

Patient	1	2	3	4
PSA at Diagnosis	15.6	6.5	4.5	4.3
Clinical Stage	T1c	T2a	T1c	T1c
Biopsy Gleason Score	3 + 4	3 + 4	3 + 3	3 + 3
Genomic Prostate Score	27	27	34	38
GPS Likelihood of Favorable Pathology	59	59	69	61
GPS Likelihood of Low Grade Disease	80	80	79	77
GPS Likelihood of Organ Confined Disease	73	73	76	68
Pathologic Stage	pT2c	pT2c	pT2c	pT2c
Pathologic Gleason Score	3 + 4	4 + 3	3 + 3	3 + 3
Surgical Margins	Positive	Negative	Negative	Positive

P36

Exploring the Obesity Paradox in Prostate Cancer: A Study of a Population of High-Risk African American Men

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Introduction: The "Obesity Paradox" postulates that obesity plays a protective role in the prognosis among patients with malignancy including colorectal, kidney and prostate cancer (PCa). Since the PCa obesity paradox has not been studied in high-risk African American men, we aim to evaluate the association between obesity status and the severity of PCa at presentation and cancer progression in this population.

Materials & Methods: Demographic, clinical, and pathologic data were collected retrospectively from 470 men treated for PCa at two institutions between 2012-2015. Bivariate analyses were used to compare patient demographic and clinical characteristics across three BMI categories (Normal weight, Overweight, and Obese). Two multivariable logistic regression models that accounted for potential confounders were used to test the association between BMI and risk of high-grade malignancy (defined as ≥ 7 Gleason score) and risk of metastasis.

Results: A total of 470 men met inclusion criteria: 165 (35%) and 102 (22%) were overweight and obese, respectively. Approximately 40% of patients developed metastatic disease during follow-up. Overweight and obese patients were less likely to present with high-grade PCa with 29% and 31% decreased odds, respectively, when compared to normal weight patients. Furthermore, overweight and obese patients were 48% and 59% less likely to develop metastases as compared to normal weight patients while holding all demographic and treatment characteristics constant. Interestingly, having hypertension was also associated with decreased risk of high-grade PCa and development of metastases.

Conclusions: In this study, we found that obesity appears to provide a protective effect against the development of high-grade prostate cancer in African American men. In addition, our results suggest that obese African Americans with high-grade prostate cancer may experience an enhanced response to hormonal ablation when compared with normal weight patients. Further studies are required for validation and for understanding mechanistic underpinnings of this phenomenon.

P37

Adherence to Testing and Treatment Recommendations Under Active Surveillance

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Introduction: As active surveillance (AS) for prostate cancer has gained acceptance, multiple institutions have begun reporting patient outcomes. However, the success of AS is dependent on patient and physician adherence to recommended guidelines for monitoring and treatment. Thus, we report adherence rates for AS patients at our institution.

Materials & Methods: From 1995 to 2016, 1559 men were prospectively enrolled in our AS program. Patients were advised to undergo semiannual PSA and DRE examinations in addition to annual biopsies early in our experience. Curative intervention was generally recommended upon grade reclassification (GR), defined as Gleason score (GS) ≥ 7 (grade group [GG] ≥ 2) on surveillance biopsy. Adherence to follow-up testing and treatment recommendations was determined by calculating the relevant proportion of men at each follow-up year.

Results: The median follow-up time was 4.0 years, with 140 men (9.0%) followed for > 10 years. The median time between consecutive PSA tests was 6 months (IQR 5-8). The overall rates of semiannual and annual PSA testing were 59% and 88%, respectively. The median time between consecutive biopsies was 13 months (IQR 12-15). The overall biopsy testing rate was 63% but was lower among men who were older, had longer follow-up, had very low-risk disease, or had lower PSA density (all $P < 0.05$). The loss to follow-up and withdrawal rates were 1.4% and 2.6% per year, respectively. Curative intervention was performed in 73%, 82%, and 98% of men who upgraded to GG2, GG3, and GG4-5 respectively. Men who did not undergo intervention despite clinical indications were significantly older (78 vs. 71 years $P < 0.05$) than those who received intervention.

Conclusions: In order to understand the feasibility of AS and accurately interpret a program's outcomes, it is important to examine adherence to recommendations for follow-up testing and secondary intervention. We recommend that such metrics be included in future reports on AS outcomes.

P38

Explanation and Prediction of Prolonged Length of Stay Following Robot Assisted Radical Prostatectomy

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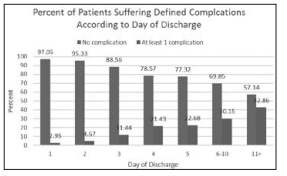
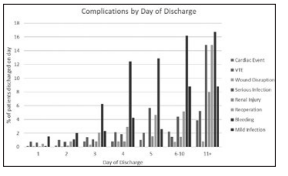
Introduction: The NSQIP database was used identify the causes for and preoperative predictors of prolonged length of stay (PLOS), defined as discharge after the first postoperative day (POD), after robot assisted radical prostatectomy (RARP).

Materials & Methods: Data from RARPs performed between 2013 and 2015 were extracted. Length of postoperative stay was plotted against the frequency of tracked postoperative complications. Logistic regression was performed to predict those patients who would be likely to have PLOS.

Results: 15,255 patients met the inclusion criteria. 68.2% of these patients were discharged on the POD 1. The risk of suffering a tracked postoperative complication at any point in the postoperative course rose from 2.95% for patients discharged on POD 1 to 42.86% for patients who spent at least 11 days in the hospital. The most common complication suffered by patients discharged on POD 1 and 2 was UTI, and bleeding was the most common for those discharged after POD 2. Logistic regression successfully classified discharge on POD 1 in 68.6% of cases, however the R^2 metric was relatively modest (.095). The best predictors of PLOS were ASA class > 2 (1.343), history of COPD (OR 1.401), diabetes (OR 1.289), and heart disease (OR 3.686). Smoking status and body mass index (BMI) were notably not significant in predicting PLOS.

Conclusions: PLOS after RARP is poorly accounted for by complications currently tracked in the NSQIP database. Some patients are clearly at risk for PLOS based on medical history, however ability to predict PLOS preoperatively remains limited.





P39

Comparison of Prostate Cancer Detection Rates Between MRI Fusion Targeted Biopsy versus Ipsilateral Targeted Hemi Biopsy and Extended Target Biopsy

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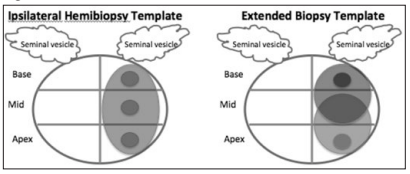
Introduction: Advances in multiparametric magnetic resonance imaging (mpMRI) has led to increased MRI and ultrasound (US) fusion biopsies for prostate cancer. While targeted biopsies (TB) of MRI-identified lesions has been shown to identify clinically significant prostate cancer, the majority of centers still perform concurrent extended sextant 12 core biopsies (SB) due to concern of understaging with TB alone. We evaluated if modified targeted biopsy templates produced acceptable cancer detection rates while reducing the absolute number of biopsies performed.

Materials & Methods: We identified 111 MRI/US fusion biopsies with concurrent SB at our institution. MRI studies were reviewed by a single urologist and radiologist. Patients with midline targets or targets extending from base to apex were excluded. We compared cancer detection rates between TB alone versus SB, ipsilateral hemi biopsy (IHB; target plus ipsilateral six biopsies of hemiprostate) versus SB, and extended target biopsy (ETB; target plus four biopsies in affected and adjacent sextant) versus SB (Figure 1). For ETB, mid targets were ipsilateral hemi biopsy. Low, intermediate and high risk were defined as Gleason scores 6, 7, and 8 to 10 respectively.

Results: Using TB alone, 22.5% of cancers were missed or upgraded to higher risk. Of missed cancers, 6.3%, 9.9% and 0% were low, intermediate and high risk respectively. Detection rates improved with IHB and ETB with 5.4% and 6.3% of missed cancers or upgrades respectively. No high risk tumors were missed with IHB and ETB.

Conclusions: Extending targeted biopsy template to include the ipsilateral hemiprostate or adjacent sextant(s) improved detection rates compared to TB alone. While further study is warranted, our results suggest fewer additional biopsies may be performed during fusion biopsy without missing significant disease.

Figure 1



P40

An Independent, Multi-Institutional, Prospective Study in the Veterans Affairs Health System Confirms the 4Kscore Accurately Predicts Aggressive Prostate Cancer

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Introduction: The 4Kscore test was previously validated in a large, prospective trial, however this study enrolled a limited number of African American (AA) men. We conducted a multi-institutional, prospective trial to validate the 4Kscore test within the Veterans Affairs (VA) Health System, where a large proportion of those receiving care are AA.

Materials & Methods: Men undergoing prostate biopsy were enrolled at 8 VA sites throughout the nation, with phlebotomy for 4Kscore obtained prior to biopsy. We assessed the discrimination, calibration, and clinical utility of the 4Kscore test for predicting Gleason 7 or higher (G7+) prostate cancer compared to a base model consisting of age, DRE and PSA. Additionally, we compared the 4Kscore performance in AA and non-AA men.

Results: Of the 403 enrolled, 366 had complete data available for analysis. Among these men, 208 (56%) were AA, and 134 (36%) had G7+ prostate cancer. The 4Kscore exhibited better discrimination (AUC: 0.81 vs. 0.74, p = 0.011) and higher clinical utility on decision analysis than the base model. There was no difference in the discrimination of the 4Kscore test between AA and non-AA men (0.80 vs. 0.84; p = 0.32). The 4Kscore may underestimate the risk of G7+ prostate cancer in AA men though discrimination (0.80 vs. 0.72, p = 0.013) and clinical utility were still higher than the base model.

Conclusions: In a multi-institutional, prospective trial in the VA health system, we confirmed that the 4Kscore accurately predicts the likelihood of aggressive prostate cancer and outperforms standard clinical information for biopsy decision making in both AA and non-AA men.

P41

Suprapubic Versus Urethral Drainage at the Time of Robotic-Assisted Radical Prostatectomy: Cumulative Analysis of Comparative Studies

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Introduction: Suprapubic catheterization as an alternative to standard urethral catheterization has been suggested to decrease postoperative pain in patients undergoing robotic-assisted radical prostatectomy (RALP). We performed a cumulative analysis of studies comparing these two types of urinary diversions in this setting.

Materials & Methods: Studies comparing urethral catheter (UC) versus suprapubic tube (SPT) at time of RALP were included in the meta-analysis following a systematic review of the literature. Baseline patient/disease characteristics, perioperative outcomes, postoperative pain, continence, catheter related issues, and complications were analyzed. Pooled odds ratios (ORs) and weighted mean differences (WMDs) with 95% confidence intervals (CIs) were calculated using fixed-effect or random-effect model.

Results: Eight studies (3 RCTs; 2 non-randomized prospective; 3 retrospective) with an overall number of 966 cases (UC-RALP n = 492; SPT-RALP n = 474) were included for analysis. There was no statistically significant difference between study groups in terms of age, prostate weight, baseline IPSS, biopsy Gleason score, or OR time. The UC-RALP group had higher BMI (WMD: 0.55 m^2/kg, 95%CI: 0.14, 0.95, p = 0.008) and baseline PSA (WMD: 0.47 ng/ml; 95%CI: 0.19, 0.75; p = 0.001). For pain assessment, VAS score was similar at POD3 (p = 0.66), but became significantly lower for the SPT-RALP group at POD7 (WMD: 0.53; 95%CI: 0.13, 0.93; p = 0.009). Specifically for penile pain, there was again no significant difference at POD3 (p = 0.28), but a significant difference in favor of SPT-RALP at POD7 (WMD: 1.2; 95%CI: 0.82, 1.6; p < 0.001). More patients reported "no/minimal pain at POD7" in the SPT-RALP group (WMD: 1.2; 95%CI: 0.82, 1.6; p < 0.001), confirming this trend. Continence at 6-12 weeks was similar between groups (p = 0.13). Despite no difference in catheter-related issues (p = 0.16), UC-SPT group had lower likelihood of overall complications (OR:0.44, 95%CI: 0.21, 0.89, p = 0.02).

Conclusions: Our results suggest that SPT-RALP offers similar outcomes when compared to standard UC-RALP, with the advantage of decreased postoperative pain. Rates of catheter-related issues was similar between the two approaches.

P42

Updated Nomograms Predicting Biochemical Recurrence Following Radical Prostatectomy for Clinically-localized Prostate Cancer

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Introduction: Biochemical recurrence (BCR) following definitive treatment for prostate cancer (PCa) is a poor prognostic event. Using a large contemporary database of men undergoing radical prostatectomy (RP), we created nomogram tables incorporating multiple clinical and pathological factors to predict BCR in the pre- and post-operative settings. This study provides an update to our previously-published nomograms from 2003.

Materials & Methods: Between 2004 and 2016, 5799 men underwent RP at our institution for ≤ cT2 PCa. The effects of multiple covariates on freedom-from-BCR (PSA ≥ 0.2 ng/mL) were examined using Cox proportional hazards regression modeling. One model was created using only pre-operative covariates (biopsy grade, clinical stage, and preoperative PSA); another was created using both pre- and post-operative covariates (pathological grade and stage, and pre-operative PSA). The results from the present study were compared to that of the 2003 study.

Results: In total, 385 patients (6.6%) developed BCR within a median follow-up period of 3 years (range 1-11). Freedom (%) from BCR at 5/10 years was 90/86; this is compared to the lower corresponding rates in the 2003 study: 84/72. Compared to the 2003 cohort, the present cohort had a higher percentage of patients with ≤ T2a disease (95% vs. 77%), PSA ≤ 10 ng/mL (92% vs. 79%), biopsy GS ≤ 6 (62% vs. 61%), and organ-confined disease at RP (76% vs. 50%). Nomogram tables predicting BCR at 3/5/7/10 years following RP were created for the pre- and post-operative risk models.

Conclusions: The nomograms presented in this study provide a simple method of predicting the risk of BCR at multiple time points following RP for clinically-localized PCa. These tables have been updated to reflect a contemporary patient cohort and PCa grading system. They may help physicians and patients make informed decisions regarding treatment.

Moderated Poster Session 3: Prostate Cancer
P25-P45

P43

Short-Term Outcomes of Active Surveillance for Prostate Cancer in Minority Populations
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Introduction: The safety and efficacy of active surveillance (AS) for managing low risk prostate cancer (CaP) in minority patients has not been established. We describe outcomes for African American (AA) and Hispanic patients managed with AS at our institution.

Materials & Methods: We analyzed AA and Hispanic men with low- or selective intermediate-risk CaP managed with AS at our institution between 08/2013 and 08/2016. Patients with disease reclassification, unfavorable genomic testing, or concerning PSA kinetics were recommended to undergo delayed treatment. Patients who failed to follow-up within 9 months or have repeat biopsy within 15 months were deemed non-compliant and were discontinued from AS.

Results: Of 68 patients enrolled in AS, 48 (70.6%) were AA and 10 (14.7%) Hispanic. Median follow-up was 12.5 months. Patient demographic and disease characteristics, reasons for AS discontinuation, and pathological outcomes after delayed radical prostatectomy (RP) are shown in the Table. 16 men (15 AA and 1 Hispanic, 27.5% of cohort) underwent delayed treatment (RP in 7, radiation therapy in 9), and 7 patients (12.1%) were discontinued from AS due to non-compliance. A Kaplan-Meier curve of AS discontinuation rates is shown in the Figure.

Conclusions: In minority patients managed with AS for CaP, we identified high rates of disease reclassification and delayed treatment with relatively short-term follow-up. Furthermore, we found poor compliance with surveillance visits. These findings suggest that stricter eligibility criteria may be needed when enrolling AA and Hispanic patients in AS, and additional research is needed to confirm the safety of AS in these minority populations.

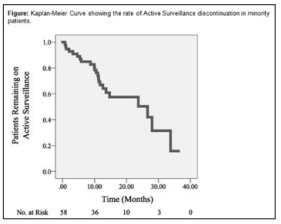

Table: Demographic and disease characteristics, reasons for AS discontinuation, and pathological outcomes after delayed radical prostatectomy (RP)

		N	%
Race	African American	48	82.8
	Hispanic	10	17.2
Age at Diagnosis	<60	24	41.4
	60-70	27	46.6
	>70	7	12.0
Clinical Stage	cT1c	55	94.8
	cT2a	3	5.2
Gleason Score	3+3	52	89.7
	3+4	6	10.3
PSAI	Not Recorded*	1	1.7
	≤ 4	13	22.4
	4-10	41	70.7
	>10	3	5.2
Number of positive biopsy cores	≤ 2	44	75.9
	>2	14	24.1
CAPRA Score	Not Recorded*	1	1.7
	0	1	1.7
	1	34	58.6
	2	15	25.9
	3	7	12.1
Reasons for Active Surveillance Discontinuation	Gleason Upgrade on Surveillance Biopsy	4	17.4
	Gleason Upgrade + Higher Volume of disease	4	17.4
	Gleason Upgrade + Concerning Genomic Test	1	4.4
	Higher Volume Disease	1	4.4
	Concerning Genomic Testing	4	17.4
	Concerning PSA Kinetics	1	4.4
	Concerning PSA Kinetics + Poor Compliance with Follow-up	1	4.4
	Non-compliance with Follow-up	7	30.4
Pathological Outcomes after Delayed Radical Prostatectomy	Pathologic Stage pT2c	5	83.3
	pT3a	0	0
	pT3b	1	16.7
	Pathological Gleason Score 3+3	1	16.7
	3+4	5	83.3
	Surgical Margins Negative	6	100
	Positive	0	0
	Lymph Node Status pN0	6	100
	pN+	0	0

P44

Use Of Duplicate Axial Imaging In Newly Diagnosed Prostate Cancer - Trends Across The Pennsylvania Urologic Regional Collaborative (PURC)
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Introduction: The NCCN prostate cancer(CaP) guidelines currently designate either CT or MRI as recommended staging modalities in appropriately select patients. The versatility of MRI may provide additional benefits in surgical planning or risk-stratification for active surveillance. Potential exists for overuse, resulting in duplicate axial imaging in same patient. We sought to analyze axial imaging utilization and to quantify incidence of duplicate imaging in patients with newly diagnosed CaP across a regional collaborative.

Materials & Methods: PURC is a prospective regional collaborative comprised of nine academic and private urology practices in Southeastern Pennsylvania. Demographic and clinicopathologic data for patients with newly-diagnosed CaP were abstracted. Duplicate axial imaging rates were examined using chi-square and Spearman's correlation statistical analyses.

Results: Data from 2282 men with newly diagnosed CaP (May 2015-March 2017) were abstracted. Median age was 63[IQR 58-68], 66% were Caucasian and 26% African American. Median PSA was 6.1[IQR4.6-9.4] and NCCN risk category was very low, low, intermediate and high in 8%, 22%, 45% and 25%, respectively. Overall, 1219 men (54%) underwent axial imaging. MRI was utilized in 810 (35.5%) and CT in 320 (14.0%). Duplicate imaging was observed in 103 men, 8.4% of the patients with any axial imaging and 4.5% of the overall cohort. Men with duplicate imaging differed significantly in clinicopathologic characteristics (higher PSA, p = 0.013;higher cT stage, p = 0.003;higher Grade Group, p = 0.016; higher NCCN risk category, p < 0.001) but not demographic characteristics (age, race, family history of CaP, Charlson comorbidity score). 60% of providers utilized duplicate imaging, with wide variation by provider (0%-50%). No significant correlation was observed between provider's patient volume and use of duplicate imaging (Spearman's correlation = 0.19, n = 54, p = 0.18).

Conclusions: A non-trivial rate of duplicate axial imaging in men with newly diagnosed CaP involving more than half of participating providers was observed across PURC. Adverse clinicopathologic features were associated with higher duplicate imaging rates. Further studies are needed to assess specific indications leading to such duplication.

P45

Temporal Trends of Upgrading from Biopsy to Radical Prostatectomy among Patients with Gleason Score 6 at Biopsy
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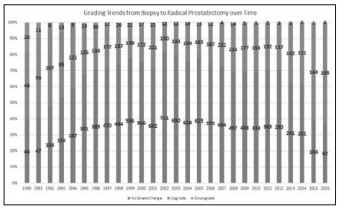
Introduction: The management of prostate cancer has changed since the 1990s. We evaluated trends of upgrading among patients with Gleason score (GS) 6 at biopsy over time.

Materials & Methods: We analyzed 14469 patients with GS6 on biopsy undergoing radical prostatectomy (RP) at our institution between 1990 and 2016. Patients were categorized based on their outcome at RP: no grade change (biopsy GS6 to RP GS6), upgrade (biopsy GS6 to RP GS ≥ 3+4=7), or downgrade (biopsy GS6 to RP no cancer). Chi-square and interrupted time series analysis were used to evaluate trends, and multivariable Poisson regression was used to estimate risk ratios (RR).

Results: At RP, 10191 patients demonstrated no grade change, 3985 upgraded, and 293 downgraded. The proportion of patients who upgraded decreased through 2005 then increased thereafter ($P < 0.001$) [Figure]. However, this was fueled primarily by patients who demonstrated no grade change - the annual number of these patients increased through 2005 then decreased thereafter ($P < 0.001$). After adjusting for age, race, PSA, BMI, clinical stage, and pathological weight, there was an increased risk of upgrading after 2005 (RR 1.36, $P < 0.001$).

Conclusions: For patients with GS6 at biopsy, the trend of upgrading relative to no grade change at RP initially decreased then increased over time. Widespread use of PSA in the 1990s likely resulted in a surge of patients with clinically insignificant cancers who underwent surgery. With the gradual uptake of active surveillance and modifications to the Gleason grading system in 2005, a more selective approach is now being implemented to choose patients for surgery. Thus, patients who are likely to demonstrate more aggressive pathology at RP undergo surgery whereas those with a more favorable prognosis do not.



P46

Artificial Urinary Sphincter Failure: Characterizing the Causes of Failures and Individual Device Component Survival
Arnav Srivastava, Gregory Joice, Madeline Manka, Nikolai Sopko, Edward Wright
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Introduction: Artificial urinary sphincters (AUS) effectively treat post-prostatectomy stress urinary incontinence. The American Medical Systems (AMS) 800 AUS contains 3 parts: the pump, urethral cuff, and pressure regulating balloon (PRB). Up to 50% of patients require surgical revision after initial placement and literature is heterogeneous regarding the leading causes of AUS failure and appropriate surgical correction. Our study aims to tabulate the causes of AUS failure requiring surgical revision and measure the differential survival of each component.

Materials & Methods: We retrospectively reviewed 168 patients receiving AUS placement by one surgeon from 2008 - 2016. All patients were presumed to have functioning components unless they presented for recurrent incontinence requiring explant/revision, the event of interest. Intraoperatively, the surgeon systematically evaluated the device for component failure as well as the urethra, for signs of erosion or atrophy. Kaplan Meier methods estimated survival of the cuff, pump, and PRB.

Results: All patients received an AMS 800 device with a 61-70 mL PRB filled with 27 cc of isotonic contrast or saline. Median follow up was 2.7 years (IQR: 1.1, 5.9) and 63 patients (37.5%) required AUS correction. The fraction of AUS failure and median time to event for each cause is detailed in Table 1. Figure 1 illustrates the survival of the cuff, pump, and PRB.

Conclusions: PRB malfunction, as opposed to urethral atrophy, is the most common cause of AUS failure in our cohort. This finding suggests that initial interrogation of the PRB may reduce surgical morbidity and costs for patients requiring AUS revision.

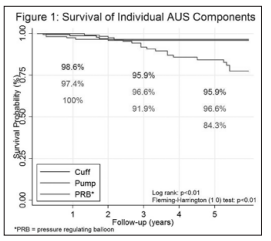

Table 1: Causes of AUS Failure and Median Time to Failure

		Number	% of AUS Failures	Median Time to Failure	IQR
Urethral Complication (%)		26	41.3%	2.42	0.83 6.17
	Atrophy (%)	14	22.2%	4.75	0.83 7.08
	Erosion (%)	12	19.0%	1.67	0.29 2.41
Mechanical Failure		33	52.4%	2.92	1.67 5.25
	Cuff malfunction	5	7.9%	1.70	0.92 1.80
	Pump malfunction	4	6.3%	0.25	0.21 0.54
	PRB malfunction	23	36.5%	3.67	2.67 5.42

P47

Size of Artificial Urinary Sphincter Cuff Relative to Urethral Circumference and its Implications for Device Efficacy over Time

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Introduction: Selection of cuff size in artificial urinary sphincters (AUS) is based on the urethral circumference. It is accepted that overly large cuffs may provide insufficient coaptation and inappropriately small cuffs may cause urethral complications (urethral erosion or atrophy). However, implications of cuff size relative to urethral circumference are poorly understood. We conducted survival analysis studying the difference between urethral circumference and cuff circumference (UCC = urethral circumference - cuff circumference) to better understand the implications of cuff selection.

Materials & Methods: 168 patients, identified by retrospective chart review, underwent AUS placement by one surgeon from 2008 - 2016. Patients requiring explant or revision had the event of interest. Urethral circumference, cuff size, and cause of AUS failure were assessed intra-operatively during initial placement or revision. After stratifying patients into 3 UCC categories, 0-1.5 cm, > 1.5-2 cm, and > 2.5 cm, Kaplan Meier estimates and Cox proportional hazards models evaluated UCC as a predictor of all-cause AUS failure and urethral complication. Higher UCCs indicated a more tightly fitting cuff.

Results: Median follow up was 2.7 years (IQR: 1.1, 5.9) and 36.9% (62/168) of patients required revision or explant. Median cuff size, urethral circumference and UCC were 4.5 cm (IQR: 4.5, 5.0), 7.0 cm (IQR: 6.0, 7.2), and 2.0 cm (IQR: 1.5, 2.5), respectively. Cox and Kaplan Meier survival analysis did not show statistical difference in all-cause AUS failure or urethral complication rates across UCC strata (Table 1, Figure 1).

Conclusions: Patients with large UCCs, or tightly fitting cuffs, do not experience comprised AUS efficacy or increased urethral erosion and atrophy.

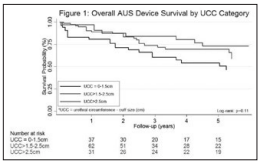

Table 1: Survival Analysis by UCC Category

	Univariable			Multivariable*		
UCC Category	HR	95% CI	p value	HR	95% CI	p value
All-Cause AUS Failure						
0 - 1.5 cm	REF	-	-	-	-	-
> 1.5 - 2.5 cm	0.67	0.38	0.18	0.16	0.95	0.48	1.99	0.89
> 2.5 cm	0.51	0.26	1.00	0.05	0.57	0.24	1.31	0.18
AUS Failure due to Urethral Complication								
0 - 1.5 cm	REF	-	-	-	-	-	-	-
> 1.5 - 2.5 cm	0.99	0.42	2.38	0.99	1.19	0.38	3.75	0.77
> 2.5 cm	0.42	0.13	1.43	0.17	0.25	0.04	1.55	0.14

All patients received an AMS 800 device with 41-70 ml reservoir filled with 27 cc solution
Adjusted for pain/day, history of bladder neck contracture, history of urethral surgery, and history of external beam radiation
UCC = urethral circumference - AUS cuff size (cm); HR = hazard ratio; 95% CI = 95% confidence interval; REF = reference

P48

Off-label Use Of Incobotulinumtoxina (xeomin) For Treatment Of Patients With Idiopathic OAB

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Introduction: Our aim was to assess the safety and efficacy profile of Incobotulinum toxin A (Xeomin) for treatment of patients with refractory overactive bladder (OAB) symptoms.

Materials & Methods: This was a retrospective review of all patients who underwent intradetrusor injections of Xeomin between the September 2013 to March 2017 for the treatment of idiopathic, refractory OAB. Pre-and post-procedure outcomes assessed included; symptoms of incontinence, urinary frequency, nocturia, post void residual (PVR) and complications. Statistics were calculated and assessed with a paired t-test with significance of $p < 0.05$.

Results: 22 patients (16 females, 6 males) with the diagnosis of refractory, idiopathic OAB were included in the study, receiving a total of 24 injections. The average age group in this cohort was 69.73. 100 units of Xeomin was used in 22 injections (91.7%) and 200 units in 2 injections (8.3%). Symptom resolution was noted in 21 (87.5%) of the treatments with greater than or equal to 50% decrease in symptoms. Frequency of voids (2.3 to 3.2 hrs, $p = 0.002$), nocturic episodes (3.4 to 2.4, $p = 0.041$) and pad usage (1.3 to 0.75, $p = 0.011$) were significantly improved after therapy. There was a slight increase in post injection PVR (mL). However, this was not significant (22.8 to 48.9, $p = 0.092$). Average follow-up was 10.2 weeks. Complications within 12 weeks of injection included, UTI (16.7%) and urinary retention in 1 patient (4.2%) that required intermittent self-catheterization.

Conclusions: Incobotulinumtoxin A appears to be safe and effective for the treatment of idiopathic OAB. Further studies comparing it to Onabotulinum toxin (Botox) are needed.

Incobotulinumtoxin A Results			
	Pre-Treatment	Post-treatment	p value
Void freqency (hrs)	2.3 ± 1.9	3.2 ± 2.4	0.002
Nocturia	3.4 ± 2.8	2.4 ± 1.4	0.041
Pad usage	1.27 ± 1.85	0.75 ± 1.07	0.011
PVR (mL)	22.8 ± 33.4	48.9 ± 63.3	0.092
Complications			
UTI		4 (16.7)	
Urinary Retention		1 (4.2)	

P49

Fascia Lata Harvest Site Morbidity in Pelvic Organ Prolapse Surgery

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Introduction: There has been increasing concern regarding use of synthetic mesh for pelvic organ prolapse (POP) surgery in recent years. An alternative technique of anterior prolapse repair is using autologous fascia lata as a reinforcement. Although several studies have evaluated this surgery for POP outcomes, there is a sparsity of data regarding harvest site morbidity. This study examines autologous fascia lata harvest site morbidity in the context of POP surgery.

Materials & Methods: A retrospective review of all patients who underwent autologous fascia lata graft for POP surgery at a single institution by a single surgeon, from January 1, 2013 to December 31, 2015, was performed. Outcomes assessed include intraoperative and postoperative complications, pain and functional outcomes.

Results: Fourteen women (mean age 69 years, range 36-84) underwent fascia lata graft harvest for POP surgery during the study period. Mean follow up was 10.8 months. All surgeries involved transvaginal repair of anterior compartment prolapse (mean cystocele grade 3.6). There were no intraoperative complications during graft harvest. The early postoperative course was complicated by seroma in 14% (2/14) of patients, which resolved spontaneously. One patient developed a harvest site hematoma, which was treated by aspiration. There were no harvest site infections. 36% (5/14) of patients had ongoing harvest site pain at 3 weeks follow up; no pain was chronic beyond 3 months. There were no late complications identified beyond 3 months. No cases of muscle prolapse at the harvest site, restricted range of motion or functional gait disturbance were noted.

Conclusions: Autologous fascia lata graft harvest in POP surgery was completed in all cases without intraoperative complication. Early harvest site complications were of low Clavien-Dindo grade (1 to 2). There were no late complications; no chronic pain, muscle prolapse, restricted range of motion or gait disturbance.

P50

Postoperative Urinary Retention as a prognostic factor for longer-term Continence Outcomes after Urethral Bulking Agent Injection for Treatment of Female Stress Urinary Incontinence

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Introduction: Injection of Macroplastique urethral bulking agent is a minimally invasive treatment for female stress urinary incontinence (SUI). Although safe and effective, post-procedure urinary retention may occur and can be anxiety provoking for patients. The objective of this study was to assess the continence outcome of women who received Macroplastique injections for treatment for SUI complicated by post-procedure urinary retention.

Materials & Methods: A review of all women who received Macroplastique urethral bulking agent injections for treatment of SUI, from January 1, 2014 to October 1, 2016, at a single institution, was performed. Perioperative complications (such as urinary retention) and continence outcomes were recorded. Outcomes of women who experienced post-procedure urinary retention were compared with outcomes of women who did not have post-procedure urinary retention. Statistical analyses included the Chi Square test.

Results: Thirty-two female patients (mean age 62, range 39-89 years) were identified as having received Macroplastique urethral bulking agent for treatment of SUI during the study period at our institution by four urologists. Mean duration of follow-up was 11 months. Overall, mean number of pads used per patient per day pre-procedure was 2.5 and post-procedure 1.3. 13% (4/32) of women experienced urinary retention after injection of the Macroplastique. All cases of de novo post-procedure urinary retention resolved spontaneously. At last follow-up, the rate of continence cure among patients who experienced post-procedure urinary retention was significantly higher than among patients who did not experience post-procedure urinary retention (75% (3/4) versus 21% (6/28), $p < 0.05$).

Conclusions: Macroplastique injections for treatment of female SUI was complicated by post-procedure urinary retention in 13% of patients. The longer term rate of continence cure was significantly better in patients who had post-procedure urinary retention compared with patients who had no post-procedure urinary retention (75% versus 21%, $p < 0.05$).

Moderated Poster Session 4: Female Urology; Incontinence; Reconstruction P46-P65

P51

Can Injection Of A Urethral Bulking Agent Treat Postprostatectomy Incontinence After Sling Placement? A Multinational Experience

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Introduction: Although outcomes of minimally-invasive transobturator sling placement for the treatment of postprostatectomy incontinence (PPI) are satisfactory, a proportion of patients experience further incontinence. This study evaluates the safety and efficacy of treating refractory and recurrent PPI with injection of a urethral bulking agent in men with previous sling placement.

Materials & Methods: A review of all men with history of transobturator sling who were treated with urethral bulking agents for refractory or recurrent PPI at two multinational sites (Australia and United States) from May 1, 2011 through October 1, 2016 was performed. Perioperative continence and complication outcomes were assessed. Success was defined as at least 50% reduction in pads used per day. Student's t test was used.

Results: 83 men with transobturator sling and refractory or recurrent PPI were treated with injection of a urethral bulking agent during the study period. 57% (47/83) of men received Macroplastique; 43% (36/83) received Opsys. Mean patient age was 67 years (range 52-83). Mean duration of follow up was 26 months. Continence success occurred in 70% of men, and continence improvement in 90%. There was significant reduction in mean number of pads per day from 2.4 pre-procedure to 1.2 post-procedure ($p<0.05$). 80% of men required no further treatment for PPI, 12% had subsequent bulking agent, 7% proceeded to repeat transobturator sling and 1% proceeded to AUS. 8 men experienced a complication (excluding incontinence): 7 complications were low Clavien grade 1-2 and 1 man had a postoperative acute myocardial infarction.

Conclusions: Injection of a urethral bulking agent appears to be a safe and efficacious treatment for refractory and recurrent PPI in patients who have had transobturator sling placement. Continence success rate was 70%; continence improvement rate was 90%. 80% of men required no further treatment for PPI.

P52

Characterization of Real-Time Sensation Patterns During the Filling Phase of Urodynamics

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Introduction: The objective of this study was to characterize patterns in sensation using a novel "sensation meter" during the filling phase of urodynamics.

Materials & Methods: Twenty-one patients with various types of voiding dysfunction were categorized based on pre-procedure ICIq-OAB surveys. Patients recorded real-time unprompted sensation on a 0 to 100% scale using a touch-screen "sensation meter" throughout the filling phase of urodynamics testing. Data were sampled at 5% increments of cystometric capacity, and percent capacity vs. sensation curves were generated (Fig 1A).

Results: Patients were divided into low urgency (ICIq-OAB 5a = 0 to 1) and high urgency (ICIq-OAB 5a = 2 to 3) groups. Normalized sensation-capacity curves for the two groups showed distinct trends (Fig 1A). The low urgency pattern was generally r-shaped with a greater increase in urgency before 50% capacity and then a leveling off after 50% capacity (Fig 1A). The high urgency group was generally J-shaped with a slow increase in urgency before 50% capacity and then a rapid increase after 50% capacity (Fig 1A). The average sensation at 50% capacity was greater for the low urgency group (Fig 1B, * = $p < 0.05$, n = 11 low (4 women and 7 men) and 10 high (6 women and 4 men)). Average ages and bladder capacities for the two groups were not different ($p > 0.05$).

Conclusions: Analysis of continuous sensation data collected during urodynamics identified patients with r-shaped and J-shaped sensation-capacity curves which generally corresponded to patients with low and high urgency, respectively, based on standardized survey scores. The study demonstrates that real-time patient-reported sensation data collected during urodynamics has the potential to reveal characteristic bladder sensation patterns that could lead to sub-typing of patients for customized therapies.

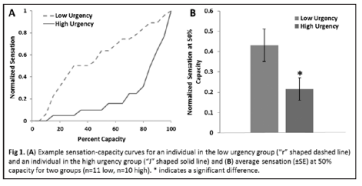

Fig 1. (**A**) Example sensation-capacity curves for an individual in the low urgency group ("r" shaped dashed line) and an individual in the high urgency group ("J" shaped solid line) and (**B**) average sensation (±SE) at 50% capacity for two groups (n=11 low, n=10 high). * indicates a significant difference.

P53

Artificial Urinary Sphincter: Impact of Previous Pelvic Radiation on Device Survival and Post-operative Complications

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Introduction: Artificial Urinary Sphincter (AUS) placement is the gold-standard treatment for men with post-prostatectomy stress urinary incontinence. Up to 40% of prostate cancer patients will undergo adjuvant radiotherapy after prostatectomy. Current literature is mixed regarding device survival in AUS patients who have received dual therapy, prostatectomy and adjuvant radiation. To clarify the prognostic implications of dual therapy, we compared AUS outcomes in prostatectomy patients with adjuvant radiation to those with prostatectomy alone.

Materials & Methods: 164 post-prostatectomy patients, identified by retrospective chart review, underwent AUS placement by one surgeon from 2008 - 2016. Time-to-event analysis was conducted using all-cause and complication-specific (infection, erosion, atrophy) AUS failure. With pelvic radiation history as the exposure of interest, comparative survival was measured using Kaplan Meier estimates and Cox proportional hazards models.

Results: All patients received an AMS 800 device with a 61-70 mL reservoir filled with 27 cc of isotonic contrast or saline. Median follow up was 2.7 years (IQR: 1.1, 5.4) with 59 patients (36.0%) required AUS correction; 53 patients (32.3%) had previous radiotherapy (including brachytherapy and radiation before prostatectomy), of which 29 (54.7%) had adjuvant radiation. Figure 1 illustrates survival by any prior radiotherapy exposure. More specifically, Cox models demonstrated patients with adjuvant radiation history experienced worse AUS device survival (Table 1).

Conclusion: Post-prostatectomy patients with previous pelvic radiation - either adjuvant therapy or any radiation - experienced inferior device survival relative to surgery monotherapy patients. Consequently, patients with previous pelvic radiation should be appropriately counseled regarding increased risks of post-operative complications and surgical revision.

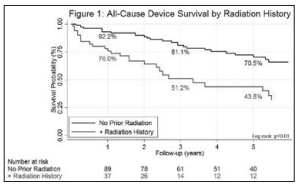

Table 1: Relative AUS Device Survival of Patients with Adjuvant Radiation and Prostatectomy versus Patients with Prostatectomy Monotherapy

	Univariable				Multivariable			
	HR	95% CI		p value	HR	95% CI		p value
All-Cause Device Survival								
History of Adjuvant Radiation	2.45	1.39	4.34	< 0.01	3.55	1.87	6.76	< 0.01
Prior Sling	-	-	-	-	3.01	1.52	5.98	< 0.01
Previous Urethral Surgery	-	-	-	-	1.79	0.67	4.33	0.26
BNC History	-	-	-	-	1.06	0.51	2.18	0.88
Stricture History	-	-	-	-	1.84	0.54	6.21	0.33
Complication-Specific Device Survival[a]								
History of Adjuvant Radiation	3.52	1.68	7.40	< 0.01	4.29	1.88	9.80	< 0.01
Prior Sling	-	-	-	-	2.65	1.01	6.92	0.05
Previous Urethral Surgery	-	-	-	-	1.58	0.46	5.45	0.47
BNC History	-	-	-	-	1.87	0.78	4.50	0.16
Stricture History	-	-	-	-	1.44	0.31	6.67	0.64
Failure due to Infection, Urethral Erosion, or Urethral Atrophy								

BNC = bladder neck contracture; HR = hazard ratio; 95% CI = 95% confidence interval

P54

Urethrolysis Improves Pelvic Pain after Sub-urethral Sling Placement: A Single Center Experience with Medium Term Follow-Up

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Introduction: Urethral/bladder outlet obstruction and mesh erosion are recognized complications after sling placement for stress urinary incontinence (SUI). The recommended treatment is urethrolysis if symptomatic. However, there is limited information in the literature on treatment of the subjective symptoms of chronic pelvic pain and dyspareunia and their response after urethrolysis. We aimed to evaluate whether urethrolysis improved pelvic pain after sub-urethral sling placement. Secondary outcomes were the effect of age or body mass index (BMI) on persistent pain or if SUI recurred after urethrolysis.

Materials & Methods: We retrospectively reviewed all female patients who underwent urethrolysis at our institution from 2009 to 2015. Patients were asked if their pain after urethrolysis was worse/no change, improved, or resolved at post-operative follow-up visits in clinic. Patients were followed for at least one year. These primary endpoints were examined by Pearson's Chi-square test. Logistic regression was used to examine the association of age or BMI on the response to surgery for pain. In addition, the association between improvement in pain and SUI was evaluated using McNemar's test.

Results: A total of 67 patients with complaints of pelvic pain or dyspareunia following synthetic sub-urethral sling placement for SUI subsequently underwent urethrolysis. Three patients were lost to follow-up. There was significant improvement in pain after urethrolysis with 28.1% experiencing complete resolution of pain, 64.0% improving, and 7.8% having no change or worsening ($p < 0.0001$). With regards to patient age, (mean=52.6 ± SD 12.8, range = 27-84) older patients tended to have more significant improvement in pain ($p = 0.0009$), while BMI (mean = 31.8 ± SD 7.6, range = 22.3-63.5) didn't influence pain perception. Of important note is that 68.8% had no recurrence of their SUI ($p = 0.0027$). Patients who had improvement in their pain also tended to not have recurrence of SUI ($p = 0.01$).

Conclusions: Urethrolysis is effective in improving pelvic pain following sub-urethral sling placement without significant recurrence of incontinence.

P55

Description of Patients Referred to a Subspecialty Urology Clinic with a Chief Complaint of Recurrent Urinary Tract Infections - Do They Truly have Recurrent Infections?
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Introduction: Many physicians refer patients with a diagnosis of recurrent urinary tract infection (rUTI) to surgical subspecialists for further evaluation. Because of the limited data on this patient population, we aimed to describe the demographics, symptomatology, exam findings and treatment strategies of patients referred to urology for rUTI. Additionally, we aimed to determine if these patients met criteria for the diagnosis of rUTI.

Materials & Methods: We retrospectively reviewed a prospectively collected database of patients referred to one urologic surgeon (MMC) for evaluation of rUTI from 8/1/2016-4/1/17. Women who were 18 years and older with a referral complaint of rUTI were included. Patients previously evaluated in the department of urology within the past 3 years as well as those with neurogenic bladder were excluded. Recurrent UTI was defined as at least three symptomatic urinalysis proven infections in the 12 months prior to evaluation in urology. Descriptive statistics are presented as percentages, means (standard deviations) or medians (interquartile range).

Results: Fifty patients were identified with a mean age of 61 (21) years. The main symptom was dysuria. By history, approximately 50% of patients had at least one episode of asymptomatic bacteriuria. On exam, 25% of women had levator tension and 70% had vaginal atrophy. Approximately 50% of patients had upper tract imaging prior to their appointment, with none having an identifiable urologic source for their recurrent infections. Less than 25% of the patients referred had rUTI by definition. Other pathologies such as pelvic floor dysfunction (25%), asymptomatic bacteriuria (30%), and vaginal atrophy (over 50%) were determined as the source of the patient's chief complaint.

Conclusions: Careful history and examination are imperative to evaluate patients with rUTI. Less than a quarter of patients meet the definition of rUTI. Frequently, symptoms may be related to other diagnoses such as levator tension or vaginal atrophy.

P56

Using Local Resistance Rates to Improve Antibiotic Stewardship in the Treatment of Uncomplicated Cystitis
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Introduction: Acute Uncomplicated cystitis is one of the most common indications for prescribing antimicrobials to otherwise healthy community dwelling women. Therefore, in the pursuit for good antibiotic stewardship, it is concerning that evidence suggests a wide range in prescribing habits among providers and disconcordance with IDSA guidelines. This problem persists in part because of the complexities of the IDSA guidelines, with local knowledge of antibiotic resistance rates being essential for concordance.
The objective of this work was to evaluate whether a regional health system could improve antibiotic stewardship at its primary care sites using a treatment protocol based on IDSA guidelines for the treatment of uncomplicated cystitis in women. Said protocols would be developed using existing ED antibiogram data to determine local resistance rates.

Materials & Methods: An integrated review and analysis of literature published between 2006 and 2016 with health-care reference librarian assistance using EBSCO's Electronic Journal Service (EJS), The National Library of Medicine (Pub Med), Cumulative Index of Nursing and Allied Health (CINAHL), Cochrane Database of Systematic Reviews and the Agency for Healthcare Research and Quality's National Guideline Clearinghouse.

Results: Our literature review yielded studies that indicated a discrepancy in antibiotic susceptibility between *E. coli* cultured in women presenting with an uncomplicated cystitis compared to the ED antibiogram. Increased susceptibility to main line antibiotics including cefazolin, ciprofloxacin, Bactrim, ampicillin, Augmentin and nitrofurantoin were found in women with uncomplicated cystitis. Studies also showed increased provider compliance to treatment guidelines with the introduction of stewardship initiatives.

Conclusions: An electronic order set protocol could have a favorable impact on local antibiotic prescribing patterns, however, emergency department antibiogram data would not accurately reflect overall resistance rates in the community. Therefore, a pilot study should be conducted using active sampling data from primary care sites before an electronic order set is developed.

P57

Use of the Asopa Technique for Urethral Stricture and Urethrocutaneous Fistula
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Introduction: To evaluate our experience using the dorsal inlay buccal mucosa graft urethroplasty technique described by Asopa for anterior urethral stricture disease. We also reviewed outcomes of this technique for extended indications, namely urethrocutaneous fistula.

Materials & Methods: We retrospectively reviewed our prospectively maintained, IRB-approved database of patients undergoing management of urethral stricture. As originally described, we employed the Asopa technique using a ventral sagittal urethrotomy approach to the dorsal urethra. The dorsal urethral plate is incised and an oral mucosa graft is inlaid to augment the urethral caliber, followed by closure of the ventral urethrotomy. We tabulated data including patient age, stricture length, location, and recurrence at last follow-up.

Results: Between March 2013 and December 2016, twenty-two patients underwent anterior urethroplasty using the Asopa technique. Stricture etiologies included iatrogenic and idiopathic causes, lichen sclerosus, and trauma. Seventeen strictures were penile, one was bulbar and four were mixed. Mean stricture length was 4.1 cm. Mean patient age was 47.5 years.
Five of these patients underwent Asopa based repair of urethrocutaneous fistulae, two after extensive debridement (hidradenitis, Fournier's gangrene), and three after multiple failed urethroplasties.
At mean follow-up of 19.3 months (range 4.2-49.4) we report an 82% (18/22) success rate using the Asopa technique. Three of the five patients (60%) with urethrocutaneous fistula had successful fistula closure with durable urethral patency. One fistula recurred, while the other had subsequent urethral stricture without fistula recurrence.

Conclusions: The Asopa technique is a good option for urethral stricture management and an important technique to have in the urethral reconstruction armamentarium. This is consistent with prior reports from high-volume centers. There are few, if any, reports on use of the Asopa technique for urethrocutaneous fistula. We found it can be employed with expectation of reasonably good outcomes both in fistula closure and urethral patency.

P58

Multimodal Treatment of Genital Hidradenitis Suppurativa
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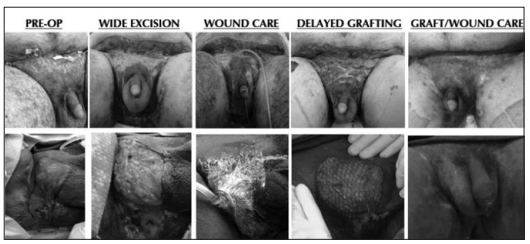
Introduction: We describe our multidisciplinary protocol for the treatment of severe hidradenitis suppurativa (HS), which includes: rheumatology monitored immunotherapy, medical management, wide surgical resection, wound care and surgical reconstruction. Our treatment protocol is based upon protocols recently described in the plastic surgery literature for non-genital HS.

Materials & Methods: The protocol for treatment includes perioperative medical management with antibiotics, finasteride, and immunotherapy (infliximab, adalimumab, or methotrexate). The multidisciplinary care team includes: rheumatology, wound care, and reconstructive urologic surgery. Over a one year period 2015-2016, four patients with severe HS were evaluated and treated. All were initially evaluated by rheumatology and started on initial medical management in anticipation of surgical resection. Surgical management includes wide local surgical resection, negative pressure dressing, delayed reconstruction and post-operative immunotherapy.

Results: 4 patients thus far have undergone our protocol. All were treated preoperatively with finasteride and antibiotics. Additionally, 3 of 4 were treated with pre-operative immunotherapy, and all four were treated post-operatively with immunotherapy. Post-operatively, there were no cases of recurrence requiring reresection in the genital region, graft rejection or patient dissatisfaction. All patients reported decrease in pain levels post-operatively.

Conclusions: Genital HS is a debilitating and disfiguring disease. Utilizing a multimodal treatment plan with surgical, medical, and wound care is vital to successful treatment. Immunotherapy is a promising adjunct treatment for improved success in the management of severe HS.



P59

Isolated Low Grade Renal Injuries: Do We Need To Monitor Them?
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Introduction: Current AUA guidelines for low grade renal trauma advocate conservative management, but do not specify how closely patients should be monitored. Significant heterogeneity exists among practitioners with respect to the intensity of monitoring these patients. We reviewed patients with low grade renal injuries at our rural academic center, which are often transfers, and the need for interventions. Our hypothesis is that patients with isolated low-grade injuries may be monitored with low intensity protocols.

Materials & Methods: We retrospectively reviewed patients with renal injuries at our institution from 2009-2015, selecting those with grade 1-3 injuries. We separated those with isolated injuries, defined as those without other solid organ trauma (spleen, liver, CNS), and evaluated the need for interventions and/or blood transfusion related to their kidney injury.

Results: We identified 86 patients with low grade injuries, 43% of which were transferred from rural hospitals. Isolated renal injuries occurred in 44 patients, none of which required interventions related to their kidney injury. Patients with isolated injuries were much less likely to receive blood transfusion than those with other solid organ injuries ($p < 0.01$). Only 4 patients with isolated renal injuries were transfused, and only 1 patient's transfusion could not be attributed to another etiology. Among all injuries, mean creatinine at follow-up was significantly lower than at presentation (0.91 versus 1.05 mg/dl, $p < 0.01$) and not significantly different in those with isolated injuries ($p = 0.15$). Mean systolic blood pressure did not significantly change from the injury to follow-up ($p = 0.65$).

Conclusions: At our rural academic center, low grade renal injuries were often transferred, never required interventions, rarely required blood transfusion, and showed no long term renal damage. Our data suggests that avoiding transfer and utilizing less stringent monitoring protocols for isolated low grade renal injuries has a low likelihood of compromising patient safety.

P60

Leave the Mitomycin C at Home - Management of Recurrent Bladder Neck Contracture, Our Experience
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MedStar Washington Hospital Center, Washington, DC

Introduction: We evaluated our experience managing recurrent bladder neck contracture (BNC). We hypothesized that Mitomycin C is not necessary as first-line therapy to achieve durable bladder neck patency.

Materials & Methods: We retrospectively reviewed our records for patients treated for BNC. All patients underwent aggressive 4-quadrant radial bladder neck incision (BNI) with or without injection of triamcinolone or Mitomycin C (MMC) into incision sites. We reserved injection as 2nd line therapy after failed BNI, using MMC only after triamcinolone failure.

Results: Sixteen patients with BNC were identified, 2 lacked follow-up and were excluded. Eleven patients developed BNC after prostate cancer treatment (8 had radiation as part of their treatment), 1 after simple prostatectomy, and 2 after TURP. Mean patient age was 69 years (49-88). All 14 patients had failed initial intervention elsewhere (range 1-6 procedures). A total 23 procedures were performed, including 6 triamcinolone injections and 2 MMC injections. At mean follow-up 10 months (2 -30), 8 of 14 (57%) patients remained patent after 1 procedure. Six patients required a second procedure, after which overall 13 (93%) remained patent. 1 patient failed multiple BNI, requiring self-calibration to maintain patency. 7 patients underwent BNI without injection, with 57% success. Of 3 failures, 2 started with complete bladder neck obliteration. There was 83% success in BNI with triamcinolone injection (5/6), and 50% success in BNI with MMC injection (1/2). One of these patients had a complication of osteitis pubis.

Conclusions: BNI remains a successful option for BNC management, particularly when combined with triamcinolone injection. We are now incorporating triamcinolone into first-line treatment. Longer follow-up is needed. Contrary to current opinion, Mitomycin C does not appear necessary to achieve durable patency and given the risks, should only be a last resort.

P61

Success Rates of Ventral Versus Dorsal Augmentation Bulbar Urethroplasty
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Introduction: We compared outcomes of dorsal versus ventral augmentation urethroplasty for bulbar urethral stricture. We hypothesized there would be no significant difference in stricture recurrence rates, and sought to examine the impact of stricture length on success.

Materials & Methods: We retrospectively reviewed our prospectively maintained, IRB-approved database of patients undergoing management of urethral stricture. In isolated bulbar stricture, our algorithm dictates ventral augmentation in proximal bulbar strictures that have bulbospongiosus muscle coverage, and dorsal augmentation for more distal strictures where muscular coverage is unavailable. Data tabulated included patient age, stricture length, urethroplasty technique, and recurrence.

Results: From September 2012 to April 2017, sixty patients underwent augmentation urethroplasty for bulbar urethral stricture. All grafts were oral mucosa. Table 1 shows patient age, technique, stricture length, and success rates. Overall success rate was 83% at mean follow-up of 26 months. Four patients (12%) with dorsal augmentation recurred; 6 (22%) with ventral augmentation recurred, with no statistically significant difference ($p = 0.29$). Mean stricture length in patients with recurrence (regardless of technique) was 4.9 cm, while mean length in successful patients was 5.05 cm. Stricture length had no statistically significant impact on success in bulbar urethroplasty.

Conclusions: Dorsal augmentation trended towards better success rates, but consistent with established literature, there was no significant difference in the primary outcomes between dorsal or ventral patch bulbar urethroplasty. Stricture length also had no obvious impact on success. The approach for bulbar urethroplasty can be chosen based on anatomic factors and surgeon preference.

Table 1.

	Dorsal Augmentation	Ventral Augmentation	Total
Number Patients	33	27	60
Mean Age (Years)	51.9	52.6	52.2 (range 25-79)
Stricture Length (cm)	5.6	4.4	5.0 (range 1-10 cm)
Success Rate	88%	78%	83%
Mean Follow-Up (Mos)	28	24	26

P62

Age On Urethroplasty Outcomes - Does It Matter?
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Introduction: Urethroplasty is arguably the gold standard for management of urethral stricture disease. Increasing age, with associated co-morbidities, could potentially complicate the postoperative course. There is a paucity of data that examines the effect of age on urethroplasty outcomes, or whether advanced age should preclude patients from undergoing urethral reconstruction.

Materials & Methods: We retrospectively reviewed our IRB-approved, prospectively maintained urethroplasty database. Patients were divided into two groups; under age 65 (< 65) and age 65 and older (65+). Outcomes include urethral stricture length, stricture location, length of operation, duration of hospitalization, complication rate, and stricture recurrence.

Results: A total of 165 urethroplasties were performed from 2012 to 2017; 132 in the < 65 group and 33 in the 65+ cohort. Mean stricture length was shorter for patients < 65 (5.5 cm) compared to those who were not (6.3 cm). Operating time, estimated blood loss, and length of hospitalization was equivalent in both groups. Clavien-Dindo grade III or greater complication rate was higher in the older (6.1%) compared to the younger cohort (3.7%), yet these were not statistically significant. In the older group, complications included a dislodged catheter and postoperative bleeding requiring surgical intervention. There were 27 total stricture recurrences (16%); the 65+ group had a recurrence rate of 23.5% versus 14.3% for < 65. Strictures recurred at a mean 4.9 months for younger and 10 months for older patients, with average follow up of 5.9 months.

Conclusions: Our series demonstrated that older patients tolerated surgery well, with similar outcomes and no significant difference in complications when compared to younger patients. Age alone should not preclude patient from urethral reconstruction, but should be incorporated into clinical decision making.

Characteristics	Age <65 (n= 132)	Age > 65 (n=33)	P value
Average age	44.9	70.5	
Mean stricture length (cm)	5.5	6.3	
BMI	29.9	29.0	
Stricture location (n, %)			
Penile	35 (27 %)	3 (9%)	
Bulbar	75 (56%)	21 (64%)	
Pan-urethral	22 (17%)	9 (26%)	
Length of operation (minutes)	198.8	197.1	0.98
Estimated Blood Loss (mL)	258.0	245.6	0.76
Mean length of hospitalization (days)	1.4	1.3	0.75
Complications (% Clavien III or greater)	5 (3.7%)	2 (6.1%)	0.54
Mean time to stricture recurrence (months)	4.9	10.0	

P63

The impact of Morbid Obesity on Urethroplasty Outcomes - The MedStar Washington Hospital Center Experience

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Introduction: Elevated body mass index (BMI) may contribute to surgical complexity, and the associated co-morbidities may increase complication rate. There is a paucity of literature examining BMI on urethroplasty outcomes. We sought to evaluate our experience with urethral reconstruction in morbidly obese patients.

Materials & Methods: We retrospectively reviewed our IRB-approved, prospectively maintained urethroplasty database. Patients were classified by BMI < 30 (non-obese), 30-40 (obese), and > 40 (morbidly obese). We compared data including stricture length, operative time, estimated blood loss, peri-operative complications, and stricture recurrence.

Results: 168 urethroplasties were performed from 2012 to 2017. Twelve patients had BMI greater than 40; 8 had bulbar stricture, 2 had penile stricture and 2 panurethral stricture. One of these 12 patients (10%) had a complication of Clavien-Dindo class II or greater, compared to 13.2% and 17.1% of those in the non-obese and obese groups, respectively (Table 1). Complications in the non-morbidly obese groups included UTI, bleeding, delayed healing, and DVT. The only complication in the morbidly obese group was a mortality from sudden cardiac death. Patients with BMI > 40 tended towards longer stricture length and greater average blood loss. Mean operative time was similar between groups. At mean follow-up of 9.8 months (2-22) no morbidly obese patient had stricture recurrence.

Conclusions: Morbid obesity does not preclude successful urethral reconstruction, but may convey increased risk for severe peri-operative complications. Our series demonstrated no large difference in recurrence rates between BMI categories, however the only complication in the morbidly obese group was more gravid. Further patient accrual and examination of outcomes are necessary. A thorough pre-operative evaluation and counseling are imperative when undertaking urethroplasty in this cohort.

Characteristics	BMI < 30 (N= 106)		BMI 30-40 (N=50)		BMI > 40 (N=12)		p value
	Mean	SD	Mean	SD	Mean	SD	
Age	**49**	16.77	**53**	12.27	**42**	15.26	
Operative Time (min)	**190.83**	87.50	**212.16**	79.13	**210.50**	119.36	0.327
Estimated Blood Loss (mL)	**224.39**	141.15	**300.00**	219.00	**345.83**	238.80	0.009
Stricture Length (cm)	**5.00**	4.02	**6.46**	4.61	**7.17**	4.70	0.058
Clavien Dindo > 2-complication rate (%)	**13.20**		**14.00**		**8.30**		
Recurrence rate (%)	**23.50**		**10.00**		**0.00**		

P64

Patients' Experiences with Extramammary Paget's Disease: An Online Pilot Study Querying a Patient Support Group

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Introduction: Extramammary Paget's Disease (EMPD) is a rare and lethal malignancy with poorly described treatment methodologies and outcomes. We sought to illustrate the heterogeneous care delivered to EMPD patients by characterizing the clinical and pathological characteristics of an international EMPD patient support group treated across different institutions.

Materials & Methods: Institutional review board approval was obtained to develop and distribute a survey to patients from an international online EMPD support group. The survey was developed to capture patient clinical and pathological details using Research Electronic Data Capture (REDCap) and was distributed between January 2017 and February 2017.

Results: Forty-two patients (76%) completed the survey. Prior to diagnosis, at a mean age of 64 years, patients most commonly developed rash, pruritus, or erythema in the genital and perianal regions. Patients presented to their primary care physician, gynecologist, or dermatologist and were initially treated with topical agents for benign diagnoses. After failing conservative treatments, patients underwent biopsy by a dermatologist or gynecologist and were diagnosed with EMPD on average 21 months after the onset of symptoms. Wide local and Mohs excisions were the most frequently administered treatments, with positive margins reported in 43% of patients. Fewer patients underwent non-invasive treatment with Imiquimod cream and radiation. In total, 29% of patients developed regional recurrence and distant disease. The medical specialties involved, diagnostic evaluation performed, treatment received, and follow up conducted varied amongst patients. Delay in diagnosis and identifying providers familiar with EMPD were the most challenges reported by patients.

Conclusions: This study provides a novel view of the varied clinical and pathological details from patients who have been treated across varying institutions and medical specialties. We hope this study will educate providers and encourage the development of treatment recommendations to standardize patient care and improve outcomes.

P65

The Management of Recurrent Ureteral Strictures after Failed Ureteral Reconstruction with Robotic Ureteroplasty with Buccal Mucosa Graft

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Introduction: Surgical management of ureteral strictures after failed ureteral reconstruction is technically challenging due to scarring and altered anatomic planes. Although endopyelotomy and balloon dilation are acceptable first-line options for a recurrent stricture, failure of endoscopic treatment necessitates reoperative ureteral reconstruction. We describe robotic ureteroplasty with buccal mucosa graft for the management of recurrent ureteral strictures after failed ureteral reconstruction.

Materials & Methods: We retrospectively reviewed 9 patients who underwent robotic ureteroplasty with buccal mucosa graft between September 2014 and January 2017. All patients had a recurrent proximal or middle ureteral stricture after a failed ureteral reconstruction that was refractory to endoscopic treatment. Ureterolysis was limited to the diseased segment of ureter. In cases of severe fibrosis, only the ventral aspect of the ureter was dissected and the dorsal aspect was left un-manipulated. The diseased ureteral segment was incised on the ventral surface, along the longitudinal axis. Buccal mucosa graft was onlayed onto the ventral ureterotomy and anastomosed to the ureter. The primary outcomes were: clinical success, the absence of flank pain; and radiological success, the absence of obstruction on renal scan.

Results: The median length of recurrent stricture was 2.5 (range 2-4) centimeters. The median operative time was 226 (range 136-344) minutes and estimated blood loss was 100 (range 50-200) milliliters. The median length of stay was 1 (range 1-6) day. There were no complications related to the buccal mucosa graft harvest. At a median follow-up of 12 (range 2-30) months, 8/9 (89.9%) patients were clinically and radiologically successful.

Conclusions: Robotic ureteroplasty with buccal mucosa graft is effective in managing recurrent ureteral strictures after failed ureteral reconstructions. The technique is particularly useful in the reoperative setting as it allows for a focused dissection that obviates the need for an extended ureterolysis and minimizes disruption to the fragile ureteral blood supply.

P66

Chronic Kidney Disease, Albuminuria, and Urologic Cancer Risk

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Introduction: Studies suggest that chronic kidney disease (CKD) may be a risk factor for urologic cancer. The objective was to determine the relationship between CKD and albuminuria and urologic cancers. We hypothesized that CKD and albuminuria are associated with urologic cancer diagnosis.

Materials & Methods: Using data from 420,029 health system patients, we examined the association between estimated glomerular filtration rate (eGFR) and urine albumin/creatinine ratio (ACR) with urologic cancer (kidney, bladder, prostate, upper tract) from 2001-2013. Cox models, accounting for competing risk of death, were adjusted for age, sex, race, smoking status, alcohol use, body mass index, hypertension, diabetes, COPD, cardiovascular disease, statins, antihypertensives, transplant status, immunosuppression medications, and prior radiation.

Results: Over a median follow-up of 7.3 years, 5,679 developed urologic cancer (20% kidney, 23% bladder, 55% prostate, 2% upper tract). Subjects with urologic cancer were older (63.4y vs. 53.3y), more likely male (86.4% vs. 43.3%), have diabetes (9.5% vs. 5.5%), and lower eGFR (79.8 vs. 89.1) ($p < 0.01$ for all comparisons). Stage 4-5 CKD (eGFR < 30 ml/min/1.732) was associated with a 45% increased risk of cancer (HR 1.45, 95% CI: 1.09-1.93; $p < 0.0001$). Stage 3 CKD (eGFR 30-59 ml/min/1.73m2) was associated with a decreased risk of diagnosed urologic cancer, a finding mainly driven by prostate and bladder cancer. Associations were similar for prostate, kidney, upper tract, and bladder cancer. Albuminuria was not significantly associated with urologic cancer (HR 1.36, 95% CI: 0.96-1.92; $p = 0.2$).

Conclusions: Stage 4-5 CKD is associated with an increased risk of urologic cancer. Further studies are needed to better understand the pathophysiology of these associations.

Table 1: Adjusted Hazard Ratios (95% CI) for Urologic Cancers by eGFR Category

	All Urologic Cancer	Prostate Cancer	Kidney Cancer	Upper Tract	Bladder Cancer
eGFR					
> 90	Ref	Ref	Ref	Ref	Ref
60-89	0.93 (0.84-1.02)	0.99 (0.80-1.22)	0.83 (0.66-1.04)	1.46 (0.61-3.54)	0.83 (0.67-1.04)
30-59	0.76 (0.65-0.90)	0.58 (0.41-0.82)	1.00 (0.70-1.43)	1.22 (0.34-4.31)	0.77 (0.56-1.07)
< 30	1.45 (1.09-1.93)	1.55 (1.17-2.07)	2.41 (1.42-4.09)	6.88 (1.59-29.85)	1.57 (0.94-2.64)

P67

Burden of Multiple Chronic Conditions Among Urologic Cancer Patients

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Introduction: Urologists are the front line for diagnosis and treatment of genitourinary malignancies. Little is known about multiple chronic condition (MCC) profiles in urologic cancers. Our objective was to describe age, MCC profiles, and health system contact in urologic cancer patients.

Materials & Methods: Using health system electronic health records, we identified adult primary care patients and a subset with at least one urology encounter between 2001-2015. Agency for Healthcare Research and Quality Chronic Condition Indicator and Clinical Classifications Software tools were applied to International Classification of Diseases, Ninth Revision (ICD-9) codes to identify chronic conditions. MCC was defined as two or more chronic conditions. Urologic cancer patients were identified using ICD-9 codes for prostate, bladder, kidney, testis, and penile cancer. Inpatient and outpatient visits in the year prior to the most recent encounter were counted to document health system contact.

Results: We identified 357,100 primary care and 33,079 urology patients, of which 4023 had urologic cancer. Urologic cancer patients were older (71y) than primary care (46y) and had more median chronic conditions (7 vs. 4). Kidney and bladder cancer had the most median chronic conditions (8). Coronary artery disease and chronic kidney disease were more common in urologic cancer as compared to mental health conditions in primary care. Urologic cancer patients with MCC had the most health system contact. 32% had at least one hospitalization and 68% had >5 outpatient visits over a 1 year period.

Conclusions: Urologic cancer patients are older, more medically complex, and have frequent heath system contact compared to primary care. This data may inform care redesign to reduce treatment burden and improve care coordination in urologic cancer.

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Determinants of Treatment in Patients with Stage IV Renal Cell Carcinoma

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Introduction: Despite significant advances in the detection and management of renal cell carcinoma (RCC), the treatment rate for elderly patients with advanced disease is less clear. This study aimed to determine treatment patterns for elderly patients with stage IV RCC and better determine clinical and disease characteristics associated with receiving no treatment.

Materials & Methods: A retrospective review from the SEER and Medicare data set included all patients over 65 years with stage IV RCC between 2007 and 2011. Surgery was identified using Medicare Part A and B claims, and use of systemic therapy was identified from Part A, B and D claims. Type of intervention was modeled using multinomial logistic regression. Landmark analyses were performed at 3 and 6 months to account for early death as a potential cause for no treatment.

Results: 949 patients over 65 years with stage IV RCC were included. 249 patients (26.2%) received surgery and 324 (34.1%) patients received systemic therapy within 6 months of diagnosis. Over half of patients (51.2%) had no evidence of receiving surgery or systemic therapy. Of the 618 patients who survived at least 3 months, 237 patients (38.3%) received no treatment within 3 months. Of the 447 patients who survived at least 6 months, 117 patients (26.6%) received no treatment within 6 months. Older patients and those with a higher Charlson Comorbidity Index had lower odds of being treated. These results were largely sustained in 3- and 6-month landmark analyses.

Conclusions: Over half of patients older than 65 years with stage IV RCC did not receive surgery or systemic therapy despite surviving at least 6 months from diagnosis. Increasing patient age and higher Charlson Comorbidity Index appear to be associated with this phenomenon. Further investigation is necessary to determine barriers to utilize systemic therapy in elderly patients with advanced RCC disease.

P69

The Comprehensive Complication Index (CCI) is Superior to the Clavien-Dindo Grading System in Predicting Length of Stay and Hospital Readmission 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 on a continuous 0-100 scale to account for the cumulative effect of individual adverse events. This study compares clinical and perioperative factors with increasing CCI score versus major Clavien-Dindo (CD) complications in patients undergoing RN.

Materials & Methods: A 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 and Clavien-Dindo classifications were determined. Logistic regression and Wilcoxon rank sum analyses examined the relationship between the CCI upper quartile (> 75th%) versus major CD events (grade III or higher) with perioperative variables, length of stay (LOS), and hospital readmission.

Results: 469 patients (287 men and 182 women) with a median age of 63 and BMI of 30 were included. Median LOS was 4.0 days (range, 1-47) and readmission within 30 days occurred in 42 patients (9%). Overall, 150 patients (32%) experienced a post-operative complication with 79 patients having a single complication and 71 patients with multiple complications. 32 patients (21%) had CD III or greater complications, and the median CCI for patients experiencing a complication was 21.75 (range, 8.7-100). Major CD complications were associated with intraoperative transfusion (OR 2.92, p = 0.011). However, the upper quartile of CCI (> 75th%) was associated with increasing median LOS (8.0 vs. 5.0 days, p= 0.006) and hospital readmission (OR 3.06, p = 0.005) after radical nephrectomy whereas major CD complications were not (LOS 7.0 vs. 6.0 days, p = 0.11; readmission OR 2.0, p = 0.09).

Conclusions: The CCI system accounts for the collective effect of post-operative complications compared to the traditional CD grading classification. This study highlights the association of increasing LOS and hospital readmission in patients with upper quartile of CCI versus major CD complications.

P70

Renal Mass Biopsy to Inform a Multidisciplinary Small Renal Mass Conference

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Introduction: Due to increased diagnosis of small renal masses (SRMs), we instituted a multidisciplinary conference attended by urologists, pathologists and radiologists. Although recent guidelines for SRM do not explicitly address biopsy utility, we emphasize using biopsy to optimize care for the individual patient. We present biopsy rates and treatment choices made by our patients guided by our multidisciplinary conference recommendations.

Materials & Methods: Monthly multidisciplinary meeting attended by a urologic oncologist, endourologist, genitourinary radiologist, and genitourinary pathologist began in April 2015. Between April and January 2017, 107 cases were discussed. We queried a prospectively maintained database of demographic, imaging, comorbidity, and biopsy data on all patients discussed. A biopsy was deemed diagnostic if it was oncocytoma or renal cell carcinoma (RCC).

Results: Of 107 patients, 62 underwent biopsies with some undergoing more than one biopsy (total biopsy count of 71). Biopsies were diagnostic in 56 of 71 cases (78.8%), including RCC in 52 cases and benign pathology (e.g., oncocytoma) in 4 cases (Table 1). Of 52 patients with malignant pathology on biopsy, 13 elected for surveillance (25.0%), 22 underwent ablation (42.3%), and 17 were managed with surgery (32.7%) (Table 2). All eight patients with benign or atypical pathology (e.g., "atypical epithelioid cells") on biopsy underwent active surveillance (Table 2). Two patients with non-diagnostic biopsies also chose surveillance.

Conclusions: Diagnostic biopsy rate was 78.8% and results impacted clinical decision-making as seen in the diversity of treatment options pursued by patients with diagnostic biopsy results.

Table 1: Biopsy Diagnostic Rate and Pathology Data	
Biopsies	71
Diagnostic Biopsy Rate (%)	56 (78.8)
Core Biopsy Histology (%) in Patients with ≥ 1 biopsy (n = 62)	
Clear Cell RCC	32 (51.6)
Other RCC Subtype	20 (32.3)
Oncocytoma or Other Benign Finding	4 (6.5)
Atypical or Other	4 (6.5)
Non Diagnostic (normal or fibrotic)	2 (3.2)

Table 2: **Initial Treatments for Patients Depended on Biopsy Finding**	
Treatments for Patients with Malignant Pathology on Biopsy (n = 52)	
Surveillance	13 (25.0%)
Ablation	22 (42.3%)
Surgery	
Partial Nephrectomy	15 (28.8%)
Radical Nephrectomy	2 (3.8%)
Treatments for Patients with Benign, Atypical, or Non-Diagnostic Pathology on Biopsy (n = 10)	
Surveillance	10 (100%)

P71

Performance Characteristics of Renal Mass Biopsy Techniques over Time
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Introduction: There is debate over the differential effectiveness of renal mass biopsy (RMB) techniques in providing clinically meaningful outcomes. We describe the trends of RMB techniques over time to determine the clinical utility and diagnostic performance of these procedures.

Materials & Methods: Our institutional database was queried for all RMBs performed between 2005 and 2015. Biopsies were classified according to type: fine needle aspiration (FNA), core biopsy (CB), or combined FNA and CB (combined). Utilization rate and diagnostic yield were compared among biopsy types and over time using the chi-squared test.

Results: A total of 418 RMBs were performed: 117 (28%) FNA, 60 (14%) CB, and 241 (58%) combined. A median 36 biopsies (IQR 30-40.5) were performed each year. The overall number of biopsies increased over time, driven by a surge of the combined procedure, even as FNA procedures dropped ($P < 0.001$). Biopsy pathology was available in 328 patients, and 267 (81%) yielded a diagnostic result, defined as a definitive benign or malignant mass. The diagnostic result was higher in the combined procedure than FNA (92% vs. 68%, $P < 0.001$) and improved over time ($P = 0.049$). Renal cell carcinoma (RCC) was diagnosed on biopsy in 145 of the 328 patients (44%) with biopsy pathology reports. The incidence of biopsy-proven RCC increased over time while the number of biopsies yielding other diagnoses decreased ($P = 0.015$). Furthermore, the combined procedure detected RCC more frequently than FNA (55% vs. 24%, $P < 0.001$). Surgical pathology reports were available in 103 patients, 86 (83%) of whom were diagnosed with RCC. The sensitivity and specificity of a RMB positive for RCC in accurately detecting the presence of RCC at final surgical pathology were 77% and 88%, respectively.

Conclusions: Compared to either FNA or CB, the combined technique demonstrated improved performance characteristics, with increased clinical utilization over time.

P72

Retroperitoneoscopic Robotic-Assisted Partial Nephrectomy: Cumulative Analysis of Comparative Outcomes
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Introduction: The retroperitoneoscopic approach (RP) is being increasingly used during robot-assisted partial nephrectomy (RAPN). Aim of this study was to compare the outcomes of this approach to the more common transperitoneal approach (TP).

Materials & Methods: A systematic review of the literature was performed using PubMed, Scopus, and Ovid databases with article selection according to search strategy based on PRISMA criteria. Only studies with extractable data comparing TP versus RP-RAPN were included for meta-analysis. Main surgical outcomes of interest were analyzed, including operative time (OT), warm ischemia time (WIT), estimated blood loss (EBL), complication rate, and positive surgical margin (PSM). Pooled odds ratios (ORs) and weighted mean differences (WMDs) with 95% confidence intervals (CIs) were calculated using fixed-effect or random-effect model. Publication bias was assessed by funnel plots.

Results: Six studies with a total of 1463 patients assessing TP-RAPN (n = 1015) versus RP-RAPN (n = 448) were included. Tumors in the RP group were larger (WMD 0.29 cm; p = 0.02), and more likely to be located posterior (79% versus 67.3%, p < 0.001), whereas there was no significant difference in terms of age, gender, BMI, RENAL score, or tumor laterality. RP-RAPN was favored in terms of shorter OT (WMD: 19.7 min; CIs 3.9, 35.6; p = 0.01), and lower EBL (WMD: 52 ml; CIs 2.5, 101.3; p = 0.04). No significant differences were found regarding WIT, intra- and post-operative complications, and PSM. Hospital stay was significantly shorter for the RP-RAPN group (WMD: 0.3 days; CIs 0.2, 0.4; p < 0.001).

Conclusions: Herein we report the largest cumulative analysis of studies comparing TP versus RP-RAPN. Our findings suggest that RP-RAPN, which is mostly reserved for posterior tumors, might offer shorter operative time, less blood loss, and shorter hospital stay without increasing WIT, risk of complications, or risk of PSM. Ideally, a prospective randomized controlled trial is needed to corroborate this data.

P73

Robotic-Assisted Partial Nephrectomy for Large (> 4 cm) Kidney Tumors: Meta-Analysis of Outcomes
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Introduction: Elective nephron-sparing surgery has been increasingly adopted for renal masses beyond the traditional cut-off size of 4 cm (clinical stage T1a). We aimed to perform a cumulative analysis of comparative outcomes of robot-assisted partial nephrectomy (RAPN) for large (> 4 cm) renal masses.

Materials & Methods: A systematic literature review was performed using multiple search engines to identify studies comparing RAPN for tumors larger than 4 cm (> cT1a) to RAPN for tumors smaller than 4 cm (cT1a). PRISMA criteria were used for article selection, and baseline demographics, surgical, functional and oncological parameters were extracted. For continuous outcomes, the weighted mean difference (WMD) was used as summary measure, whereas for binary variables, Odds Ratio (OR) was calculated with reporting of 95% confidence intervals (CIs).

Results: Overall, six case-control studies comparing the outcomes of RAPN in tumors < 4 cm (n = 991) to those of PN for tumors > 4 cm (n = 291) were included. There was no difference between groups in terms of age (p = 0.98), baseline eGFR (p = 0.52), and malignant histology (p = 0.84). The < 4 cm group presented a lower nephrometry score (WMD: -1.4; CI: -1.6, -1.2; p < 0.001), as well as significantly shorter operative time (WMD: -23.8 min; CI: -32.6, -14.9; p < 0.001), warm ischemia time (WMD: -5.05 min; CI: -6.5, 3.6; p < 0.001), and shorter hospital stay (WMD: -0.45 days; CI: -0.6, 0.3; p < 0.001). Moreover, EBL (WMD: -52.7 ml; CI: -78.3, -27.1; p < 0.001), and risk of complications (OR: 0.61; CI: 0.43, 0.87; p = 0.007) were lower for the < 4 cm group. Positive surgical margin rates were 2.9% and 3.7% for < 4 cm and > 4 cm, respectively, with no significant difference in likelihood of positive surgical margins (p = 0.82).

Conclusions: RAPN represents an oncologically safe treatment option renal masses larger than 4 cm (> cT1a), as there is no increased risk of positive surgical margin. Slightly worse surgical outcomes can be expected given higher tumor complexity and should be considered during patient counseling.

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Patient Risk Reclassification Based on Combined Clinical Cell Cycle Risk (CCR) Score
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Introduction: Improved prognostic tools for newly diagnosed prostate cancer are needed to more appropriately match treatment to a patient's risk of progression. The CCR score is a validated prognostic tool that estimates 10-year prostate cancer mortality (PCM) based on prognostic information from both molecular (cell cycle progression (CCP) gene expression) and clinical (CAPRA) variables. We evaluate how the CCR score can reclassify PCM-risk for men tested within the AUA Mid Atlantic section relative to NCCN and AUA risk categories.

Materials & Methods: Prostate biopsy samples from 1358 men within the AUA Mid Atlantic section were submitted for commercial testing. The CCR score was previously validated and is calculated as a linear combination of CAPRA and CCP score (0.39 x CAPRA + 0.57 x CCP). Patients were assigned to NCCN and AUA risk categories using clinicopathologic data obtained from test request forms. Interquartile ranges (IQR) for each NCCN/AUA risk category were determined from the full commercial cohort (N = 20,958). Patients whose CCR-based PCM risks were outside the IQR of their NCCN/AUA risk category were reclassified according to whether their PCM risk fell within the IQR of another risk category.

Results: After calculating PCM-risk based on CCR, 31.7% of men were reclassified to a different risk category relative to NCCN criteria (9.2% lower, 22.5% higher; see Table). Similarly, PCM-risk based on CCR scores resulted in the reclassification of 29.9% of men relative to AUA criteria (9.1% lower, 20.8% higher; see Table).

Conclusions: The prognostic information in the CCR score results in significant risk reclassification for all patients with localized disease when compared to stratification based only on clinicopathologic criteria.

Table. Risk reclassification using the CCR score. Cells highlighted in gray represent men whose risk was reclassified relative to NCCN or AUA risk categories.

	Risk Reclassification			
NCCN Risk Category	**Low**	**Favorable Intermediate**	**Intermediate**	**High**
NCCN Very Low/Low (n=859)	654 (76.1%)	171 (19.9%)	33 (3.8%)	1 (0.1%)
NCCN Favorable Intermediate (n=261)	69 (26.4%)	133 (51.0%)	58 (22.2%)	1 (0.4%)
NCCN Intermediate (n=173)	9 (5.2%)	30 (17.3%)	92 (53.2%)	42 (24.3%)
NCCN High (n=65)	0	5 (7.7%)	12 (18.5%)	48 (73.8%)
Total	732 (53.9%)	339 (25.0%)	195 (14.4%)	92 (6.8%)
AUA Risk Category	**Low**	**Intermediate**		**High**
AUA Low (n=860)	673 (78.3%)	181 (21.0%)		6 (0.7%)
AUA Intermediate (n=417)	105 (25.2%)	217 (52.0%)		95 (22.8%)
AUA High (n=81)	5 (6.2%)	14 (17.3%)		62 (76.5%)
Total	783 (57.7%)	412 (30.3%)		163 (12.0%)

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Incidence of T3a Up-staging and Survival after Partial Nephrectomy: Size-Stratified Rates and Implications for Prognosis

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Introduction: The use of partial nephrectomy (PN) to treat renal cell carcinoma has grown to include larger, more complex tumors. Such tumors are more likely to be up-staged to pT3a and generate controversy regarding the oncologic safety of PN. We aimed to estimate the proportion of patients up-staged to T3a disease after PN, stratified by clinical stage, and characterize their survival.

Materials & Methods: From 1998-2013, pT1-pT3aN0M0 kidney cancer patients undergoing PN or RN were identified from the Surveillance Epidemiology and End Results registries. Cox proportional hazards models compared cancer-specific (CSS) and overall survival (OS) for PN patients with pT1a, pT1b, and pT2 disease to stratified, up-staged pT3a patients undergoing PN. Also, we compared PN patients with up-staged pT3a disease to RN patients with pT3a disease.

Results: Of 28,854 patients undergoing PN, the estimated proportion up-staged to pT3a was 4.2%, 9.5%, 19.5% for cT1a, cT1b, and cT2, respectively. OS was worse for tumors up-staged from cT1a to pT3a, but not for cT1b or cT2 tumors (Table 1). Up-staged pT3a tumors across all stage strata demonstrated worse CSS, with worse survival for larger tumors. Analysis revealed no difference in OS or CSS for up-staged pT3a PN patients compared to pT3a RN patients (Table 2).

Conclusions: A greater proportion of patients experience T3a up-staging after PN with increasing initial T stage. Up-staged patients have worse CSS across all strata after PN. However, our results do not demonstrate that patients up-staged after PN have compromised oncologic outcomes compared to all-comers with pT3a disease receiving RN.

Table 1: Overall and cancer-specific survival of up-staged patients versus those with concordant pathology, stratified by size

			Univariable				Multivariable†			
Risk Group	Reference Group	Clinical Stage	HR	95% CI		p value	HR	95% CI		p value
Overall Survival										
PN pT3a	PN pT1a	cT1a	1.65	1.35	2.07	< 0.01	1.25	1.01	1.55	0.04
PN pT3a	PN pT1b	cT1b	1.40	1.05	1.89	0.03	1.15	0.85	1.58	0.44
PN pT3a	PN pT2	cT2	2.66	1.58	5.15	< 0.01	1.37	0.72	3.09	0.42
Cancer-Specific Survival										
PN pT3a	PN pT1a	cT1a	2.95	1.81	4.82	< 0.01	1.85	1.14	3.12	0.01
PN pT3a	PN pT1b	cT1b	2.44	1.48	4.03	< 0.01	1.84	1.16	3.25	0.01
PN pT3a	PN pT2	cT2	3.47	1.88	8.41	< 0.01	2.33	1.19	4.54	0.01
‡Adjusted for age, sex, race, tumor size, tumor grade, and histology										
PN = partial nephrectomy; HR = hazard ratio; 95% CI = 95% confidence interval										

Table 2: Overall and Cancer-Specific Survival of PN pT3a versus RN pT3a stratified by size

			Univariable				Multivariable‡			
Risk Group	Reference Group	Tumor size	HR	95% CI		p value	HR	95% CI		p value
Overall Survival										
PN pT3a	RN pT3a	≤ 4 cm	0.77	0.61	0.98	0.04	0.84	0.65	1.07	0.15
PN pT3a	RN pT3a	> 4 to ≤ 7 cm	0.75	0.56	1.01	0.06	0.77	0.57	1.05	0.10
PN pT3a	RN pT3a	> 7 to ≤ 16 cm	1.08	0.73	1.59	0.70	0.97	0.65	1.43	0.86
Cancer-Specific Survival										
PN pT3a	RN pT3a	≤ 4 cm	0.58	0.34	0.98	0.04	0.62	0.37	1.06	0.08
PN pT3a	RN pT3a	> 4 to ≤ 7 cm	0.74	0.46	1.18	0.20	0.75	0.47	1.20	0.22
PN pT3a	RN pT3a	> 7 to ≤ 16 cm	1.21	0.75	1.96	0.43	1.18	0.73	1.92	0.50
‡Adjusted for age, sex, race, laterality, tumor size, tumor grade, and histology										
PN = partial nephrectomy; RN = radical nephrectomy HR = hazard ratio; 95% CI = 95% confidence interval										

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Renal Mass Biopsy May Impact Surgical Treatment Decision Making in Patients with a > 4 cm Renal Mass: A Multi-Institutional Analysis

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Introduction: The decision to perform partial nephrectomy (PN) for an organ-confined > 4 cm renal mass is often complex. Albeit often feasible, oncologic safety of PN in these cohorts is debated. Yet, a significant portion of large renal masses that undergo radical nephrectomy (RN) prove benign or indolent. Since renal mass biopsy (RMB) is highly accurate in diagnosing oncocytic neoplasms, we assessed whether patients with large renal mass treated by RN could have benefited from pre-operative RMB.

Materials & Methods: We queried prospectively maintained kidney cancer databases from three institutions to identify patients who underwent RN for localized renal mass > 4 cm (cT1b - T2). We excluded patients with nodal or distant metastases. Clinicopathologic variables, mass anatomic complexity and patient co-morbidities were indexed. Wilcoxon-Mann-Whitney test was used to compare patients with oncocytic neoplasms to the rest of the cohort.

Results: A total of 722 patients (median age 62 years, 64% male, 83% Caucasian, median serum creatinine [SCr] 0.97 ng/dL, median Charlson comorbidity index [CCI] 1.0) underwent RN for localized > 4 cm cT1b/T2 renal mass (median tumor size 7 cm [IQR 4 - 9.1 cm]). 12.5% (n = 91) of patients harbored oncocytic neoplasm (n = 28, 3.8%) and chromophobe RCC (n = 63, 8.7%) at final pathology. Median RENAL Nephrometry Score was 9 (IQR 4 - 10). Oncocytic tumors were documented in younger patients (56.5 vs. 62.5 years, p = 0.002), those with larger masses (7.6 vs. 6.8 cm, p = 0.018), those with lower CCI (0 vs. 2, p = 0.01) and those with lower pre-operative SCr (0.9 vs. 1.0 mg/dL, p = 0.02).

Conclusions: Nearly 13% of patients in our cohort harbored benign or low risk oncocytic lesions. Although these patients had larger tumors, they were younger and less co-morbid than patients with oncologically higher risk lesions. As such, RMB may help calibrate the complex choice of PN vs. RN in these patients.

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Improving Risk Stratification and Patient Morbidity in an Academic Setting Using Cell Cycle Progression

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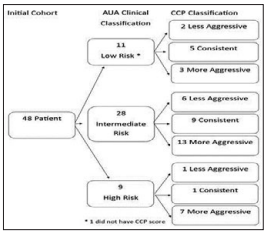
Introduction: Current clinical nomograms such as AUA/NCCN risk categories may not always reflect appropriate prostate cancer risk and can result in over/ under-treatment of prostate cancer. In this abstract, we evaluated the usefulness of adding a commercially available cell cycle progression (CCP) score to improve risk stratification in an academic setting and define possible cost savings associated with its use.

Materials & Methods: Tissue from 48 men was obtained from a single institutional site. The biopsy samples were evaluated with a commercially available CCP panel (Prolaris). Clinical variables such as Gleason score, PSA, age, clinical stage, and extent of disease were combined to determine a single risk category of low, intermediate, or high. Risk stratification was then compared between the CCP score vs. the clinical parameters and potential areas of cost savings from the combined risk were determined.

Results: Comparing the CCP score and the clinical parameters for risk stratification, 9 (19%) of the patients were classified as less aggressive similar to 11 (22.9%) for low risk, 15 (32%) were consistent compared to 28 (58.3%) intermediate, and 23 (49%) were more aggressive or considerably more aggressive compared to only 9 (18.7%) at high risk (Figure 1). Findings indicate that 17% (8/47) of patients were classified at a lower risk and 45% (21/47) at a higher risk using CCP compared to using clinical parameters alone.

Conclusions: Our data suggests that adding CCP to the clinical parameters may improve risk stratifications and may result in a more appropriate treatment plan for patients. This additional tool added to the prostate cancer assessment may help decrease patient morbidity and unnecessary treatment costs.



P78

Change In Quality of Life Scores Before and After Renal Mass Biopsy in Patients With Small Renal Masses: Analysis of the DISSRM Registry

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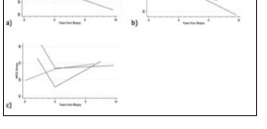
Introduction: Renal mass biopsy (RMB) can be employed as a decision-making tool for patients with small renal masses (SRMs). It is hypothesized that the pathological diagnosis provided by RMB purports a QOL advantage by alleviating cancer-related uncertainty and anxiety. This study evaluates the influence of RMB on QOL in a large prospective registry of patients with SRM.

Materials & Methods: The DISSRM (Delayed Intervention and Surveillance for Small Renal Masses) Registry is a prospective multi-institutional study that follows patients with SRM. Patients complete SF12 QOL questionnaires at enrollment, 6 and 12 months, and then annually. SF12, MCS (Mental Component Summary) and PCS (Physical Component Summary) scores were analyzed using mixed effects linear regression model before and after RMB controlling for age, sex, ECOG performance status, and BMI.

Results: 86 patients (13.5%) in DISSRM underwent RMB, 34 (39.5%) in the PI group, 37 (43.0%) in the AS group, and 15 (17.4%) in the crossover group. Overall, SF12 scores after RMB decline or remain unchanged in all three groups (6.46, p < 0.001 in PI, -1.26, p = 0.6 in AS, -0.82, p = 0.7 in crossover). PCS scores mirrored SF12 scores after RMB (2.69, p < 0.001 in PI, -5.20, p = 0.03 in AS, -0.25, p = 0.9 in crossover). Interestingly, MCS scores showed significant improvement in the PI and AS groups after RMB (3.96, p = 0.01 in PI, 1.02, p = 0.004 in AS, -0.46, p = 0.7 in crossover). See Figure.

Conclusions: RMB significantly improved mental component scores in patients with SRM in the PI and AS groups. Although selection bias exists in this cohort, improvement of QOL is a potential advantage of RMB that has not been previously demonstrated.

Figure 1. Temporal relationship between renal mass biopsy and a)SF12, b) PCS (Physical Component Summary), and c) MCS (Mental Component Summary) scores for Primary Intervention (red), Active Surveillance (blue), and Crossover (green) patients in the DISSRM Registry.



P79

No Survival Benefit to Early Initiation of Targeted Therapy after Cytoreductive Nephrectomy
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Introduction: Cytoreductive nephrectomy (CN) is a mainstay in the treatment of metastatic renal cell carcinoma (mRCC), however many questions remain unanswered regarding the timing of TT after CN and its effect on survival. Our aim was to identify whether a delay in the initiation of TT after CN was associated with worse overall survival.

Materials & Methods: From an institutional database of 2,906 patients surgically treated for renal masses between 2005 and 2016, we retrospectively identified 60 patients who underwent CN for mRCC and who were initiated on TT in the adjuvant setting. Cox regression analysis was used to evaluate whether delays in initiating TT ≥ 3 months and ≥ 6 months were predictive of worse overall survival.

Results: Our cohort had a 2-year overall survival of 46.5% after initiation of TT with a median follow-up of 26.3 months. 50%, 25%, and 25% of patients had TT initiated < 3 months, ≥ 3 and < 6 months, and ≥ 6 months after CN, respectively. Adjusting for age, Charleston Comorbidity Index, clinical T stage, number of metastatic sites, and progression prior to initiating TT, delays in initiating TT after CN were not associated with worse overall survival after CN for both delays ≥ 3 and < 6 months (HR 0.87, p = 0.83, 95%CI 0.22-3.37) and ≥ 6 months (HR 0.26, p = 0.09, 95%CI 0.06-1.23). 2-year overall survival in the < 3 months, ≥ 3 and < 6 months, and ≥ 6 month cohorts after CN was 44.1% (95%CI 25.6%-61.2%), 41.7% (95%CI 16.4%-65.4%), and 60.0% (95%CI 25.3%-82.7%), respectively.

Conclusions: Earlier initiation of TT in patients with mRCC after CN did not appear to be associated with a survival benefit which may be related to selection bias. Ongoing randomized controlled trials may provide more evidence regarding the optimal timing of TT after CN.

P80

Impact of Urologic Conditions on Job and Caretaking Responsibilities in Developing Countries
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Introduction: Urologic disease is prevalent in the developing world. Concurrently, studies show that inability to maintain employment or provide adequate care for family are significant factors that contribute to extreme poverty in developing nations. While urologic disease often deleteriously impacts quality of life, the wider impact of these diseases on economic productivity or caretaking responsibilities is less understood. The aim of our study was to evaluate this impact of urologic disease on patients in developing countries.

Materials & Methods: During separate medical trips to Belize and Ghana, 38 patients presenting for evaluation of urologic disease were administered an 11-item questionnaire regarding the impact of their urologic disease.

Results: The most common urologic disease was urinary incontinence (UI; N = 18), followed by pelvic organ prolapse (POP; N = 9), BPH (N = 5), and fecal incontinence (FI; N = 4). Six patients had 2 concurrent conditions. Additional diagnoses included isolated FI (N = 2), POP (N = 4), nocturia (N = 1), fistulas (N = 1), stones (N = 1), urothelial cell carcinoma or renal mass (N = 3), and strictures (N = 2). Seventy-one percent of patients reported that urinary diseases had a negative impact on their life, with resulting difficulty caring for family and difficulty performing work-related activities in 40% and 52%, respectively. The majority of patients experiencing a negative impact reported a frequency of impact of daily or several times per week. Negative impact was most commonly due to pain (N = 18), but was also a result of embarrassment, time off from work, or travel to physician appointments. Seventy-three percent of patients reported that treatment of their disease would improve their ability to care for family or perform their job.

Conclusions: Urologic diseases have a significant impact on patients' caretaking and job abilities in the developing world. Study is ongoing to further define the economic impact of these diseases in developing countries and to improve access to disease prevention and treatment.

P81

Michel de Montaigne's Travel Journal - the First Personal and Cultural Study of Kidney Stone Disease in 16th Century Europe
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Introduction: Michel de Montaigne, an influential French essayist and philosopher (1533-1592), was afflicted with nephrolithiasis and renal colic throughout his adult life. Resistant to medical interventions, his ailment forced Montaigne to embark on a journey across Europe in search of a cure. The observations of his travels, including characterizations of stones and interventions, were recorded in a travel journal that serves as one of the earliest recorded stone diaries.

Materials & Methods: The writings of Michel de Montaigne, literary databases, and MEDLINE were queried to chronicle the reflections on stone disease.

Results: Montaigne's contemporaries described medical and lifestyle changes for treatment, types of stones they had removed, and innovative surgical methods. Hermann Boerhaave described liquid intake and exercise as valuable treatments; the Sushruta suggests herbal and dietary treatments for stones; Jacques de Beaulieu detailed the lateral lithotomy approach as an advance in surgical treatment. Montaigne, in a departure from this intervention-focused discourse, chronicles a more complete natural history of his affliction and his attempts at homeopathic remedies. He describes the impact of diet and lifestyle intervention on his symptoms and stone composition. These interventions include drinking "pounds of water" on a daily basis, as well as adding citrus extract and mango to his liquid intake, and precisely monitoring his urine output—remedies consistently employed in today's treatment of stones. The descriptions of his journey offer an intimate look at life with nephrolithiasis and the progression of the disease process in 16th century Europe.

Conclusions: Although other historical sources have described methods of treating nephrolithiasis, Montaigne's travel journal represents a cultural inquiry into 16th century life with stone disease and the first complete personal case study of nephrolithiasis. His work paved the way toward modern stone diaries and our current understanding of the disease process and therapy.

P82

Cornflakes, Crackers, and Circumcision: The History of Circumcision to Deter Masturbation in the U.S.
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Introduction: Male circumcision dates as far back as the 6th Dynasty in Egypt and was passed down through the ages, eventually resurfacing in the early to mid-19th century in association with many major religions. This paper aims to explore the history of circumcision in the U.S. from its early use as a deterrent for masturbation to its current status as a purely cosmetic procedure.

Materials & Methods: A review of primary and secondary literature was conducted on the history of circumcision in the U.S., the perceived and substantiated indications for circumcision, and its use to discourage male masturbation.

Results: In 1838, Sylvester Graham, Presbyterian minister and dietary reformer of Graham Cracker fame, encouraged a bland diet and "circumcision of the heart" to prevent masturbation and encourage chastity. His contemporary and American Physician, John Harvey Kellogg, posited that the pain associated with circumcision was the remedy for masturbation in young children. Throughout the early and mid-20th century, circumcision was suggested as a cure for a variety of maladies from neonatal epilepsy to gastrointestinal upset. A survey in the late 1980s revealed that the procedure has persisted largely for cosmetic purposes and perceived "cleanliness." Despite evidence that circumcision does not prevent STIs and has few medical indications, current U.S. data suggests that it is still one of the most common surgical procedures, with more than 58% of newborn males born in 2010 undergoing the procedure.

Conclusions: In the last 10 years, studies have consistently shown that male circumcision offers little clinical benefit and has thus become an elective surgery, largely for cosmetic purposes. Nevertheless, medical literature dating back to 1838 makes it clear that the practice has been used in the U.S. as a bizarre treatment option for a variety of pediatric pathologies as well as to discourage masturbation and promote chastity.

Moderated Poster Session 6: Pediatrics; Endourology; Practice Patterns P80-P92

P83

Does Exparel® Improve Perception of Pain Following Robotic Urologic Surgery? Pilot Study

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Introduction: Exparel® is advertised to provide pain relief for 2-3 days once injected into the incision. Due to increased half-life, it is thought that the medication may decrease overall opioid use. This study hopes to determine if Exparel® changes the patient's overall quality of life and hopefully decreases the patient's perception of the pain.

Materials & Methods: Beginning July of 2015, 37 patients undergoing robotic urological surgery were studied in regards to their post-operative pain. A single-blinded, prospective study was initiated comparing Exparel® to 0.25% bupivacaine. Exparel® and bupivacaine were randomly assigned to each patient. Patients with previous history of chronic opioid use were excluded. Twenty-four hours post-operatively, patients were asked to answer the American Pain Society Patient Outcomes Questionnaire (APS-POQ), in an attempt to determine if perception of pain differed between the two medications. The main outcome was to evaluate any difference in how the patient perceived pain based on their intra-operative local anesthetic.

Results: Although responses from those receiving Exparel indicated better pain relief in regards to the APS-POQ, the results were not always statistically significant ($p > 0.05$). Those receiving Exparel® were better able to tolerate activities in bed, such as sitting up and repositioning, as well as had a decreased need for use of non-medicinal pain control.

Conclusions: While the benefits of Exparel® were thought to decrease opioid intake, other benefits may include the patient's perception of pain and impact on quality of life. This is the first prospective study relating quality of life directly to the use of Exparel®. Given the significant differences noted and the overall trend of improvement from those receiving Exparel®, further studies may be necessary to determine its overall benefit.

Survey Question	Number of patients	Regular Bupivacaine *Mean (SD)*	Exparel® *Mean (SD)*	p-value
Indicate the least pain you had in the first 24 hours: *(0 indicates no pain and 10 indicates worst pain)*	37	3.8 (±3.02)	2.5 (±2.22)	0.1420
Indicate the worst pain you had in the first 24 hours: *(0 indicates no pain and 10 indicates worst pain)*	37	7.8 (±2.34)	6.4 (±3.25)	0.1563
How often were you in severe pain in the first 24 hours: *(0% indicates never and 100% indicates always)*	37	2.72 (±2.44)	1.8 (±2.1)	0.2204
Indicate the number below that best describes how much pain interfered or prevented you from: *(0 means does not interfere and 10 means completely interferes)*				
• Doing activities in bed: turning, sitting up, repositioning	36	6.5 (±2.75)	4.5 (±2.77)	0.0321
• Doing activities out of bed: walking, sitting in chair, standing	36	4.7 (±2.63)	3.9 (±2.61)	0.3798
• Falling asleep	36	3.9 (±3.12)	2.6 (±2.38)	0.1764
• Staying asleep	36	4.4 (±3.04)	3.0 (±1.85)	0.0985
Pain can affect our mood and emotions. Please indicate the number that best shows how much the pain caused you to feel: *(0 not at all and 10 extremely)*				
• Anxious	35	3.4 (±2.14)	3.3 (±2.54)	0.9057
• Depressed	35	2.4 (±2.43)	2.0 (±1.90)	0.5528
• Frightened	34	2.5 (±2.15)	2.4 (±2.48)	0.8834
• Helpless	35	3.8 (±2.78)	2.9 (±2.47)	0.3228
Have you had any of the following effects:: *(Mark 0 if no, if yes, mark the number that best shows severity of each)*				
• Nausea	35	1.8 (±1.66)	1.8 (±1.42)	0.9311
• Drowsiness	35	3.8 (±2.82)	3.4 (±2.45)	0.6851
• Itching	34	1.8 (±1.82)	1.3 (±0.77)	0.3375
• Dizziness	34	2.4 (±2.09)	1.8 (±1.75)	0.3358

P84

Outcomes in Those Transferred with Testicular Torsion to a Rural Academic Center

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Introduction: Testicular torsion is a urologic emergency where prompt surgical intervention is key in preventing testicular loss. In rural Appalachia, patients are often transferred from surrounding communities to our academic center due to lack of urologic care. This same issue is prevalent in rural areas throughout the United States. We hypothesized that those transferred would have longer delays in surgical intervention and higher rates of orchiectomy compared to those who presented directly to our hospital.

Materials & Methods: We retrospectively reviewed patient charts with an ICD-9 diagnosis of testicular torsion from 2008 through 2016. Patients met inclusion criteria if diagnosed with testicular torsion as confirmed by operative exploration. Patients were excluded if diagnosed with neonatal torsion or if symptom duration was greater than 24 hours. We compared rates of orchiectomy and the time until surgical intervention between transferred patients and those who presented directly to our facility.

Results: ICD-9 search revealed 108 patients with testicular torsion. Twenty-three patients met inclusion criteria (12 transferred, 11 not transferred). All transferred patients were sent due to lack of urologic care. Demographics did not significantly differ between groups. Median age in all patients was 15 years. Doppler ultrasound was performed in all patients prior to surgery. Most patients were transferred by ambulance (67%) a mean distance of 23.8 miles. Transferred patients underwent a higher rate of orchiectomy (50% versus 22%), although this did not reach significance ($p = 0.64$). The time until operative exploration from symptom onset was significantly longer in those transferred (12.9 hours) compared to those not transferred (6.9 hours, $p = 0.02$). Distance of transfer was not correlated with the time of delay ($r^2 = 0.0016$).

Conclusions: Transferred patients with testicular torsion have higher rates of orchiectomy and delays in surgical care. This study highlights the need for improved access to prompt urologic care in rural areas.

P85

Cystectomy in the Pediatric Exstrophy Population: Indications and Outcomes

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Introduction: Cystectomy is the final surgical alternative to bladder repair among patients with bladder exstrophy and a poor quality bladder template. In this select group of patients, indications for cystectomy are not well understood and long-term data are lacking.

Materials & Methods: A prospectively maintained database of 1298 patients with exstrophy-epispadias complex was reviewed for patients who underwent cystectomy between 1970 and 2015 at the author's institution. Demographic data, indication for cystectomy, surgical history, post-operative outcomes, and continence status at last follow-up were collected.

Results: Eighteen (6 male, 12 female) exstrophy patients (15 classic bladder exstrophy, 2 bladder exstrophy variants, 1 cloacal exstrophy) underwent cystectomy at a median age of 3.8 years (range 1.0-13.5). Six patients (33.3%) underwent primary cystectomy without attempted bladder closure at a median of 1.5 years old (range 1-2.9). Twelve patients underwent cystectomy after primary bladder closure at outside institutions at a median age of 7.5 years (range 1.5-13.5). Eight (44.4%) failed primary closure with subsequent loss of capacity or inadequate growth. Four (22.2%) had successful primary closure but underwent cystectomy secondary to minimal bladder capacity with obstruction and decreased renal function. Urinary diversion at the time of cystectomy included 6 cutaneous ureterostomies, 4 bowel conduits (1 ileal, 3 colon), 6 neobladders with continent urinary diversion, and 1 ureterosigmoidostomy. One patient already had a cutaneous ureterostomy in place prior to cystectomy. Of eight patients who underwent a continence procedure by the time of last follow-up, all were dry at a median of 25.3 months after cystectomy.

Conclusions: Urinary continence is achievable in patients with bladder exstrophy that require a cystectomy. Poor bladder quality intrinsic to the diseased tissue at birth or as a result of previous failed closure is the most commonly reported indication for cystectomy.

P86

Management and Outcomes of Genitourinary Neurofibromatosis in Pediatric Population: A Systematic Review and Meta-analysis

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Introduction: Genitourinary involvement in neurofibromatosis type 1 (NF1) poses a challenge to pediatric urologists because the tumor is often extensive, recurrent, and harbors malignant potential. Current literature on NF1 with GU manifestation is limited to case reports and literature review. This study aims to systematically review the published case series and analyze the pooled data on pediatric GU neurofibromatosis to define the clinical course and outcomes of the disease.

Materials & Methods: A systematic search strategy was applied in Pubmed. All publications on GU neurofibromatosis were thoroughly screened for relevance, resulting in 91 publications of which 48 publications reporting 80 separate cases of pediatric GU neurofibromatosis were eligible for meta-analysis. Clinical characteristics, management, and outcomes were assessed.

Results: Among 80 pediatric patients with GU neurofibromatosis, the mean age at presentation was 6.7 ± 6.1 years and 68% were male. Approximately 25% of patients presented with palpable abdominal mass, 25% with irritative voiding symptoms, 16% with genitomegaly, and 13% with obstructive voiding symptoms. The bladder is the most commonly involved organ (92.5%) followed by ureters causing upper tract obstruction (47.5%). A total of 75% of patients underwent at least one surgical procedure. Malignancy was diagnosed in 30% of patients, which included rhabdomyosarcoma, malignant schwannoma, and malignant titron tumor. With a median follow up of 1.9 ± 4.9 years, the overall mortality rate was 26.4%. Approximately 55% of patients were alive with clinical improvement while 18.9% of patients still had persistent symptoms requiring further interventions.

Conclusions: A significant percentage of patients with GU neurofibromatosis presented with benign pediatric voiding symptoms. The overall malignant potential of neurofibromatosis involving the GU system was 30% with a high mortality rate of 26.4%. Further investigation of this condition is warranted to optimize treatment and follow up strategy to improve patient's quality of life and survival.

P87

Does Tamsulosin Increase the Success Rate of Ureteral Navigation during Ureteroscopy for Pediatric Ureterolithiasis?
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Introduction: We aim to conduct the first study to address whether pre-operative tamsulosin increases the rate of ureteral navigation for ureteroscopy (URS) in the pediatric population.

Materials & Methods: We retrospectively reviewed all pediatric patients who underwent URS at our institution from January 2013 to March 2016. All cases were performed by a single surgeon using a standard approach with semi-rigid ureteroscope (Wolf 4.5 Fr) for distal and mid ureterolithiasis and flexible ureteroscope (Storz 7.5 Fr) with or without a ureteral access sheath (Cook 9.5 Fr) for proximal ureteral and kidney stones. Patients were separated into two groups: those who took tamsulosin 0.4 mg daily ≥ 48 hours pre-operatively and those who didn't take tamsulosin pre-operatively. The student T test, Z test, and chi square test were used for statistical analysis.

Results: A total of 68 patients underwent URS with 32 taking pre-operative tamsulosin, 19 without tamsulosin, and 17 patients were excluded (already had a ureteral stent). There was no significant difference between the groups with consideration to age and weight of the patients and size or location of the stones. We successfully navigated the ureter in 27 of 32 patients (84.4%) who took tamsulosin and 10 of 19 patients (52.6%) who didn't take tamsulosin ($p = 0.014$). We successfully navigated the ureter in 12 of 14 patients (85.7%) in the tamsulosin group and 1 of 4 patients (25.0%) in the no tamsulosin group for mid/distal ureterolithiasis ($p = 0.016$). For proximal ureteral and renal stones, we successfully navigated ureter in 15 of 18 patients (85.7%) in the tamsulosin group and 9 of 15 patients (60.0%) in the no tamsulosin group ($p = 0.133$). We didn't observe any adverse effect from tamsulosin.

Conclusions: Pre-operative tamsulosin did significantly increase the success rate of ureteral navigation for URS, particularly during semi-rigid URS for distal/mid ureterolithiasis.

P88

WITHDRAWN

P89

"Bladder attack": The Effects of Acute Ischemia on the Isolated Perfused Working Pig Bladder
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Introduction: While there is an abundance of evidence demonstrating the negative impact of chronic ischemia on bladder function, the effects of acute ischemia have not been fully elucidated. The present study used the isolated perfused working pig bladder model to examine the relationships between perfusate flow and intravesical pressure during fill/void cycles.

Materials & Methods: Vesical arteries of pig bladders obtained from local slaughterhouses were cannulated and perfused with Krebs-Henseleit buffered solution. The urethra of each bladder was cannulated to permit bladder filling at 40 cc/min to a total volume of 510 cc followed by carbachol-induced, isovolumetric contraction and voiding. A ureter was cannulated with a pressure sensor to continuously monitor vesical pressure during filling, contraction, and equilibration.

Results: When the bladder was filled under ischemic conditions, the end-fill vesical pressure was significantly elevated over control at 15.69 ± 1.1 mmHg vs. 6.96 ± 0.6 mmHg, respectively ($n = 3$, $p < 0.025$), representing a 225% increase in filling pressure. Importantly, the strength of the carbachol-induced contraction following immediate reperfusion was not significantly decreased over control ($p = 0.33$), and the subsequent fill-void cycle with normal perfusate flow (non-ischemic conditions) showed a return to baseline end-fill vesical pressure of 7.34 ± 1.2 mmHg, not significantly elevated over control ($p = 0.43$). Furthermore, preliminary data suggest that the antimuscarinic compound atropine blocked the rise in end-fill vesical pressure induced by ischemia, supporting the hypothesis that the increase in tone is driven by acetylcholine released during acute ischemia. The increase in muscle tone under acute ischemic conditions was also found in an in vitro correlate using a rabbit detrusor smooth muscle preparation.

Conclusions: Bladder compliance is significantly affected by perfusion, and transient ischemia causes an acute increase in contractile activity (tone). This increased tone is completely reversible with re-perfusion, and can be blocked with antimuscarinic (atropine), suggesting a relationship between acute ischemia and increased local acetylcholine release.

P90

Laser Injuries and Never Events in Urologic Surgery
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Introduction: Surgical OR fires are infrequent events that can result in serious injury, disfigurement and death. An estimated 250 to 650 surgical fires occur annually in the United States, some resulting in second and third degree burns. 10% of fires are attributed to lasers/ laser fibers, rendering this an important safety concern for urologists. Currently, laser fiber injuries have been classified under the rubric of "never events."

Materials & Methods: We reviewed the literature to ascertain the current frequency of surgical patient burns as well as the prevalence of surgical lasers as the source of operating room fires.

Results: Our review revealed that 8.7% of operating room fires listed the surgical laser as the ignition source. Reports of serious injury or death due to burns have increased fivefold between the years 2012 and 2015.

Conclusions: Patient injury, patient burns, and operating room fires continue to be a persistent and underappreciated source of patient morbidity. These "never" events are entirely preventable. As per the FDA safety alert in 2011, laser fibers pose a surgical fire hazard such as burns or injury to the patient. They recommended that laser fibers be placed in protective holsters during surgery to preclude these risks. As per the Leapfrog group, 20% of US hospitals do not have a never events policy. Enacting a multidisciplinary prevention strategy is the best way to mitigate surgical risk, and avoid both laser fiber injuries as well as other surgical never events.

P91

Using Predictive Survival Factors to Determine Efficacy of Ureteral Stenting in Women with Stage IV Pelvic Malignancies

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Introduction: Women with Stage IV gynecologic (GYN) malignancies usually have a poor overall prognosis. 5-year survival rates are very low with 28.8% for metastatic ovarian cancer, 16.8 % for metastatic cervical cancer and 16.8% for metastatic uterine cancer (Howlander, 2016). In advanced cases, these malignancies can cause ureteral obstruction and urologists are commonly asked to help manage the obstruction. Little evidence supports whether intervention should be undertaken to alleviate the obstruction in these patients with such a poor overall prognosis.

Materials & Methods: From 2010-2016, 21 female patients at a single institution with stage 3/4 GYN cancer underwent ureteral stenting or percutaneous nephrostomy for urinary obstruction. Survival factors such as serum albumin level, serum hemoglobin, number of distant metastases and grade of hydronephrosis were collected to determine their efficacy at predicting survival.

Results: Hypoalbuminemia (serum less than 3 g/dL) was the only statistically significant predictor of decreased overall survival in this cohort ($p = 0.04$).

Conclusions: Decreased serum albumin is a poor prognostic factor and can be used to help counsel patients regarding the efficacy of urinary tract decompression in advanced GYN malignancies. Further studies are necessary to validate these results and identify additional prognostic factors to help counsel this patient population.

Works Cited: Howlader N, Noone AM, Krapcho M, Miller D, Bishop K, Altekruse SF, Kosary CL, Yu M, Ruhl J, Tatalovich Z, Mariotto A, Lewis DR, Chen HS, Feuer EJ, Cronin KA (eds). SEER Cancer Statistics Review, 1975-2013, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2013/, based on November 2015 SEER data submission, posted to the SEER web site, April 2016.

P92

Stumbled upon Adrenal Masses (SAMs): Should We Treat?

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Introduction: Advancements in imaging sensitivity have enabled earlier identification of both malignant and benign processes. Incidentalomas, or stumbled upon adrenal masses (SAMs), are serendipitously found > 1 cm adrenal lesions resulting from improved and increasingly-utilized imaging. SAM management has evolved from an original 6 cm cutoff to the current 4 cm threshold for surgical excision, assuming no history of malignancy and non-secretory state. Adrenocortical carcinoma (ACC) is a rare malignancy occurring in 0.6-2.0 persons/million and 1:1000 known adrenal masses. The consensus is that most SAMs result in the diagnosis of benign adrenal adenoma. This multi-institutional retrospective investigation reviews ten years of adrenalectomy pathology to determine the rate of cancer based on size. We aim to apply these findings to modify current recommendations for surgical excision in patients without a secretory tumor or cancer history.

Materials & Methods: Chart review of 234 adrenalectomies from 2005-2015 was performed at Charleston Area Medical Center and West Virginia University to determine lesion size, pathology, functional status and whether patient had known malignancy. Adrenalectomies during radical nephrectomy were excluded along with all functional tumors and those with known malignancy.

Results: The remaining 77 adrenalectomies were analyzed. Distribution was comparable among sexes. Mean age was 57.8 years at surgery. There were forty-seven SAMs > 4 cm and twenty > 6 cm. There were three ACCs, all > 6 cm. The remaining 74 lesions were benign.

Conclusions: In 2009, the American Association of Endocrine Surgeons revisited the 2002 NIH Consensus on management of adrenal incidentalomas calling for surgical excision of nonfunctioning adrenal masses > 4 cm in patients without malignancy. Our study suggests the original recommendation of excision at 6 cm in the same patient population is reasonable, safe and may have prevented 57 patients from undergoing an advanced laparoscopic or major open surgery. This study suggests that larger prospective trials are warranted for consideration and possible revision of current recommendations.