

## Moderated Poster Session IV: Stones/Endourology/BPH/Infertility/ General Thursday, October 29, 2015 3:30 – 5:00 p.m.

### P49

#### Quality Of Care Of Uric Acid Stone Formers: Single Center Review.

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**Background:** Uric acid nephrolithiasis (UAN) comprises 8-10% of all kidney stones in the United States. Three significant urinary abnormalities have been described as the main etiological factors for the development of UAN: low urinary pH, hyperuricosuria and low urinary volume. To better understand the quality of care delivered to this patient population, we reviewed the medical and surgical treatment, compliance, and clinical outcomes of an institutional UAN cohort.

**Methods:** A retrospective study of a 24-hour urine collection database of all hyperuricosuric patients that attended our stone clinic from 2000 to 2014 was performed. Patient's charts were reviewed for demographic data, medical management, medication compliance, emergency department (ED) visits for renal colic, surgical intervention, and 24-hour urine data.

**Results:** We identified 614 patients with hyperuricosuria, of which, 45 patients (11 female) had stone data analysis available confirming UAN. Average uric acid stone composition was 63.4% (5-100%). The mean age at presentation was 55.4 years (32 to 77 years). Average patient follow up was 3.8 years (up to 11.9 years), and was seen on average every 7.2 months at our designated stone clinic. Of all the patients, 73.3% were diagnosed of having UAN after a procedure was performed to render them stone free, the remainder were referred to clinic after spontaneous passage of a stone. A total of 116 endourologic procedures were performed. Females underwent an average of 4 procedures versus 2.7 procedures in their male counterparts. 65 emergency department visits were recorded for renal colic; 84.6% occurred in those patients eventually requiring a surgical procedure, whereas only 15.4% occurred in those who spontaneously had stone passage. Postoperatively, patients were treated with potassium citrate and/or sodium bicarbonate for urine alkalization at 89.2% and 13.5%, respectively. All patients receiving alkalization therapy experienced uric acid stone recurrence prompting investigation for treatment compliance. Follow-up in a dedicated stone clinic only resulted in 55.6% of patients repeating their 24-hour urine collections. Of those, trends were seen but they were not statistically significant: volume increase 160 mL (2.19L to 2.35L), pH increase 0.075 (5.68 to 5.76), and uric acid decreased by 0.065 g/day (0.976 g/day to 0.911 g/day).

**Conclusions:** Despite a comprehensive stone clinic, patients had only modest improvements in 24-hour urine parameters and had relatively high recurrence rate. Compliance with treatment was low. UAN patient's treatment compliance remains a challenge and an opportunity for quality improvement.

### P50

#### Wisconsin Quality of Life Questionnaire: Baseline Results from a Prospective, Longitudinal, Multi-Center Validation Study

**Lauren E. Tennyson**<sup>1</sup>, Matthew F. Ferroni<sup>1</sup>, Audry Kang<sup>1</sup>, Timothy D. Averch<sup>1</sup>, Kristina L. Penniston<sup>2</sup>, Jodi A. Antonelli<sup>3</sup>, Davis P. Viprakasit<sup>4</sup>, Roger L. Sur<sup>5</sup>, Vincent G. Bird<sup>6</sup>, Stephen Y. Nakada<sup>2</sup>.

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**Background:** Decrements in the health-related quality of life (HRQOL) of patients who form kidney stones are known. The Wisconsin Stone Quality of Life (WiSQoL) questionnaire is a stone-specific instrument. To test its generalizability, a consortium of North American stone centers offering medical management used the WiSQoL measure to assess HRQOL in their patients.

**Methods:** Adult patients were recruited from clinic or at a surgical stone procedure. Patients completed the WiSQoL questionnaire at enrollment/baseline and agreed to longitudinal surveys to capture stone-related changes in HRQOL. Baseline WiSQoL scores were calculated and compared within the cohort. Stone-related medical and surgical data were gathered and pooled. Comparisons between those with/without current stones and between men/women were made. Patient factors related to WiSQoL scores were examined.

**Results:** IRB approval is maintained at all sites. Anticipated longitudinal ethnic/race distribution is 15% black, 14% Hispanic/Latino, 11% Asian, and 2% Pacific Islander/ other. Patients (n=689; data are from 8 sites not including coordinating center) completed WiSQoL questionnaires. 1st-time stone formers comprise 25% of patients; women comprise 49%. BMI is not different between sites (30.9±8.2), nor is age (54±14 y), mean number of stone events (n=7.5±17; median 3.0), or duration of stone disease (12.0±13 y). Most (56%) had stones at enrollment. Of these, 54% cited symptoms, and 27% had been to the ER in the past month. Patients with stones had lower HRQOL than those without, P<0.0001; those 'not sure' of their stone status did worse than those who reported no stones, P=0.002. Women scored lower than men on all 28 items, though not all differences were significant. Items with particularly marked gender differences related to missed work/family time, sleep perturbations, urinary urgency, and reduced freedom/ability to participate in social events (P<0.005 for all). Patients with BMI > 30 had more urinary bother, difficulty following dietary recommendations for stone prevention, lower energy, and more fatigue. WiSQoL scores at 3 months post-enrollment were an average of 20 points higher in the majority (85%) of patients who had stones at enrollment but not at 3 months and 33 points higher in 97% of patients who reported stone-related symptoms at enrollment but not at 3 months.

**Conclusions:** Stone burden, symptoms, gender, and BMI were predictors of HRQOL in a broad cohort of stone formers. WiSQoL scores improved in patients who had stones and stone-related symptoms at enrollment but not at the 3-month follow-up. Based on these data, we predict the WiSQoL instrument will be generalizable and valuable to clinical practice, clinical trials, and outcomes research by providing a way to assess HRQOL at various stages of stone disease.

**P51****Ambulatory Tubeless PCNL For Staghorn Calculi: Have We Gone Too Far?**

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**Background:** Tubeless percutaneous nephrolithotomy (PCNL) for staghorn calculi has been shown to be safe and effective. Ambulatory PCNL (aPCNL) has recently been reported to be safe and effective in highly selected patients. The objective of this study is to report our early experience in treating staghorn calculi with tubeless PCNL on a completely outpatient basis, assessing its safety and efficacy.

**Methods:** A review of all tubeless aPCNL cases between March 2007 and May 2014 at two centers was performed, including collection of preoperative, intraoperative and postoperative data. Strict preoperative, intraoperative and postoperative criteria were used in the selection of candidates for outpatient PCNL: no intraoperative complications including significant bleeding or collecting system perforation; postoperative hemodynamic stability; adequate pain control; reliable patient with supportive family.

**Results:** Fifty patients underwent aPCNL during the study period. Staghorn calculi were treated in 9 patients including 2 cases of bilateral staghorn calculi, resulting in a total of 11 staghorn renal units treated by aPCNL. All 9 patients were discharged home uneventfully 2-6 hours postoperatively. There were no major postoperative complications, emergency room visits,

hospital readmissions or deaths. The stone-free rate was 64%, with 7 of the 11 renal units being stone-free at follow-up.

**Conclusions:** This small series represents the largest series of aPCNL for staghorn calculi to date. In very carefully selected patients, PCNL for staghorn calculi on a completely outpatient basis appears safe and may be feasible. Further research on aPCNL for staghorn calculi is required prior to widespread adoption by urologists.

**P52****Evaluation of Student-Athlete Kidney Stone Risk via 24 Hour Urine Collection**

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**Background:** Dehydration is a known risk factor for kidney stone formation. High-caliber athletes have prolonged dehydrated states during routine training; however, there is no clear increased risk of stone formation in this population during competition and training. We aimed to determine why athletes do not see an increased incidence of nephrolithiasis. To do this we performed a study to evaluate urinary risk factors for kidney stones in student athletes.

**Methods:** After IRB and NCAA compliance office approval, twenty eight student athletes (ages 19-22) were enrolled in and completed the study. Demographics, body mass index, medical and surgical history, medications, and specific sport were recorded. All participants collected at

**Table 1. P52**

	Median	SD	Range	Normal	Abnormal (%)
Age	20	1.11	19-22		
BMI	21.63	3.37	18.64-35.25		
Volume	1.29	0.82	0.49-4.09	>2	75 (21/28)
SSCaOx	7.85	4.77	0.21-27.00	<10	25 (7/28)
Calcium (male)	202.13	102.99	21.48-329.60	Male <250	18.18 (2/11)
Calcium (female)	220.46	71.44	100.78-364.50	Female <200	58.82 (10/17)
Oxalate	35.13	14.14	19.53-84.67	<40	35.71 (10/28)
Citrate (male)	480.75	350.39	225.86-1450.3	Male >450	36.36 (4/11)
Citrate (female)	488.81	293.37	158.02-1246.64	Female >550	58.82 (10/17)
SSCaP	1.60	1.18	0.09-4.99	<2	39.29 (11/28)
pH	6.20	0.47	5.41-7.37	<6.2	50 (14/28)
SSUA	0.72	0.97	0.03-3.51	<1	35.71 (10/28)
UA (male)	0.88	0.31	0.35-1.32	Male <0.80	63.63 (7/11)
UA (female)	0.63	0.19	0.28-1.02	Female <0.75	29.41 (5/17)
Sodium	182.43	92.45	60.87-399.64	<150	71.43 (20/28)
Potassium	55.82	30.11	27.91-142.01	<100	14.29 (4/28)
Magnesium	120.01	53.93	34.37-276.05	<120	50 (14/28)
Phosphorus	0.99	0.43	0.25-1.82	<1.2	28.57 (8/28)
Ammonium (NH4)	40.29	16.23	18.69-88.90	<60	17.86 (5/28)
Chloride	192.71	94.74	45.77-417.99	<250	28.57 (8/28)
Sulfur	42.69	15.03	25.67-82.44	<80	7.14 (2/28)
UUN	11.45	4.25	5.84-24.85	<17	10.71 (3/28)
PCR	1.26	0.25	0.79-1.78	<1.4	28.57 (8/28)
Creatinine	2093.82	618.36	1285.92-3552.07		
Cr24Kg (male)	30.76	6.16	16.89-40.44		
Cr24Kg (female)	30.81	7.02	21.81-47.60		
Ca24Kg	3.01	1.43	0.31-5.75	<4	21.43 (6/28)
Ca24Cr24	97.24	41.00	7.65-173.37	<140	14.29 (4/28)

BMI: body mass index; SSCaOx: supersaturation of calcium oxalate; SSUA: supersaturation uric acid; UA: uric acid.

least one 24 hour urine specimen. Standard stone risk parameters were assessed. Summary statistics were calculated to define the normal trends for young adult athletes. Descriptive analyses were then performed comparing this population to standard normal lab values, including variations by gender. The study was funded by the northeastern section AUA young investigator grant.

**Results:** Data are presented in Table 1. The average age of the athletes was 20 years old with a median body mass index of 21.63. There were 17 females and 11 males in the study. Median urine volume was 1.29 liters with 75% of the subjects having volumes less than 2 liters. Median calcium excretion in females was 220 with almost 60% having abnormally high excretions compared to normal values. 63% of male student athletes had high uric acid levels and 71% of all student athletes had high sodium excretion. 50% of subjects had above normal magnesium levels. 58% of female subjects and 36% of male subjects had above normal citrate levels.

**Conclusions:** Student athletes appear to have a high prevalence of urinary risk factors for stone formation such as low volume, high calcium, high uric acid and high salt. Overall stone risk in this population may be offset by increased levels of stone-protective factors such as magnesium and citrate, potentially explaining the lack of increased incidence of nephrolithiasis in athletes. Further study is needed.

### P53

#### Ureteric Stricture Following Ureteral Access Sheaths in the Modern Era: How Rare is it?

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**Background:** Ureteral access sheaths (UAS) can aid ureteroscopy by facilitating multiple passes of the ureteroscope, maximizing irrigation drainage, and reducing intra-renal pressures. However insertion of the access sheath may induce ureteral ischemia, cause iatrogenic ureteric injury, and could ultimately lead to ureteric stricture. In this study, we aim to evaluate the stricture rate following ureteroscopy both with and without the use of UAS.

**Methods:** We performed a retrospective chart review of consecutive ureteroscopies performed at our centre (a tertiary referral centre for endourology) between April 2012 and April 2014 to treat ureteric and renal calculi. The primary outcome was the development of new hydronephrosis three months following successful ureteroscopy, not due to an obstructing stone. Patients without follow-up renal ultrasound (US) or CT scan 3 months post-ureteroscopy were excluded. Data on age, sex, size of the stone, location of the stone, stone density, stone-free rate (SFR), time of the procedure, pre-op stenting, post-op stenting, use of the UAS, size of the UAS, length of the UAS, stone analysis, and imaging details were recorded. Baseline and outcome variables were compared with ANOVA and Chi-square analysis where appropriate using SPSS statistical software.

**Results:** Two hundred and three patients were eligible; eight of these had bilateral ureteroscopy under the same anesthetic. A UAS was used in 121 (59.6%) patients; 103 (85.1%) for renal stones and 18 for proximal ureteric stones (see table). There was no significant difference in baseline or demographic data. None of the patients developed new hydronephrosis, none developed a ureteric stricture, and none required endoureterotomy.

**Conclusions:** UAS use during ureteroscopy for renal and ureteric stones is both safe and effective. Even with routine use of 11.5F and 14F UAS, ureteric stricture rates are very low (zero in this series), suggesting that significant ureteric injury is rare with proper technique and case selection. Further prospective studies with larger sample sizes and long-term follow-up would be useful.

### P54

#### Preoperative Patient and Stone Characteristics Associated with a Prolonged Length of Hospital Stay Following Tubeless PCNL

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**Background:** Percutaneous nephrolithotomy (PCNL) remains the gold standard for the treatment of large and complex renal calculi. The adoption of tubeless PCNL has decreased patient discomfort and length of hospital stay following PCNL. Ambulatory PCNL (defined as a hospital stay of  $\leq 24$  hours) is now common, but identifying patients who are likely to require longer hospital stays remains a challenge.

The objective of this study was to identify preoperative patient and stone characteristics associated with a required of hospital stay beyond post-operative day 1 (POD 1) following tubeless PCNL.

**Methods:** A database of patients undergoing PCNL at our institution between January of 2011 and July of 2014 was reviewed, and cases of tubeless PCNL were identified. Length of stay (LOS) was defined as the period from the time the patient entered the operating room until the time of their discharge. Preoperative variables evaluated included: age, gender, BMI, ASA, hemoglobin, creatinine, bacteriuria, and stone characteristics (side, stone burden, density, skin to stone distance). Patients were divided into 2 groups: those discharged on POD 1 (Group 1) and those discharged beyond POD 1 (Group 2). Categorical and continuous variables were compared using the Chi-squared test and student T-test, respectively.

**Results:** A total of 128 cases of tubeless PCNL were identified during the study period. Mean LOS was 37.7 hours (range = 14.0 to 316.4 hours). 100 patients were discharged on post-operative day 1 (Group 1 = 78.8%) with a mean LOS of 24.6 hours ( $SD \pm 3.5$  hours), and 28 patients were discharged later than post-operative day 1 (Group 2 = 21.8%) with a mean LOS of 84.5 hours ( $SD \pm 58.3$  hours). Age did not differ significantly between the groups ( $p=0.24$ ). Pre-operative patient characteristics associated with a prolonged hospital stay included BMI ( $27.9 \pm 4.7$  vs  $30.4 \pm 7.7$ ,  $p=0.04$ ), ASA 3 & 4 (47% vs 67.9%,  $p=0.05$ ), anemia (27% vs 53.6%,  $p<0.01$ ), creatinine ( $82.6 \pm 30.2$  vs  $106.3 \pm 72.9$   $\mu\text{mol/L}$ ,  $p=0.01$ ), and bacteriuria (10.1% vs 37.0%,  $p<0.01$ ). Of the stone characteristics evaluated, only stone area was significantly associated with a prolonged hospital stay  $491.4 \pm 459.4$  vs  $1043.9 \pm 983.6$   $\text{mm}^2$ ,  $p<0.01$ ).

**Conclusions:** Both preoperative patient and stone characteristics can be used to identify patients likely to require a prolonged hospital stay following tubeless PCNL. This information may be useful in counseling patients and in pre-operative planning.

### P55

#### Randomized Controlled Trial of Two Vitamin D Repletion Protocols to Assess Impact on Calcium Excretion in Stone Formers

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**Background:** It is estimated that up to 90% of Americans have insufficient vitamin D levels which may have significant impact on a variety of chronic illnesses including cardiovascular disease and bone health. Over-repletion of vitamin D, however, may be a potential risk factor for nephrolithiasis, particularly in known stone formers, as it may be associated with hypercalciuria. A variety of accepted standard vitamin D repletion protocols exist, however their differing impact on urinary stone formation risk factors is unclear.

**Methods:** Patients with a previous history of stone formation and who were found to have vitamin D insufficiency ( $<30\text{ng/ml}$ ) on initial metabolic workup were randomized to receive vitamin D repletion with either 1,000 IU daily or 50,000 IU per week for a total of 6 weeks. All patients completed a pre-repletion 24-hour urine collection to assess their baseline stone formation risk parameters as well as post-repletion 24-hour urine collection to evaluate any changes. Patients also had serum vitamin D levels drawn before and after repletion. Statistical analysis was performed using paired t-tests with unequal variances and all data reported are mean values with 95% confidence intervals. This study was



funded by a Northeastern Section of the American Urologic Association Young Investigator Grant.

**Results:** 20 patients completed the study; 8 who received 1,000 IU daily and 12 who received 50,000 IU weekly. Patients receiving 50,000 IU showed significant improvement in serum vitamin D levels with a delta of 20.5 ng/ml (134.2% increase,  $p < 0.001$ ) over pre-repletion level, while patients receiving 1,000 IU daily showed a non-significant delta of 11.1 ng/ml (67.9% increase,  $p = 0.06$ ). The difference between the groups was not statistically significant,  $p = 0.32$ . Post-repletion 24-hour urine analysis showed no significant change in urine calcium among both groups; mean percentage change of -8.5% in patients receiving 1,000 IU (-41.3, 24.3  $p = 0.41$ ) and 6.2% in those receiving 50,000 IU (-51.2, 143.6  $p = 0.80$ ) or between them,  $p = 0.26$ . Between the groups, there was also no significant difference in either the super-saturation of CaOx (changes of -3.9% and 18.6%,  $p = 0.30$ ) or the CaP (changes of 76.8% and 149.9%).

**Conclusions:** Both groups showed an adequate repletion of serum vitamin D levels to over 30 ng/ml, although the 50,000 IU/week dosing did show a more robust response. Neither dosing regimen significantly increased urine calcium or calcium super-saturations suggesting no increased risk for stone formation.

## P56

### 180w Photoselective Vaporization Of The Prostate (pvp) For Benign Prostatic Hyperplasia: Assessing The Learning Curve

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**Background:** The aim was to evaluate intraoperative parameters to assess the learning curve of the Greenlight XPS-180W laser system.

**Methods:** A retrospective study was conducted on 150 patients treated by one surgeon with Greenlight laser XPS-180W photoselective vaporization of the prostate for the treatment of LUTS associated with BPH. Preoperative data along with operative parameters were collected prospectively. The population was divided into three consecutive groups of 50 patients. Operative parameters used to assess learning curve of surgical technique included energy delivered per prostate volume (kj/cc), PSA reduction at 6 months (%), laser time/operative time ratio and energy delivered per prostate volume per minute of operative time (kj/cc/min).

**Results:** Median prostate volume was above 60 cc in every group. Energy delivered per prostate volume and PSA drop percentage significantly increased over time ( $p < 0.001$ ). There was no significant change in laser time/operative time ratio over the study period. When assessing energy delivered per prostate volume per minute of operative time, a statistically significant increase was observed over time ( $p = 0.027$ ).

**Conclusions:** Operative parameters and PSA reduction assessed over time can be helpful to monitor progress during XPS Greenlight laser system learning curve. Even when already familiar with photoselective vaporization of the prostate techniques, continued improvement in efficiency can be observed with greater case volumes.

## P57

### Satellite Rural Ambulatory Urology Clinics-25 years later

Emmanuel O. Abara.

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**Background:** Along the Highway 11, north of North Bay are several rural communities that are served by small hospitals located 40 to 340 kilometers away from Timmins. Until 1989, most urological services were provided at the Timmins and District Hospital. It is not uncommon to have an elderly gentleman with urosepsis and acute urinary retention transferred by air ambulance from one of these communities. In 1990, satellite urology clinics were established to bring care nearer home, improve access and quality of care and hopefully save health care costs. This is an observational study to understand what was done and where we are today.

**Methods:** Geographic and demographic data were gathered with a focus on Timiskaming and Cochrane Districts. Needs assessment was com-

pleted through interviews with key stakeholders. Approval for the project was given by the Underserved Area Program (UAP) of the Ministry of Health. Hospital privileges were approved. Primary health care providers and the communities were notified of start dates. The various hospitals provided clerical and support staff. Evaluation processes were established to provide feedback from all stakeholders for program enhancement.

**Results:** There are now 7 clinics. The scope of services offered has been consolidated and expanded with introduction of low-risk, low-resource out-patient procedures. Delegated urological procedures, community engagement and patient education initiatives have grown. Inter-professional development and collaboration have been beneficial resulting into some clinical research. With the new medical school, these rural hospitals have become hubs for clinical training.

**Conclusions:** Satellite urology clinics appear to be beneficial to the patients, the health care professionals and the rural communities. It improves timely access, quality of care and may be cost-saving. The urologist in the community can be a catalyst for inter-professional development and team-building. Opportunities for research and learners abound.

## P58

### Defining a Meaningful Clinical Change in a Patient's American Urologic Association Symptom Index (AUA-SI)

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**Background:** The American Urologic Association Symptom Index (AUA-SI) is a widely used, validated, self-administered questionnaire used to evaluate the lower urinary tract symptoms (LUTS). Previous work has shown that patients require at least a 3 point improvement in their survey score to self-evaluate themselves as slightly improved. Considering what represents a clinically meaningful change in the context of baseline symptom severity has implications for improved understanding of the individual patient's response to treatment and for evaluating the efficacy of future novel treatment for (LUTS).

**Methods:** 494 patients undergoing prostate brachytherapy completed AUA-SI surveys preoperatively and at 0.5, 1, 3, 6, 9 and 12 months. At the same intervals, they were asked to evaluate symptomatic LUTS in comparison to their prior visit as: much better, slightly better, the same, slightly worse, or much worse. Median change and interquartile range (IQR) was compared to the global subjective change in LUTS. The comparison was created for the entire cohort and stratified by preoperative severity group (mild 0-7, moderate 8-15, and severe 16-30).

**Results:** The median change in AUA-SI for patients rating themselves as much better, slightly better, the same, slightly worse, and much worse were -2 (IQR -6,0), -1 (IQR -5, 1), 0 (IQR -2, 2), 4.5 (IQR 0, 9), and 11 (IQR 5, 18), respectively. When describing subjective symptoms as much worse, patients with mild baseline LUTS demonstrated a larger change in AUA-SI (median 13, IQR 5, 20) than patients with severe baseline LUTS (median 8, IQR 0, 12). Conversely, for subjective ratings of much better, patients with mild baseline symptoms had a smaller median change (median -1, IQR -6, 0) than those with severe baseline symptoms (median -6, IQR -8.75, -1.25) (Table 1). There was a significant difference in AUA-SI score change among patients rating themselves as much better,

**Table 1. P58. Median changes and IQR in AUA-SI score associated with subjective changes in symptoms with ANOVA calculator**

Cohort	Median Change	IQR (25%)	IQR (75%)
Much worse	11.00	5	18
Slightly worse	4.50	0	9
No change	0.00	-2	2
Slightly better	-1.00	-3	1
Much better	-1.00	-6	0

IQR: interquartile range; AUA-SI: American Urological Association Symptom Index.  $p < 0.001$ .

slightly better, no change, slightly worse, or much worse for the entire cohort ( $p < 0.001$ ).

**Conclusions:** The most dramatic changes in AUA-SI scores occur in patients whose subjective evaluation of change is rated as much worse. Baseline severity of a patient's LUTS affects the magnitude of change that can be expected with worsening or improving symptoms. Comparing subjective global evaluation of urinary morbidity with the AUA-SI score improves clinician understanding of their patient's symptoms and creates a framework to evaluate future treatments of LUTS.

## P59 Milestones in Canadian Urology

Jerzy Gajewski.

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**Background:** Canadian urology has rich and telling history. There are several publications on this topic, however most relates to a particular time frame or geographic location. The goal of this abstract is to present complete timeline of the history of Canadian Urology with emphasis on important issues and events.

**Methods:** We review all available archives documents from 1929 until 2015. The data were extracted from accessible publications, meeting minutes, letters and other documents. The following items were recorded: meeting place, presidents, officers & executives, chair of the committees, society publications, awards and other important events and data. The data are presented in the form of visual timeline with particularly significant events and documents highlighted in the graphics.

**Results:** The first meeting of the Section of Urology within Canadian Medical Association was in 1929. Canadian Urological Association (CUA) was founded in December of 1945. Since then we had 69 Annual Meetings of CUA with the 70th to be held in Ottawa in June 2015. The meetings initially had no particular schedule but later started to alternate between east, west and central Canada. There were 70 presidents and the number of executives and officers increased with the proliferation in the activities of the association. The membership increased to over 1100. CUA incorporated in 1998. CUA awarded honorary membership to 16 individuals. CUA life achievement award established in 1980 was presented to 26 CUA members. Canadian Urological Association Scholarship Foundation (CUASF) was incorporated in 1997 and provided thousands of dollars of scholarships for numerous early career urologists in Canada. CUA endorsed Canadian Journal of Urology as an official journal of the association in 1994. In 2007 CUA create its own journal Canadian Urological Association Journal. CUA produced almost 60 Patients Information Pamphlets serving both patients and members. In the recent years CUA established cooperation with other international urological societies.

**Conclusions:** The CUA grows up steadily from 1945 and matured to a very effective and organized society serving and representing Canadian Urologist and becoming the "The Voice of Urology in Canada."

## P60 The Relationship of Physician Payments from Drug Manufacturers to Prior Degarelix and Denosumab Medicare Billing Volume

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**Background:** In April 2014 the Centers of Medicare and Medicaid Services (CMS) released 10 million billing records for 880,000 healthcare providers, accounting for over \$77 billion Medicare dollars distributed in 2012. CMS later released unprecedented payment data from drug manufacturers from 2013. We aimed to assess a potential relationship between pharmaceutical payments and prescription patterns for Degarelix and Denosumab.

**Methods:** The zip file (tab delimited, 1.7 GB) containing 2012 claims data was downloaded from CMS.gov. The same was done for Sunshine Act data. This was used to provide two databases for analysis using Microsoft Excel and Access. The Urology specialty was extracted in full detail.

The Medicare Urology database includes 843 procedures/drugs/services, and over 32 million total services count (each time a provider billed Medicare). Providers who billed Medicare for Denosumab or Degarelix were cross referenced in both databases. Student's t-test was used for statistical analysis within Excel.

**Results:** 153 urologists were identified as having prescribed Degarelix in the Medicare B dataset. 67 (44%) received money from Ferring Pharmaceuticals in the Sunshine data, and 86 (56%) did not. To those providers who received Sunshine payments, the median number of payments was 2 (IQR 1-3), and the median payment amount was \$28.06 (IQR \$17.47 - \$84.01). There was no difference in Medicare B service count (6385 vs. 5830,  $p=0.36$ ) or total Medicare B payments (\$14,528.25 vs \$13,335.16,  $p=0.39$ ) for providers who did or did not receive Sunshine payments. 171 urologists were identified as having prescribed Denosumab in the Medicare B dataset. 50 (29%) received money from Amgen, and 121 (71%) providers did not. To those providers who received Sunshine payments, the median number of payments was 1 (IQR 1-3), and the median payment amount was \$19.78 (IQR \$15.01 - \$41.03). There was no difference in mean Medicare service count (3817 vs. 3627,  $p=0.68$ ) or mean total Medicare B payments (\$42,801.92 vs. \$40,843.81,  $p=0.71$ ) for providers who did or did not receive Sunshine payments.

**Conclusions:** It appears that while providers receiving money from the pharmaceutical industry had higher rates of billing for Degarelix and Denosumab, this was not statistically significant. We found no discernible impact of pharmaceutical company payments and prescription behavior patterns related to these two drugs. Non-concurrent databases makes accurate analysis challenging. Nevertheless, as the databases mature researchers will be able to look prospectively at this relationship.

## P61 The Utility of Sex Hormone Binding Globulin in Infertile Males

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**Background:** Serum testosterone exists in equilibrium between unbound free testosterone and protein bound testosterone. While total testosterone (TT) levels represent all forms of testosterone, a significant percentage may be tightly bound to sex hormone binding globulin (SHBG) and therefore not readily available for biochemical use. Given SHBGs variability amongst the general population, we sought to determine what role, if any, SHBG levels played in a population of male infertility clinic patients.

**Methods:** We retrospectively examined data from 168 males seen in infertility clinic. In order to investigate the accuracy of TT in the biochemical diagnosis of hypogonadism, we calculated sensitivity, specificity, positive predictive value and negative predictive value using calculated bioavailable testosterone (cBT) as the reference value. The relationship between testosterone levels and other fertility parameters including semen samples, varicocele, estradiol and FSH were calculated using non-parametric Spearman correlations.

**Results:** Of the 90 men who had a TT > 300 ng/dL, only 48% could also be considered biochemically eugonadal by cBT. Computations using cBT as a standard to determine the accuracy of TT in the measurement of hypogonadism revealed a sensitivity of only 81%, a specificity of 83%, a PPV of 81%, and a NPV 82% in diagnosing hypogonadism with TT alone. Surprisingly, elevated SHBG levels were independently predictive of decreased sperm concentration, motility and morphology in a magnitude similar to FSH. Additionally, low cBT but not TT correlated with elevated FSH levels.

**Conclusions:** These results question the validity of only assessing men with TT when diagnosing them with laboratory values consistent with hypogonadism and highlight many interesting effects of SHBG. We advocate routine use of SHBG levels to calculate FT/BT in a male fertility clinic population.

## P62

### A Randomized Prospective Double Blind Comparison Trial of Clomiphene Citrate and Anastrozole in Raising Testosterone in Hypogonadal Infertile Men

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**Background:** Clomiphene citrate (CC) and anastrozole (AZ) have been used off label to increase testosterone (T) in hypogonadal infertile men (HIM). Both medications have been shown to increase T with different effects on estradiol (E2) and T to E2 ratios. There are no reported randomized trials comparing CC and AZ to improve T levels in HIM. We aimed to establish equivalence of CC vs. AZ with respect to improvement in T levels in HIM.

**Methods:** We randomized 26 HIM (T less than 350 ng/dL and normal LH). Patients were randomized to CC (25 mg/day) or AZ (1 mg/day) for 12 weeks. Hormones assayed were total T, free T, E2, luteinizing hormone (LH), follicle stimulating hormone (FSH), and sex hormone binding globulin (SHBG). Patient reported outcomes were the International Index of Erectile Function, Erection Hardness Scale, and the Androgen Deficiency in the Aging Male questionnaires. Blood tests and questionnaires were recorded at baseline, 6 and 12 weeks. Semen analyses were performed at baseline and 12 weeks.

**Results:** T increased significantly from baseline in both groups at 6 and 12 weeks. There was a significantly larger increase in T and mean increase from baseline in CC vs AZ (571 vs 408 ng/dL, respectively). Whereas E-2 levels increased in the CC group, they decreased in the AZ group. Though both groups demonstrated an increase in T to E-2 ratio from baseline, statistical significance at 6 and 12 weeks was only achieved with AZ. Neither group demonstrated significant changes in seminal parameters or patient reported outcomes.

**Conclusions:** We failed to demonstrate equivalence of CC vs. AZ. CC resulted in significantly higher T levels than AZ. AZ resulted in a significantly larger increase in T/E-2 ratio than CC. No significant differences between CC and AZ on seminal parameters or patient reported outcomes were demonstrated.

## P63

### An Exceptional Learning Experience: A Week In Burkina Faso Treating Vesico Vaginal Fistulas With "Meres Du Monde En Santé" Team

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**Background:** International surgical missions offer a unique learning opportunity for urology residents and the entire surgical team. It opens the eyes on another surgical world, consisting of frail and malnourished patients, decrepit medical facilities and a lack of basic medical supplies, exhausting weather conditions and extremely challenging cases. Being part of a well-prepared and experienced surgical team offers a great human and surgical experience.

**Methods:** McGill University and the Urology program approved the one-week mission which took place in February 2015 in Boromo, Burkina Faso. Our experience was acquired on three levels: 1) Surgical: The mission focused only on obstetrical fistulas. All cases operated by our team were complex and often recurrent. Residents were involved in preparing for the mission, and also actively participated in all surgeries. 2) Interaction with local teams: Multiple discussions took place with collaborating local health-care personnel implicated in the recruitment of the women from their respective communities, and also in their peri-operative and postoperative care. 3) Anthropological research: Long-term evaluation of results is assured through an anthropologic research program that visits the patients in their own villages a year after surgery.

**Results:** Thirty women were clinically evaluated for obstetrical fistulae throughout the week, and we operated on thirteen. All cases were vesico-vaginal fistulae. Eleven patients were operated using only a vaginal approach, and two patients also required abdominal approach. Fistulae

varied in size, location and complexity. Repair techniques varied also, including neo-urethra creation and various usages of flaps. We performed one concomitant ureteral reimplantation, and dealt with two cases of complete idiopathic bladder neck obstructions, which were incised, one by open approach, the other one trans-vaginally. There were no immediate post-operative complications. Local health-care teams were educated and involved in various aspects of peri-operative patient care.

**Conclusions:** International surgical mission trips in impoverished areas offer a unique enriching learning opportunity to urology residents traveling with a highly specialized medical team. Organization and discipline, cross-cultural human experiences, and advanced surgical techniques, all within grueling working conditions are some of the lessons learned on these missions. Although challenging in various ways, this unique experience should be highly recommended for any urology resident.

## P64

### PUC Kigali Project: A collaboration of Canadian and Rwandan Urologists

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**Background:** In 2013, a call for volunteers was made through the Pediatric Urologists of Canada (PUC) to visit Rwanda, a country with 11 million people served by 3 urologists. The volunteers were expected to work collaboratively with the local Faculty and Learners. By October 2014, two teams of 4 Urologists and two Residents have participated. We report the outcome.

**Methods:** For 2 weeks in Kigali, participants functioned as collaborative educators and faculty. We worked at the three teaching hospitals- the CHUCK, King Fazal and the Military. The program included: 1. Out-patient Screening Clinic-adult and pediatric; 2. Operative (OR) surgeries including pediatric anomalies, oncology, voiding dysfunction and adult urology - BPH, urethral stricture, bladder and prostate cancer; 3. "One-to-one" Case-based Learning; 4. Workshop in Office Urodynamics; 5. Academic day of didactic lectures on pediatric and adult urology; and 6. Community Engagement. The host provided accommodation, meals and local transportation. Participants were responsible for their air fares and travel arrangements.

**Results:** Health care services, as elsewhere, are unique with the existence of public and private hospitals and other arrangements in between. With only 3 urologists, the wait times were unusually long. Despite the limitations, no one was denied care because of lack of funds. Anesthesia Nurse practitioners were a unique complement in the OR workforce. Invitation from Kigali was based on local needs rather than Western models and expectation. Local accountability and initiative were noticeable. We acted as mentors, moderators and educators following a curriculum developed in Rwanda. Residents got to learn, educate and work in a welcoming and different environment.

**Conclusions:** With the short exposure to a small segment of the Rwandan healthcare model, we feel that there is room for improvement and development in urology and retention of well-trained home-bred workforce. Urologists and institutions in Northeastern American Urological Association have a great opportunity of making significant contribution to Rwanda and other LIMCs through supporting partnerships such as this.

**P92**

**Two 24-hour Urine Collections for the Metabolic Assessment of Patients With Nephrolithiasis; Does Timing Between Studies Matter?**

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**Background:** 24-hour urine collections are important parts of a complete evaluation in patients with urolithiasis. Latest guidelines agree that there are conflicting views in literature as whether to use one or two studies as initial assessment. Several groups have reported that a single 24-hour urine collection is recommended and sufficient to assess the risk of nephrolithiasis. On the contrary, others suggested that two, 24-hour urine collections may yield a superior number of precise diagnoses and thus, 2 are needed for metabolic evaluation. No consensus exists regarding the time gap to be used between collections.

**Methods:** We performed a retrospective study of a 24-hour urine collection database of patients attending our stone clinic from 2000 to 2014. Individuals with two studies were divided into 2 groups depending the timing of the collections. 23 patients from our database were identified as having had two successive studies. 147 patients were identified as having a delay between studies. A delay was defined as any gap between studies greater than 24 hours but less than 1 year. Data from the

Litholink™ report on the 24 hour urinalysis was used to perform a Person's chi squared test of independence to identify statistically significant differences in the frequency of detectable abnormality between those who had their second study done immediately after the first versus those who had a delay between the studies.

**Results:** Top 5 abnormalities in a cohort of patients who provided two successive 24 hour urinalyses (control group) were Na, uric acid, Ca, pH, and SSCaP with a frequency of 79%, 71%, 69%, 66%, and 62%, respectively. Top 5 most frequent abnormalities detected in patients who provided a delayed second study (experimental group) were Na, pH, uric acid, oxalate, and P with a frequency of 90%, 76%, 72%, 63%, and 63%, respectively. Only statistically significant difference in the detected frequency of abnormal Na ( $p=0.001$ ) and SSCaP ( $p=0.043$ ) between groups. No difference between the two groups in terms of frequency of detected abnormalities in uric acid, Ca, pH, P, Mg, oxalate, creatinine/kg, citrate, chloride, K, sulfate, volume, ammonium, SSCaOx, or SS uric acid.

**Conclusions:** No statistical significant difference was seen between the two groups. It seems, therefore, that delaying a second 24-hour urine analysis does not differ from getting an immediate study in terms of detecting an abnormality.