	Absolute T and SH in Model			T and SH Anomalies in Model		
RESPONSE: 24-hour urine volume	Full year	Summer	Winter	Full year	Summer	Winter
Predictor variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Intercept	**0.310**	**1.842**	-0.393	**0.693**	**0.746**	**0.621**
T	**0.001**	**-0.003**	**0.004**	**-0.005**	**-0.010**	0.001
SH	**-4.642**	**-5.788**	-4.340	1.811	1.691	-5.380
Gender	**-0.034**	**-0.085**	0.015	**-0.035**	**-0.086**	0.016
Weight	**0.008**	**0.008**	**0.009**	**0.008**	**0.008**	**0.009**
Age	**0.009**	**0.009**	**0.009**	**0.009**	**0.009**	**0.009**
RESPONSE: 24-hour urine sodium (Na)	Full year	Summer	Winter	Full year	Summer	Winter
Predictor variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Intercept	**125.531**	**77.427**	23.403	**11.654**	**10.252**	**10.805**
T	**-0.391**	-0.233	-0.037	**-0.838**	**-1.278**	-0.213
SH	**-197.176**	136.115	-599.489	90.253	272.277	-756.983
Gender	**10.706**	**7.037**	**13.683**	**10.496**	**6.998**	**13.581**
Weight	**1.978**	**1.950**	**2.020**	**1.983**	**1.952**	**2.023**
Age	**-0.117**	**-0.125**	**-0.083**	**-0.118**	**-0.123**	**-0.088**
RESPONSE: 24-hour urine calcium (Ca)	Full year	Summer	Winter	Full year	Summer	Winter
Predictor variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Intercept	**95.048**	**155.934**	71.125	**84.971**	78.570	**80.448**
T	-0.021	-0.247	0.045	-0.284	-0.413	0.291
SH	**-497.954**	-308.114	-777.348	-126.801	95.700	-1140.311
Gender	**-4.612**	**-4.992**	**-5.386**	**-4.714**	**-5.027**	**-5.429**
Weight	**1.874**	**1.923**	**1.893**	**1.876**	**1.922**	**1.894**
Age	**-0.433**	**-0.425**	**-0.335**	**-0.434**	**-0.423**	**-0.342**
RESPONSE: SSCaOx	Full year	Summer	Winter	Full year	Summer	Winter
Predictor variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Intercept	**4.523**	-0.461	**7.381**	**8.143**	**8.232**	**8.016**
T	**0.012**	**0.029**	0.002	**0.039**	**0.075**	**0.022**
SH	9.284	3.579	4.745	**-20.576**	-25.903	-4.552
Gender	**0.210**	**0.437**	-0.019	**0.218**	**0.441**	-0.015
Weight	**0.005**	**0.006**	**0.004**	**0.005**	**0.006**	**0.004**
Age	**-0.031**	**-0.033**	**-0.027**	**-0.031**	**-0.033**	**-0.027**

TABLE 1: Coefficients for the multiple linear regression $RESPONSE = \beta_0 + \beta_1 T + \beta_2 SH + \beta_3 Gender + \beta_4 Weight + \beta_5 Age$, where β_i are the coefficients of the regression model. The temperature anomaly for a given day is defined as $T_{anomaly} = T_{observed} - T_{avg}$. Similar for specific humidity. T and SH values are the daily average for the day of the collection. Coefficients in **bold** are significant for p < 0.0001. Values highlighted in blue are significant negative coefficients, while values highlighted in orange are significant positive coefficients.

Source of Funding: none

MP08-05

IMPACT OF DEMOGRAPHIC FACTORS AND SYSTEMIC DISEASE ON URINARY STONE RISK PARAMETERS AMONGST STONE FORMERS

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INTRODUCTION AND OBJECTIVES: Age, sex, and race are all known to influence kidney stone risk. Previous literature has demonstrated a clear link between kidney stone disease, obesity, and diabetes. Our objective was to examine in a multivariate analysis the associations between various demographic factors and systemic diseases on stone risk parameters in a stone forming population.

METHODS: A retrospective chart review of adult kidney stone patients who completed 24-hour urine collections from April 2004 through August 2015 was performed. Demographic information was captured including age at collection, sex, race, and BMI. Chart review was performed to assess for a diagnosis of diabetes and hypertension. The results of CT Imaging, and renal/abdominal ultrasonography, performed with ±6 months were reviewed for a diagnosis of fatty liver disease. Statistical analysis included Pearson correlation analysis, Spearman correlation analysis, and linear and logistic regression analyses, both univariate and multivariate.

RESULTS: There were 589 patients included in the study. Numerous urinary parameters were significant in association with demographic factors or systemic diseases in a multivariate analysis. Older age was associated with decreased calcium (Ca) excretion (p=0.0214), decreased supersaturation of calcium oxalate (SSCaOx) (p=0.0262), decreased supersaturation of calcium phosphate (SSCaP) (p<.0001), and decreased urinary pH (p=0.0201). Males excreted more Ca (p=0.0015) and oxalate (Ox) (p=0.0010), had lower urine pH (p=0.0269), and higher supersaturation of uric acid (SSUA) (p<.0001) than women. For race, African Americans had lower urine volume (p=0.0023), less Ca excretion (p=0.0142), less Ox excretion (p=0.0074), and higher SSUA (p=0.0049). Diabetes was associated with more Ox excretion (p<.0001), lower SSCaP (p=0.0068), and lower urinary pH (p=0.0153). There were positive correlations between BMI and Ca excretion (p=0.0386), BMI and Ox excretion (p=0.0177), and BMI and SSUA (p=0.0045).

CONCLUSIONS: These results demonstrate that both demographic factors and systemic disease are independently associated with numerous risk factors for kidney stones. These results highlight that there are differential risks for individuals to develop kidney stones based on these associations. The mechanisms responsible for these associations and disparities (racial differences) need to be further elucidated.

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MP08-06

THE ASSOCIATION BETWEEN 24-HOUR URINE COLLECTION USE AND STONE RECURRENCE AMONG HIGH RISK KIDNEY STONE FORMERS

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INTRODUCTION AND OBJECTIVES: The American Urologic Association Guidelines recommends obtaining a 24-hour urine (24HU) in recurrent stone formers, patients high-risk for stone recurrence, and interested first-time stone formers. However, the advantage of selective therapy based on 24HU results over empiric treatment is unclear. We aimed to determine if obtaining a 24HU in high risk stone formers is associated with decreased recurrent stone episodes in a contemporary cohort exemplifying real-world clinical practice.

METHODS: We used the MarketScan database to identify insured, employed subjects, 18 to 64 years old with a primary diagnosis of kidney and/or ureteral stones based on ICD-9 and ICD-10 diagnosis codes from 2008 to 2014. Subjects at high risk for infectious stones or with cystinuria were excluded. High risk stone formers (based on AUA guidelines), those undergoing stone surgery, and those with previous stone diagnoses one year prior to the date of inclusion were characterized with CPT and ICD codes, as these subjects are thought to benefit the most from 24HU per the AUA guidelines.

The exposure was a 24HU done within 6 months of diagnosis. The outcome was recurrent stone episodes as defined by ED visits and hospitalizations with a primary stone diagnosis or stone surgery from 6 months to 3 years after the primary diagnosis. We used adjusted logistic regression to estimate recurrence risk by 24HU exposure. We adjusted for age, gender, insurance type, year of diagnosis, high risk status, recurrent stone history, and being treated by a urologist on the multivariate analysis.

RESULTS: We identified 422,124 subjects diagnosed with nephrolithiasis, 27,993 (6.6%) of whom had a 24HU within 6 months after their primary stone diagnosis. On multivariate analysis, completing a 24HU was not associated with recurrence rates in high risk/recurrent stone formers (OR 0.9; 95% CI [0.74-1.10] or those undergoing a surgery (OR 1.0; 95%CI [0.94-1.06]). We found no difference in 24HU utilization between men and women (6.6% vs 6.7%). A positive association of 24HU utilization was seen in high-risk vs. low risk-subjects (6.9% vs. 6.6%), recurrent vs. first time stone formers (8.7% vs 6.5%), and those treated with surgery vs. no stone surgical history (14.2% vs. 5.0%) (all p<0.01). Recurrence rates of those who were high-risk/recurrent stone formers, had surgery and all-comers were 25.1%, 16.9%, and 12.3%, respectively.

CONCLUSIONS: Among high-risk/recurrent stone formers and those undergoing stone surgery, there are no associations observed between having a 24HU and stone recurrence at 3 years.

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