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Innovative Workflow to Collect Home Urine Samples From Symptomatic Patients Sheltered in Place During COVID-19

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#7 | HOME URINARY TRACT INFECTION TESTING: PATIENT EXPERIENCE AND SATISFACTION WITH POLYMERASE CHAIN REACTION KIT

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Presented By: Alexandra Melnyk, MD, MEd

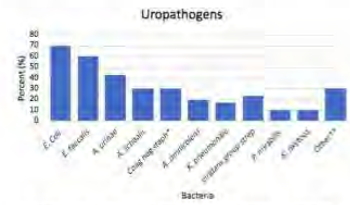
Introduction: Urinary Tract Infections (UTIs) pose a significant health concern for patients. The gold standard for diagnosis is a urine culture with speciation and sensitivities. Polymerase chain reaction (PCR) testing is a newer, alternative option for uropathogen detection and is now being evaluated to diagnose UTIs. During the COVID-19 pandemic, we sought to evaluate patient satisfaction with a novel multiplex PCR UTI home collection kit for symptomatic UTI in a urogynecologic population.
Methods: This was a cross-sectional study of women in an academic urogynecology practice undergoing evaluation for symptomatic UTI from April 1 through July 15, 2020. Patients were sent a UTI PCR home kit when they called for UTI symptoms. We created a survey on a 5-point Likert scale to assess patient satisfaction with the process. We called patients with this survey along with a few additional questions. Baseline information including demographics, symptoms and results of testing were collected. The primary outcome was patient satisfaction with this experience. Secondary outcomes included type and number of uropathogens on testing.
Results: A total of 30 patients [73% white race, mean age 71.9 (SD 12.0), mean BMI 31.9 (SD 8.0)] with UTI symptoms underwent testing. Patients responded with a mean score of 4.7 to all questions. (Table 1) Overall, 86% (26/30) of patients reported that they would choose this test again if given the opportunity, and 86% of those asked would choose this test again outside of the COVID-19 pandemic. The most common symptoms reported included dysuria (53%), urgency (37%), and frequency (30%). The most common pathogens identified included *E. coli* (70%), *E. faecalis* (60%) and *A. urinae* (43%), among others. There were 21 patients (70%) that developed UTI symptoms again after treatment and the average time to reach out to the health care system after their initial PCR test was 24.5 days (SD 28.0).
Conclusion: Patients were satisfied with their experience utilizing a home multiplex UTI PCR kit and patients would choose this option again, even outside of the current COVID-19 pandemic. Home UTI PCR testing revealed common uropathogens for a population with a high proportion of recurrent UTI, but additional research comparing home versus in-office urine PCR testing is necessary.

Table 1: Patient satisfaction on 5 point Likert scale.*

Area	Question/Statement	Results (mean (SD))
Collection process	I would rather have the ability to collect my urine at home than go to a lab	4.8 (0.5)
Confidence in the process	I feel the test from my home is as sterile/clean as from the lab	4.7 (0.5)
Confidence in the results	I feel the test from my home is as accurate at from the lab	4.5 (0.8)
Convenience	Not having to travel to a lab is convenient	4.9 (0.3)
Communication	I feel that the communication about the results of my tests were the same compared to if I went to a lab	4.7 (0.6)

*Likert scale key: 1. Not at all satisfied, 2. Not very satisfied, 3. Neutral, 4. Satisfied, 5. Very satisfied.

Figure 1: Uropathogens identified on UTI PCR assay



*Coag neg staph: *coagulase negative staphylococcus species*
** Other; includes *p. aeruginosa, s. marcescens, morganella, corynebacteria, strep agalactiae, citrobacter*

Funding: N/A

#8 | INNOVATIVE WORKFLOW TO COLLECT HOME URINE SAMPLES FROM SYMPTOMATIC PATIENTS SHELTERED IN PLACE DURING COVID-19

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Presented By: Andrew Korman

Introduction: The two main challenges during the COVID 19 pandemic were to keep essential employees safe and to provide timely care to patients. We devised a novel urine specimen home pickup strategy for our patients with hematuria, irritative voiding symptoms as well as bladder cancer to address these issues.
Methods: An employee dropped off necessary equipment for the urine sample to symptomatic patients' houses. A clean catch specimen was collected and the sample left at the front door. The driver wearing PPE picked up the sample within 30 minutes and delivered it to the lab. Dipstick analysis was performed. Patients with leukocyte

esterase or nitrate positive urine had a PCR culture. For patients who had hematuria with no previous cytology, a urine cytology and a PCR urine culture was ordered. Patients with a history of bladder cancer had cytology and FISH done. Urinalysis results were immediately sent to the physician via electronic medical records and a follow-up telemedicine appointment was scheduled. A retrospective analysis was performed for 2206 samples collected: 1122 (79.5% positive) from the office as controls and 1084 (82.7% positive) collected at home. Average turnaround time (TAT) was 1.96 days with average transit time of 0.70 days. TATs were faster for samples collected at home for both parameters.
Results: 1148 patients were diagnosed with a clinically significant bacterial (>10^5 colonies) or yeast infection, (53.5% of office samples and 50.6% of home samples). A significant number of infections were caused by bacteria including Pseudomonas, Klebsiella, Proteus and E. Coli. Klebsiella pneumoniae, Streptococcus agalactiae, and Aerococcus urinae were significantly more common in home speciments than office

Table 1. Number/percentage of positive results

N=2206 samples	Total N=2206 N (%)	Specimen log sample		P value
		No (Collected in Office) N=1122 N (%)	Yes (Collected in Home) N=1084 N (%)	
10K or higher for any bacteria	1520 (68.9)	750 (66.8)	770 (71.0)	0.03362
100K or higher for any bacteria	1103 (50.0)	577 (51.4)	526 (48.5)	0.17294
Any virus	537 (24.3)	269 (24.0)	268 (24.7)	0.68227
Any yeast	106 (4.8)	46 (4.1)	60 (5.5)	0.11509
100K or higher for any bacteria or any yeast	1148 (52.0)	600 (53.5)	548 (50.6)	0.16958
100K or higher for any bacteria, any yeast, or any virus	1404 (63.6)	717 (63.9)	687 (63.4)	0.79685

- P value was from Chi-square test

specimens. Yeast infections with Candida Glabarata was found more often in home samples (p = 0.0153). Viral microbes were detected at the same rate, regardless of collection location. Nine of 74 (12%) FISH tests and 26 of 611 (4%) cytologies were abnormal leading to additional work up.
Conclusion: Symptomatic urology patients were able to receive impactful healthcare while remaining sheltered in place during Covid 19 via our novel mobile care approach.
Funding: Pathnostics

#9 | OUTPATIENT ELECTROFULGURATION FOR ANTIBIOTIC-RECALCITRANT RECURRENT URINARY TRACT INFECTIONS IN WOMEN WITH TRIGONITIS ALONE

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Presented By: Jacob Andrew Stevens

Introduction: Urinary tract infections affect up to 50% of women each year. Some have recurrent urinary tract infections (RUTIs; >3 UTI/year) and require repeated and/or prophylactic antibiotic courses1 which can lead to development of antibiotic resistance without UTI resolution. Prior cystoscopic studies have noted areas of chronic inflammation (trigonitis when limited to trigone) that can house bacterial persistence2. Electrofulguration (EF) is an outpatient endoscopic cauterizing technique which eliminates these areas of inflammation to eradicate these deeply seated bacteria3. The goal of this study is to evaluate the response to EF for trigonitis alone in women with antibiotic-recalcitrant RUTIs.
Methods: Following IRB approval, a retrospective chart review of women who underwent EF of limited trigonitis to treat their antibiotic-recalcitrant RUTIs and had a minimum 1 year follow-up was undertaken. RUTIs were classified as antibiotic-recalcitrant secondary to high rates of antibiotic-resistance, antibiotic allergies or no durable response to long-term antibiotic suppression. Primary outcome was number of symptomatic UTI episodes requiring antibiotics post-EF, leading to definitions of cure (0/year), improvement (1-2 UTI/year) and failure (>3 UTI/year). Secondary outcome was endoscopic success based on complete resolution of trigonitis during an office cystoscopy at 6 months after EF.
Results: From 2008-2018, 74 non-neurogenic women met study criteria (Group 1: 64 (86%) endoscopic success, Group 2: 10 (14%) endoscopic failure). There was no statistically significant difference in patient characteristics or pre-operative UTI management. Median follow-up in group 1 was 3.5 years (IQR 1.7-6.2) and 2.6 years (IQR 1.8-7.5) in group 2 (p=0.75). Median UTIs/year post-EF were 0.6 in both groups. Clinical outcomes between groups were not statistically different, with overall 16 (22%) cured, 54 (73%) improved and 4 (5%) failed. In the clinically improved group, 38 (70%) had <1 UTI/year in the follow-up period starting 6 months after EF. No patients remained on long term,