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Background. Community-acquired (CA) UTI caused by ESBL-producing pathogens pose challenges related to initial antibiotic (AB) selection. Better characterization of AB susceptibilities in CA ESBL infections may improve empiric drug selection for outpatient therapy. The objectives of this study were to describe AB susceptibilities of isolates in CA ESBL UTI and provide recommendations for appropriate treatment at our institution.

Methods. Adult patients with CA ESBL UTI (cystitis) from 2009 through 2013 were retrospectively matched 1:1 with a control group of non-ESBL CA UTI based on age within 5 years, gender, and organism. The primary outcome in this phase of the study was description of AB susceptibilities in CA ESBL UTI vs. controls. Secondary outcomes were comparison of appropriate initial AB therapy (defined as concordance of initial AB with in vitro susceptibilities) and development of recommendations for initial antibiotics for CA UTI.

Results. Eighty-five patients were matched into each of the ESBL and non-ESBL CA UTI groups. *E. coli* was the pathogen in 94% of ESBL UTIs and 96% of controls. Patients with ESBL UTI most often received ceftriaxone or oral β-lactam (BL, 31%), fluoroquinolone (FQ, 27%), trimethoprim/sulfamethoxazole (TMP/SMX, 14%), or nitrofurantoin (NF, 14%); controls were similar. Besides non-carbapenem BLs, ESBL producers were significantly more resistant to FQs (78% resistant), NF (16%), TMP/SMX (60%), gentamicin (33%), and doxycycline (78%) vs. controls ($P < 0.01$ for each). Ertapenem and amikacin had 100% and 96% susceptibility, respectively. Initial AB were discordant in 64% of ESBL UTI vs. 14% of controls (OR 11.0, 95% CI 5.0–24.3; $P < 0.0001$). FQs and TMP/SMX were discordant in 83% and 42% of ESBL UTI, respectively, while NF was concordant in 100% of patients with ESBL UTI and 89% of controls.

Conclusion. Patients with CA ESBL UTI were significantly more likely to receive inappropriate initial AB therapy. Although ESBL-producing strains were resistant to multiple AB classes, NF retained activity against 84% of ESBL isolates and was associated with appropriateness of initial therapy in 100% of patients with ESBL UTI. Nitrofurantoin is an appropriate oral option for treatment of CA UTI, even in patients with ESBL infection.

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1138. Prevalence and Accuracy of Screening Test of Asymptomatic Bacteriuria During Pregnancy in Siriraj Hospital

Jintana Srisompong, MD[1]; Suraiya Rahman, BSN[2]; Kusol Russameecharoen, MD[2]; Sasima Tongsai, Phd[3]; Chakkrapong Seenama, -[4] and Pornpan Koomanachai, MD[5]; [1]Medicine, Mahidol University, Bangkok, Thailand, [2]Obstetric and Gynecology, Siriraj Hospital, Bangkok, Thailand, [3]Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand, [4]Medicine, Siriraj hospital, Bangkok, Thailand, [5]Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

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Background. The early detection and treatment asymptomatic bacteriuria (ASB) during pregnancy prevents maternal and fetal complication. Thus the American College of OB-GYN recommends urine culture should be obtained at the first prenatal visit and the U.S. Preventive Services Task Force obtains urine culture during 12–16 weeks of gestation. The new antenatal care (ANC) model of Thai Ministry of Public Health uses screening at first ANC by urine dipstick. However, neither research nor routine ASB screen in Siriraj Hospital because there was low prevalence and all pregnancy been screened by the obstetricians.

Methods. Prospective cohort study was performed at the ANC clinic, OB-GYN department, Siriraj Hospital. Pregnancies of first antenatal care visit during January to December 2015 were enrolled. Urine culture (UC), Urine dipstick for nitrite (UDN), and Urine dipstick for leukocyte esterase (UDL), were performed. Subjects' baseline characteristics until birth delivery were collected.

Results. Total 702 subjects were enrolled; median age, 28 yrs (range 16–45) and body mass index, 24.1 (range 14.0–44.3). The ASB prevalence was 2.3% (16 from 702) without significant difference between first, second, and thirdtrimester, $P = 0.185$. The most common organism was *E. coli.* Factors related to ASB were heart disease, $P < 0.001$ and having sexual intercourse during pregnancy, $P = 0.005$. The sensitivity and specificity of UDN and UDL were 37.5% and 99.0% and 56.3% and 55.7%, respectively. Positive predictive value and negative predictive value of UDN and UDL were 46.2% and 2.9% and 98.5% and 98.2%, respectively. No abnormal maternal and fetal outcomes were reported.

Conclusion. According to very low prevalence of ASB in Siriraj hospital, routine urine culture may be unnecessary for all antenatal pregnancy. However, heart disease and sexual intercourse during pregnancy should be considered for screening and treatment. However, further evaluation of outcome, i.e. UTI, maternal and fetal complication of non-screening for ASB should be studied.

Disclosures. **All authors:** No reported disclosures.

1139. Epidemiology, Microbiology and Outcomes of Catheter-Associated Urinary Tract Infection and Complicated Urinary Tract Infection in the USA

Sanjay Merchant, PhD[1]; Eric M Sarpong, PhD[2]; Glenn Magee, MBA[3]; Nancy Lapointe, PharmD, MHS[4]; Jake Gundrum, MS[5] and Marya Zilberberg, MD, MPH[6]; [1]Merck & Co., Inc., Kenilworth, NJ, [2]CORE, Merck & Co. Inc., Kenilworth, NJ, [3]Premier Research Services, Premier, Inc., Charlotte, NC, [4]Applied Research, Premier Research Services, Premier, Inc., CHARLOTTE, North Carolina, [5]Premier Research Services, Premier, Inc., CHARLOTTE, North Carolina, [6]Evimed Research Group, LLC, Goshen, Massachusetts

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Background. An estimated 93,300 cases of healthcare-associated urinary tract infection (UTI) were recorded in US acute care hospitals in 2011. Many are classified as catheter-associated UTI (CAUTI) or complicated UTI (cUTI). Although CAUTI and cUTI share some commonalities, strategies differ for their prevention and treatment. We examined the epidemiology, microbiology and outcome of patients with CAUTI and cUTI in a large multicenter US database.

Methods. This was a retrospective cohort study using the 2013–2015 Premier Healthcare Database. ICD-9-CM codes were used to identify hospitalized adults (≥18 years) with CAUTI or cUTI. The demographics, clinical characteristics, microbiology, and hospital outcomes of all identified patients were compared. Differences between groups were examined using χ^2 test for categorical variables and Student's t-test for continuous variables. Statistical significance was set at $P \leq 0.05$.

Results. Of 120,332 identified patients, 50,034 (41.6%) had CAUTI (87.0% present on admission [POA]) and the remainder had cUTI [95.3% POA]. Patients with CAUTI were older (71.3 ± 16.1 vs. 56.3 ± 19.5 years) and more likely to be male (62.5% vs. 30.6%) and white (71.6% vs. 66.7%) (all $P < 0.001$). They also had greater comorbidity burden (Charlson Comorbidity Index of 2.8 ± 2.4 vs. 1.7 ± 2.2) and a higher ICU care rate (23.2% vs. 17.8%) than cUTI patients (all $P < 0.001$). Although *Escherichia coli* was the most common pathogen in both (69.8% cUTI vs. 39.5% CAUTI), *Pseudomonas aeruginosa* accounted for one quarter of all CAUTIs and only 5.0% of cUTIs. Compared with cUTI, CAUTI carried a >2-fold increase in unadjusted mortality (3.6% vs. 1.6%) and a higher rate of 30-day readmission (3.9% vs. 2.5%) (all $P < 0.001$). Additionally, CAUTI was associated with a greater unadjusted ICU length of stay (LOS, 6.0 ± 8.8 vs. 5.5 ± 5.5 days), hospital LOS (8.4 ± 12.9 vs. 5.5 ± 6.4 days) and cost ($16,871+$29,513 vs. $11,915 ± $19,657) (all $P < 0.001$).

Conclusion. The volume of CAUTI and cUTI hospitalizations in the US is high, and a majority of infections were present on admission. CAUTI is associated with greater mortality and resource use than cUTI. The high rate of *P aeruginosa* portends a greater potential for antimicrobial resistance in CAUTI, which may require different prevention and treatment approaches from cUTI.

Disclosures. **S. Merchant**, 1Merck & Co., Inc.: Employee and Shareholder, Salary **E. M. Sarpong**, Merck & Co., Inc.: Employee and Shareholder, Salary **M. Zilberberg**, EviMed Research Group, LLC,; Universtiy of Massachusetts: Shareholder, Research grant

1140. Significance of Prior Culture History for Predicting Urinary Tract Infection Caused by Multi-drug Resistant Enterobacteriaceae

Jefferson Bohan, PharmD, BCPS[1]; Richard Remington, MS[2] and Karl Madaras-Kelly, PharmD., MPH[1,3]; [1]Vet. Med. Ctr., Boise, Idaho, [2]VA Med. Ctr.,and Quantified Inc., Boise, Idaho, [3]Coll. of Pharmacy, Idaho State University, Meridian, Idaho

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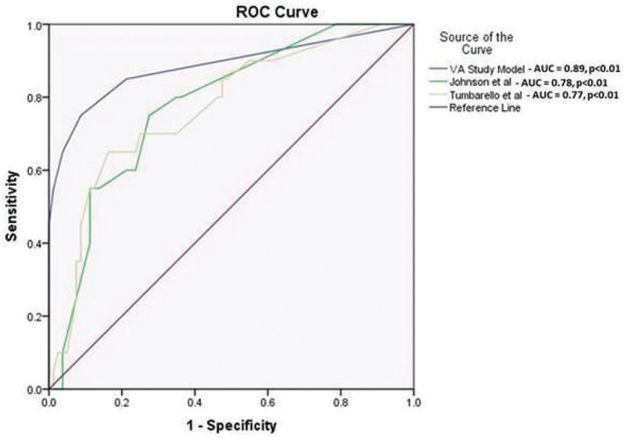
Background. Extended-spectrum β-lactamase (ESBL) -producing *E. coli*, *Klebsiella* spp., and *Proteus* spp. (EKP), that cause urinary tract infections (UTI) are resistant to first-line therapies (e.g., ceftriaxone). Prediction of UTI caused by ESBL-producing organisms is important for selection of empirical therapy. The objective was to develop a prediction model to identify UTI caused by ceftriaxone (CRO)-resistant EKP and compare the model to other commonly cited predictive models (Tumbarello M et al. AAC Jul 2011; Johnson SW et al. ICHE Apr 2013).

Methods. A single-center, matched, case–control of Veterans Affairs (VA) outpatients with a positive (≥10^4 CFU/mL) urine culture was conducted. Patients were excluded if they had no UTI diagnosis or documented symptoms, age <18, transfer from another hospital, or a significant urine culture result. Cases were defined as any patient with a CRO-resistant EKP; controls were matched 4:1 to cases based on incident density (≤ 30 days) by random selection. Logistic regression and receiver operator curves were used to develop and assess models.

Results. One hundred subjects were included in the analysis. Demographics were similar except for age [Case 73.5 years (13.7); Control 64.5 years (15.2); $P = 0.02$] and history of CRO-resistant EKP in last 6 months (Case 40%; Control 0%; $P < 0.01$). Predictor variables in the final model (Likelihood Ratio 44.2, $P < 0.01$) included history of CRO-resistant EKP in last 6 months (131.5, 12.2–18308.0), cephalosporin use in past 60 days (12.7, 1.9–94.5), residence in a skilled nursing or assisted living facility (8.0, 1.6–40.5), and hospitalization in last 6 months (OR 3.0, 95% CI 0.7–12.5). In the VA population, the other models predicted significantly although less accurately (Figure 1).

Conclusion. Prior cephalosporin use, hospitalization, and residence were important predictors of UTI caused by CRO-resistant EKP; however, prior history of CRO-resistant EKP was the most important predictor. A Model that included prior culture results predicted CRO-resistant UTIs better than other commonly cited models that do not contain prior ESBL history. Prior culture data should be considered when selecting empirical antibiotics for UTI. Validation in a larger cohort is warranted.

Figure 1. Receiver operator curves for predictive models



Disclosures. **All authors:** No reported disclosures.

1141. Contemporary Epidemiology of Catheter-Associated Urinary Tract Infections (CAUTIs) in a Tertiary Care Center: Is Foley Re-Insertion a Novel Risk Factor?

Cima Nowbakht, DO[1]; Kelley M Boston, MPH, CIC[2,3]; Nicole Harrison, RN, BSN, MBA[3]; Bela Patel, MD[3]; Jeffrey Katz, MD[3] and Luis Ostrosky-Zeichner, MD, FIDSA, FSHEA[1,3]; [1]Division of Infectious Diseases, Department of Internal Medicine, McGovern Medical School, Houston, Texas, [2]Infection Prevention and Management Associates, San Antonio, Texas, [3]Memorial Hermann – Texas Medical Center, Houston, Texas

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Background. CAUTIs are one of the most common causes of hospital-acquired infections. We report on a retrospective analysis performed on prospectively collected CAUTI surveillance data from 2014 to 2016 at a large tertiary care academic hospital

Methods. A total of 181 CAUTIs by NHSN definition were reviewed to describe contemporary demographics, risk factors, microbiology, and outcomes.

Results. The 181 CAUTIs involved 178 patients. 61% were female. Events mostly occurred in an ICU setting (65%), specifically our neurosurgical unit (23%), followed by floors (24%) and intermediate units (11%). Most episodes occurred within a week after the initial catheter insertion (60%). 40% of CAUTIs occurred within an average of 5.5 days (SD ± 5.12) after a Foley re-insertion. Of the 221 cultured micro-organisms, Gram-negatives accounted for 74% (predominately *K. pneumoniae* and *E. coli),* followed by Gram-positives and yeast at 18% and 8%, respectively. 8% of organisms showed multi-drug resistance, 8% of patients developed *C. difficile* co-infections, 23% had concomitant bacteremia, and the length of stay averaged 28 days (SD ± 26.74). 55% of patients were discharged to another facility. 12% of patients expired and 4% were discharged to hospice

Conclusion. We describe the contemporary demographics, microbiology and outcomes of CAUTIs in a large tertiary care center. We also found that 40% of our CAUTIS are associated with a Foley removal and re-insertion event. Reasons requiring catheter exchanges and reinsertions include leakage, bleeding, obstruction, failed voiding trial, and general malfunction. Although this observation needs to be confirmed case control studies and larger observational trials, this new insight may provide an opportunity to intervene and focus infection prevention interventions in this novel high-risk population.

Disclosures. **All authors:** No reported disclosures.

1142. Impact of Culturing All Uncomplicated Urinary Tract Infections on the Estimated Prevalence Of Resistance in the Primary Care Setting

Gregory B. Tallman, PharmD[1]; Miriam R. Elman, MPH[1]; Adriane N. Irwin, MS, PharmD[2]; Brie N. Noble, BS[1]; Peter K. Atkins, BS[2]; YoungYoon Ham, BS[2]; Kallie Waldrip, MS[2] and Jessina C. McGregor, PhD[1]; [1]Department of Pharmacy Practice, Oregon State University/Oregon Health & Science University College of Pharmacy, Portland, Oregon, [2]Department of Pharmacy Practice, Oregon State University/Oregon Health & Science University College of Pharmacy, Corvallis, Oregon

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Background. Urine cultures to confirm a urinary tract infection (UTI) are not consistently collected in the primary care setting; thus estimates of the prevalence of resistance in uropathogens may be biased. As part of an ongoing study, microbiologic cultures were collected for all patients presenting with uncomplicated UTI at primary care clinics over a six-month period to assess the potential misclassification in frequency of resistance.

Methods. Data from an electronic health record repository were used to identify clinic encounters for women with a diagnosis code for unspecified UTI or cystitis from six primary care clinics between October 1, 2015 and February 28, 2017 in this cross-sectional study. Prior to August 22, 2016, urine microbiology cultures were collected at the discretion of the provider (usual care period), and from August 22, 2016 to February 28, 2017 urinary microbiology cultures were collected from all patients suspected of having uncomplicated UTI (full culturing period). Urinary microbiology culture and pharmacy data occurring within three days of the encounter were collected. Antibiotic susceptibility data was summarized for isolated Enterobacteriaceae. Frequency of susceptibility to trimethoprim-sulfamethoxazole (TMP-SMX), nitrofurantoin, and fluoroquinolones were compared between usual care vs. the full culturing periods using a chi-square test.

Results. We identified 131 urine microbiology cultures in the usual care period and 104 in the full culturing period with 61.1% and 55.8%, respectively, being positive cultures. Enterobacteriaceae were isolated from 85.0% of positive cultures in the usual care period and 86.2% in the full culturing period. Between the usual and full culturing periods, antibiotic susceptibility in the Enterobacteriaceae did not differ statistically for TMP-SMX (85.1% vs.. 88.0%; $P = 0.65$), nitrofurantoin (98.5% vs. 94.0%; $P = 0.19$), and fluoroquinolones (89.6% vs. 90.0%; $P = 0.94$).

Conclusion. Full culturing did not significantly change estimates of the prevalence of antibiotic resistance among Enterobacteriaceae isolated from urine samples. Current urine culturing practices provide adequate susceptibility information to inform empiric prescribing for women with uncomplicated UTIs.

Disclosures. **J. C. McGregor**, Merck & Co.: Grant Investigator, Research grant

1143. Percutaneous Nephrostomy Tube-related Infections

Hanine El Haddad, MD[1,2]; George Viola, MD MPH[2]; Ying Jiang, MS[2]; Issam Raad, MD[2]; Kenneth V. Rolston, MD[2] and Ariel Szvalb, MD[2]; [1]Section of Infectious Diseases, Baylor College of Medicine, Houston, Texas, [2]Department of Infectious Diseases, Infection Control and Employee Health, The University of Texas MD Anderson Cancer Center, Houston, Texas

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Background. Percutaneous nephrostomy tubes (PCN) are indicated for relief of urinary tract obstruction. These devices are prone to mechanical and infectious complications. The infection rate at 90 days is ±20%. Our objective was to determine whether discordant antimicrobial coverage provided prior to PCN exchange was associated with a higher rate of recurrent infection compared with those who received concordant therapy.

Methods. We retrospectively reviewed 780 patients that had undergone initial PCN placement at our institution between July 2014 and February 2017. We only included patients that had developed a definite PCN infection, subsequent PCN exchange, with a minimum 30 day post-PCN exchange follow up. We defined PCN infection as the presence of a positive urine culture ($\geq 10^4$ cfu/mL) plus symptoms consistent with a urinary tract infection. Recurrence was defined as a new PCN infection with the isolation of the same organism to the initial episode. Antibiotics were defined as concordant if they had activity against all organisms' isolated based on antimicrobial susceptibilities.

Results. A total of 47 patients met our inclusion criteria. The median age of patients was 59, with 49% being male. The most common underlying tumors were urothelial (45%), cervical (17%) and prostate cancer (15%). Clinical characteristics included ureteral stents (17%), diabetes (19%), history of GU surgery (38%), and active chemotherapy at the time of PCN insertion (70%). The median time to onset of infection was 42 days. Infections were polymicrobial in 50% of the cases. The most common organisms encountered were *Pseudomonas* spp. (36%), *Enterococcus* spp. (23%) and *Escherichia coli* (18%). The median length of follow up of PCN tubes after exchange was 55 days. There were 12 (26%) recurrences occurring at a median time of 27 days. The provision of discordant antibiotics preceding PCN exchange was significantly associated with recurrence of infection (66.7% vs. 12.8%; $P < 0.002$).

Conclusion. Discordant antimicrobial therapy provided during PCN exchange, in the setting of a PCN infection is associated with a higher rate of relapse. Therefore, to decrease the high rate for PCN reinfection, we propose that prior to PCN exchange secondary to infection, patients should be receiving concordant antimicrobial therapy.

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1144. Characterizing Clinical Demographics, Susceptibility Patterns, and Development of Resistance in *Raoultella ornitholytica* Infections in Southern Virginia

Jennifer Fuh, DO, MSc[1]; Katayoun Kouchakzadeh, BS[2,3]; Kori McDaniel, DO[1] and Balaji Desai, MD[4]; [1]Internal Medicine, Danville Regional Medical Center, Danville, VA, [2]Liberty University College of Osteopathic Medicine, Lynchburg, Virginia, [3]Danville Regional Medical Center, Danville, Virginia, [4]Infectious Disease, Danville Regional Medical Center, Danville, Virginia

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Background. *Raoultella ornitholytica* (*R. ornitholytica*) is a waterborne Gram-negative bacilli increasingly found in hospitals. Multi-drug resistance has been reported, including to carbapenems. Our objective was to identify demographics of *R. ornitholytica* at Danville Regional Medical Center (DRMC) to determine predisposing factors to infection and potential antibiotic resistance.