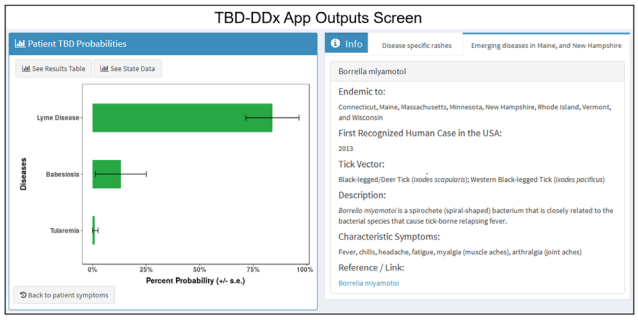

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1339. Impact of Implementing Procalcitonin Testing with Comprehensive Education on Procalcitonin Ordering Habits and Antibiotic Usage

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Session: 152. Host Responses to Diagnostics
Friday, October 4, 2019: 12:15 PM

Background. Procalcitonin (PCT) has emerged as a biomarker distinguishing bacterial from non-bacterial infections with FDA approval for acute respiratory infections and sepsis. Studies show that PCT use can reduce patient harm while decreasing antibiotic usage. Our objective was to evaluate PCT use at our hospital and assess the impact of a comprehensive education intervention.

Methods. In-house PCT testing was implemented at our institution April 2018 along with a rigorous education campaign. Interventions consisted of face-to-face didactics with 5 provider groups, distribution of evidence-based interpretation algorithms, development of EMR prompts to guide appropriate ordering, and creation of syndrome-specific interpretation displayed with PCT results. Retrospective analysis comparing pre-intervention (December 2017) to post-intervention (October 2018) was performed evaluating ordering habits and impact of PCT result on antibiotic management. Statistical analysis was performed using STATA 14.2.

Results. 218 PCT orders from 170 patients and 263 PCT orders from 170 patients were included in the pre- and post-intervention periods, respectively. All provider groups who received face-to-face education changed PCT ordering habits. Orders placed in ED and ICU locations increased ($P < 0.01$ and $P = 0.01$, respectively) while orders from floor locations decreased ($P < 0.01$). Serial PCT orders increased (20% vs. 33%; $P < 0.01$). PCT orders for FDA-approved indications improved (71% vs. 90%; $P < 0.01$) and following intervention, services who received in-person didactics were more likely to order PCT for FDA-approved indications than untrained groups (93% vs. 80%; $P < 0.01$). Clinicians were less likely to adjust therapy when PCT was low than when elevated in both periods (55% vs. 72%; $P = 0.01$; 61% vs. 77%; $P = 0.01$, respectively). Providers appropriately altered or continued therapy at similar rates during both periods (64% vs. 70%; $P = 0.2$).

Conclusion. Providing comprehensive PCT education significantly impacted PCT ordering habits. Testing improved to comply with FDA-approved indications, specifically in providers who received face-to-face education. Appropriate alteration of therapy based on PCT results were similar between groups suggesting repeat education is needed to avoid confirmation bias.

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

1340. The Effect of Continuous Renal Replacement Therapy on Body Temperature in Patients with and without Infection

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Session: 152. Host Responses to Diagnostics
Friday, October 4, 2019: 12:15 PM

Background. Sepsis frequently leads to acute kidney injury. In severe cases, patients may require continuous renal replacement therapy (CRRT) which involves placement of a dialysis catheter and an extracorporeal blood filtration circuit. CRRT is commonly considered to "mask" fever, though this phenomenon has not been investigated.

Methods. We queried an institutional database of all patients on CRRT from 2007 to 2015 for inpatient temperature data and antibiotic administration records. Receipts of piperacillin–tazobactam, a carbapenem, or a third or fourth-generation cephalosporin, indicating a serious infection, were considered intervention arm. We analyzed temperatures recorded in the intensive care unit before, during, and after CRRT. Patients were divided into groups that did not receive antibiotics as well as those who did. Temperature data were Winsorized to correct for outliers. We also performed descriptive statistics for each group.

Results. There were 237,988 temperature readings for 1,568 ICU patients on CRRT. 1,153 patients received broad-spectrum antibiotics in ICU. In patients who received antibiotics in ICU and were presumed to have an infection, the mean temperature was 37.2°C prior to initiation of CRRT, 36.8°C while on CRRT, and 37.2°C following discontinuation of CRRT. In the 415 patients who did not receive IV antibiotics, the mean temperature was 36.9°C prior to initiation of CRRT, 36.6°C while on CRRT, and 37.0°C following discontinuation of CRRT. During each of the periods before, during, and after CRRT, patients who received antibiotics had significantly higher temperatures than those who did not ($P < 0.001$). Patients receiving antibiotics were generally younger (mean 60 years vs. 64 years, $P < 0.001$), had longer ICU stays (mean 29 days vs. 12 days, $P < 0.001$) and spent more time being ventilated (mean 23 days vs. 7 days, $P < 0.001$). The mean SOFA score on day one was similar (mean 11.1 in the antibiotic group and 10.5 in the other group).

Conclusion. This investigation suggests that patients have slightly lower temperatures while on CRRT, by on average less than half a degree. A similar effect is seen in both patients with infections as well as those without. Further work will be needed to determine what constitutes a true febrile response in this population.

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1341. Development of a Series of High-Throughput Screens to Identify Leads for Nontuberculous Mycobacteria Drug Design

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Session: 153. Mycobacteria
Friday, October 4, 2019: 12:15 PM

Background. Nontuberculous mycobacteria (NTM), particularly *Mycobacterium avium* complex and *Mycobacterium abscessus* complex, cause significant morbidity and mortality in patients with impaired host immunity or pre-existing structural lung conditions. NTM infections are increasing at an alarming rate worldwide and there is a dearth of progress in regard to the development of efficacious and tolerable drugs to treat such infections. Traditional drug discovery screens do not account for the diverse physiological conditions, microenvironments, and compartments that the bacilli encounter during human infection. In order to help populate the NTM drug pipeline, and explore the disconnect between in vitro activity, in vivo activity, and clinical outcomes, we are developing a high throughput in vitro assay platform that will more closely model the unique infection-relevant conditions encountered by NTM.

Methods. We are developing and validating a suite of in vitro assays that screen compounds for activity against extracellular planktonic bacteria, extracellular bacteria within biofilms, intracellular bacteria, and nutrient-starved non-replicating bacteria.

Results. We are using both the smooth and rough morphotypes of *M. abscessus* and *M. avium*. We have validated high throughput assays to pharmaceutical standards for replicating and non-replicating *M. abscessus*. We have also tested a panel of 18 known anti-mycobacterial compounds. Assay development is currently underway to test compounds for activity against NTM in biofilm and inside macrophages as well.

Conclusion. To enhance hit identification for scaffolds to use as starting points for NTM drug development, focused libraries of compounds that have undergone significant preclinical profiling and/or compounds with known activity against M. tuberculosis (TB) will be screened. Such a "piggyback" approach usurps advances made in TB drug development and leverages them for NTM drug discovery. This will help expedite novel drug development, reduce attrition rate, and offer a shorter route to clinical use as it exploits the prior investment in medicinal chemistry, pharmacology, and toxicology.

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

1342. Impact of HIV Infection on Treatment Outcome of New Tuberculosis Patients Attending Tuberculosis and Antiretroviral Treatment Services in the Community-Based Hospital, Thailand: A Retrospective Cohort Study

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Session: 153. Mycobacteria
Friday, October 4, 2019: 12:15 PM

Background. Tuberculosis (TB) and HIV are one of the significant public health problems in Thailand, and an estimated 15,000 individuals have a dual infection. Both HIV and TB each disease speeds up the progression of each other. TB is the leading cause of death in HIV-infected individuals, and HIV coinfected TB patients have disease-specific, and treatment affected their treatment outcomes. There is insufficient evidence on issues of TB and HIV co-infection patients received treatment. This study aimed to assess the impact of HIV status on treatment outcome of TB patients.

Methods. We conducted a retrospective cohort study among TB patients who registered to service at Chaophraya Abhaibhubejhr Hospital, Prachin Buri, Thailand from October 1, 2017 to October 31, 2018. All patients' demographic data, diagnosis, and treatment were retrieved. Clinical characteristics, treatment outcome, and factors associated with treatment outcome were analyzed.

Results. There were 49 (10.65%) HIV among 460 TB patients with a median (IQR) age of 44 (32–61) years old and 65.2% were males. Disseminated TB and extrapulmonary TB were higher in HIV coinfected group ($P < 0.001$). All pulmonary TB patients' lower lobe involvement was higher in HIV coinfected group (62.50 vs. 36.00, $P = 0.001$). In HIV coinfected group median CD4 was 134 cell/mm3 (IQR 19–294), 66.67% were diagnosed HIV infection after TB diagnosis, the median time from TB diagnosed to antiretroviral was 29 days (IQR 21–48). The overall treatment success rate was 93.04%; the treatment success rate was similar in HIV coinfected TB patients (89.80%) and non- HIV-infected patients (93.43%) ($P = 0.66$).Adverse drug reactions were higher in HIV coinfected group (44.89% vs 12.41%) ($P < 0.001$). By multiple stepwise logistic regression, factors associated with anti-TB drug adverse