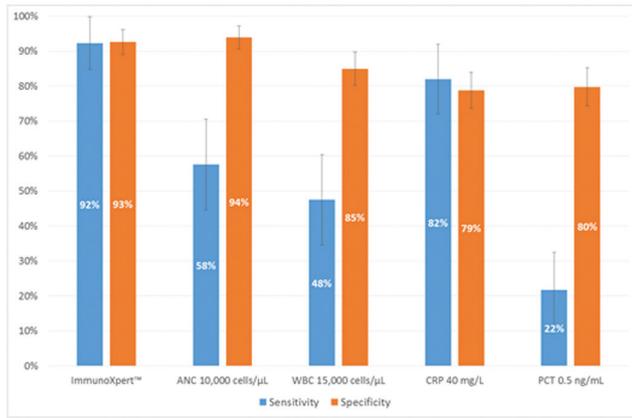


Conclusion. The novel assay demonstrated superior performance compared with routine laboratory tests (WBC, ANC) and biomarkers (CRP, PCT), in distinguishing bacterial from viral etiologies in patients with URTI. It has the potential to help clinicians avoid missing bacterial infections or prescribing unwarranted antibiotics for viral URTIs.



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1151. Biomarker-based Assessment of Urinary Tract Infection in Persons with Spinal Cord Injury

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Background. Urinary tract infection (UTI) is the most common infection and the second leading cause of death in spinal cord injury (SCI) patients. However, there is currently no consensus about the clinical criteria for UTI in SCI patients and the lack of a universal definition of asymptomatic bacteriuria (ABU) make the diagnosis even more complex and the treatment recommendations problematic. Prompt diagnosis and timely treatment of UTI are important to prevent possible progression to sepsis. Elevated concentrations of some biomarkers may be correlated with infection and their serial measurements may be helpful to assess the effectiveness of antibiotic therapy.

Methods. Fifteen SCI participants were enrolled for either lower UTI, upper UTI (pyelonephritis), ABU, or control. Patients suspected of having any inflammation or infection other than UTI were excluded. Participants were monitored for their serum procalcitonin (PCT) and c-reactive protein (CRP) levels initially and every 3 days once the UTI was confirmed and antibiotics prescribed. In addition, the urine was cultured initially and every three days in patients with UTI for correlation with biomarkers. UTI/ABU was assessed by patient's physician.

Results. Both mean initial PCT and CRP were significantly higher in patients with lower UTI ($P = 0.027$ and $P = 0.001$, respectively) and those with upper UTI ($P = 0.044$ and $P < 0.0001$, respectively) compared with control and ABU participants. PCT and CRP were generally reduced to the normal levels gradually during the course of antibiotic therapy for those patients with UTI that were placed on antibiotic therapy. Mean bacterial colonies grown from initial urine cultures in patients with upper or lower UTI were $>100,000$ CFU/mL. Control participants had urine cultures of $\leq 1,000$ CFU/mL. Generally, cultures from UTI patients placed on antibiotics were negative for the organism(s) treated for during or after the completion of antibiotic therapy.

Conclusion. Serum concentrations of CRP and PCT may be used to aid in the early assessment of UTI in SCI patients in the absence of other sources of inflammation and/or infection. In general, CRP measurements are more pronounced than PCT measurements in patients with ABU or lower UTI. However, PCT levels elevate conspicuously in patient with pyelonephritis.

Disclosures. All authors: No reported disclosures.

1152. Serum Procalcitonin as a Marker for Infection in Patients with Acute Myocardial Infarction

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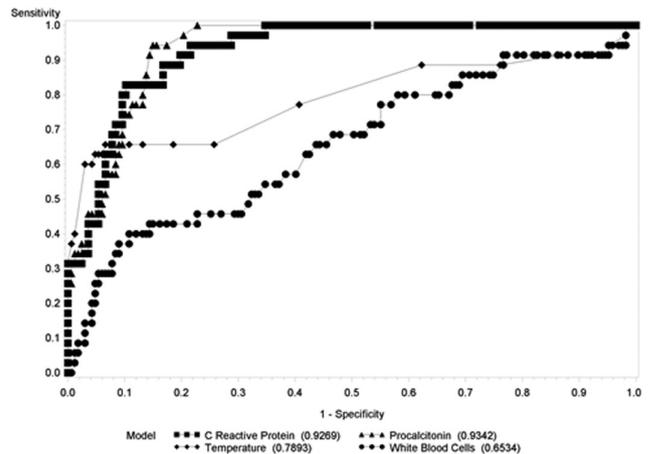
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Background. Significant proportion of patients with acute myocardial infarction (AMI) also present with systemic inflammatory response syndrome (SIRS). Thus it is difficult to determine in certain situations, whether empiric antibiotic treatment is warranted. Serum procalcitonin (PCT) is known to be elevated in bacterial infections, but its performances in predicting bacterial infection among patients with AMI, who might benefit from appropriate empiric management, is unknown.

Methods. A prospective observational study was conducted at Assaf Harofeh Medical Center, Israel. Serum PCT was collected within 48 hours from patients presenting with AMI. Demographic, clinical, and laboratory data, were collected prospectively. Two experienced Infectious Diseases (ID) specialists who were blinded to the PCT results, independently determined the gold standard for infection in every patient. By utilizing sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and the area under the ROC curve (AUC), the performance of PCT, fever, white-blood cells (WBC) count and C-reactive protein (CRP) for infection diagnosis was calculated.

Results. The analysis included 230 AMI patients (age 63.0 ± 13.0 years), of which 36 (15.6%) were determined to be infected. The best cutoff for PCT as a differentiating marker between infected and non-infected patients was achieved at 0.09ng/dl (sensitivity 94.4%, specificity 85.1%, AUC ROC 0.94). This test outperformed CRP, WBC, and fever, for infection diagnosis (figure).

Conclusion. PCT should be utilized for ruling out infection in AMI patients by utilizing serum $PCT > 0.09$ ng/dl (i.e., ≥ 0.1 ng/dl) as a cutoff.



Disclosures. All authors: No reported disclosures.

1153. The prognostic importance of platelet indices in patients with Crimean-Congo Hemorrhagic Fever

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Background. Platelet count is an important tool for the diagnosis and prognosis of Crimean-Congo Hemorrhagic Fever (CCHF). The platelet indices plateletcrit, mean platelet volume (MPV) and platelet distribution width (PDW) are parameters obtained as part of the automated complete blood count. These parameters are of prognostic importance in several diseases. The aim of this study was to evaluate the platelet count and its relations with platelet indices in CCHF patients.

Methods. One hundred and forty-nine patients with confirmed CCHF were included in the study. Patients were divided into two groups (severe cases, patients who exhibited hemorrhage during their hospital stay, and mild/moderate cases with no hemorrhage during hospital stay). The demographic characteristics and laboratory test results of all patients were compared. $P < 0.05$ was regarded as statistically significant.

Results. Hemorrhaging was observed in 38.3% of patients during hospitalization. Platelet count, PCT and PDW values (respectively) on the first day of hospitalization were 43.3 ± 29.3 , $0.06 \pm 0.07\%$, and $17.4 \pm 1.5\%$ in the severe cases and 64.5 ± 35.4 , $0.08 \pm 0.03\%$, and $16.8 \pm 1.5\%$ in the mild/moderate cases, respectively ($P < 0.05$). The difference between MPV values was not statistically significant. At cutoff values at ROC analysis, platelet count (≤ 53000) and $PCT (\leq 0.06)$ exhibited 73.7% and 71.9% sensitivity, respectively, and predicted a hemorrhagic disease course with a 80.9% negative predictive value. Seven of the severe patients died ($P = 0.001$). At cutoff values,

platelet count (>31000) and PCT (>0.03) predicted patient survival with 100% specificity and 100% positive predictive value.

Table 1: Demographic and laboratory characteristics of patients with severe and mild/moderate CCHF

	Severe cases n = 57	Mild/moderate cases n = 92	p-value
Age	45.8 ± 15.6	51.8 ± 17.1	0.034
Female, n (%)	35 (61.4)	38 (41.3)	0.017
Blood/blood product transfusion	39	42	0.007
IVIg	14	5	0.002
Mortality	7	0	0.001
PLT	43.3 ± 29.3	64.5 ± 35.4	<0.0001
PCT	0.06 ± 0.07	0.08 ± 0.03	0.001
PDW	17.4 ± 1.5	16.8 ± 1.5	0.040
MPV	8.6 ± 1.3	8.6 ± 1.2	0.782

Conclusion. Our study shows that platelet count, PCT and PDW are parameters that may be used to determine disease severity. The platelet index, and particularly PCT, may be at least as useful as platelet count in helping clinicians identify severe cases.

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1155. Impact of a Pharmacist-Driven Respiratory Viral Panel Stewardship Program on Antibiotic Exposure Within a Multicenter Community Health System

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Background. Strategies to ensure optimal use of multiplex polymerase chain reaction (mPCR) testing results for antimicrobial stewardship in acute respiratory infections remain to be elucidated. This study sought to assess the impact of pharmacist intervention (by means of prospective feedback to prescribers) on overall antibiotic exposure in patients with viral-positive mPCR Respiratory Viral Panel (RVP) laboratory test results.

Methods. This retrospective cohort study included patients ≥18 years of age admitted to an acute care hospital with a viral-positive nasopharyngeal FilmArray Respiratory Panel test result receiving antibiotics for a suspected respiratory tract infection. Immunocompromised patients, patients with RVP samples from bronchiolar lavage, patients in the intensive care unit when samples were obtained, and patients receiving antibiotics for non-respiratory infections were excluded. Antibiotic exposure days, antibiotic discontinuation at 72 hours, and culture-positive bacterial superinfection were compared in two cohorts of patients, before and after the rollout of an educational pharmacist RVP stewardship initiative.

Results. Median antibiotic exposure days did not differ between the pre- and post-intervention groups (6 days vs. 7 days, *P* = 0.20). Antibiotic discontinuation at 72 hours was significantly lower in the post-intervention group (38% vs. 25%, *P* = 0.02). More patients in the post-intervention group had positive bacterial respiratory cultures (2.7% vs. 10%, *P* = 0.007) and chest radiographs suggestive of pneumonia (34.7% vs. 46%, *P* = 0.05). Patients with peak serum procalcitonin levels <0.25 ng/mL were more likely to have antibiotics discontinued at 72 hours than those with peak levels ≥0.25 ng/mL (36% vs. 0%, *P* = 0.02).

Conclusion. An antimicrobial stewardship initiative by pharmacists among patients with viral-positive RVP results did not appear to impact antibiotic exposure days. Serum procalcitonin levels appeared to influence antibiotic discontinuation decisions. Alternative strategies for maximizing the antimicrobial stewardship impact of RVP testing should be explored.

Disclosures. All authors: No reported disclosures.

1156. BioFire FilmArray Decreases Infection Control Isolation Times by 4 days in ICU, BMT and Respiratory Wards

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Background. Novel, rapid, syndromic testing of patients presenting with respiratory infections has the potential to improve patient access and care by decreasing time to diagnosis. BioFire FilmArray (BioFire Diagnostics, bioMerieux) is a cartridge-based, multiplex PCR platform capable of detecting 17 viral and 3 bacterial targets in one hour. This study assessed the impact of implementing this technology on the duration of infection control isolation.

Methods. A randomized control trial in a 900-bed tertiary-care academic hospital was conducted between December 2016 and January 2017. Fifty consecutive samples of patients with respiratory infections on our ICU, BMT and Respiratory wards to received either BioFire FilmArray Respiratory Panel (BF) diagnostic testing or our routine diagnostic testing (RO) consisting of an influenza A/B/RSV PCR (in-house) followed by Luminex NxTag Respiratory Pathogen Panel that was batched at a reference lab. Five patient charts with missing data were excluded from analysis. Statistical analysis was completed using RStudio Version 1.0.136 – © 2009–2016 RStudio, Inc.

Results. Patients randomized to the BF arm remained on respiratory isolation precautions on average (42.3 ± 72.9 hours) over 100 hours less than patients randomized to the routine arm (151.3 ± 151.8 hours) (95% CI: 35.6–184.4 hours, *P* = 0.0052).

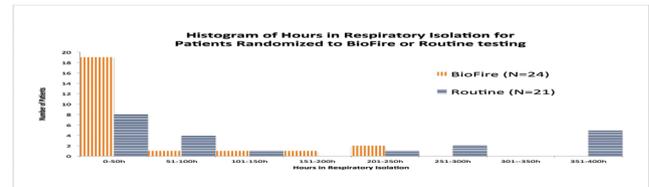
Conclusion. Implementing the BioFire FilmArray Respiratory Panel decreased infection control isolation time by approximately 4 days compared with routine testing; further study is warranted to determine the impact of this technology on patient outcomes and cost benefit.

Table 1: Mean Hours in Respiratory Isolation is Statistically Significantly Decreased with BioFire FilmArray Respiratory Panel

Arm	N	Mean (hours)	SD (hours)	Median (hours)	95% CI*	P value*
BioFire	24	42.3	72.9	8.2	35.6–184.4	0.005253
Routine	21	152.3	151.8	67.0		

*Welch two-sample t-test (assumed unequal variance), significance set at *p* ≤ 0.05

Figure 1: The majority of patients randomized to receive BioFire testing were in respiratory isolation for less than 50 hours.



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1157. Multidisciplinary Approach to Improve Utilization and Cost Savings of Multiplex Polymerase chain reaction (PCR) Respiratory Pathogen Testing in a Large Community Hospital

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Session: 145. Diagnostics: Viral
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Background. PCR technology can be used for precise detection of infectious agents and improves antibiotic stewardship through: Accelerated de-escalation of therapy Rapid identification of pathogens Detection of resistance genes. In our center, basic respiratory Panel detect 11 targets and cost \$100 while Complete panel detect 31 targets and cost \$230. The purpose of the study is to improve utilization of these panel testing in a large community hospital.

Methods. Retrospective chart review of all patients with an order for a complete or basic panel and excluding Patients discharged or deceased prior to result reporting or insufficient specimen quantity to perform. Each patient was evaluated for appropriate respiratory panel collection site and antibiotic regimen changes within 48 hours of results. The preintervention period conducted from 10/2015- 12/2015, evaluated how respiratory panels were being utilized in antibiotic decision-making. Three primary interventions were enacted: Eliminated nasal swabs as a source option for respiratory panels in the clinical information system, restricted complete panel ordering to ID physicians and Eliminated PCR ordering options from all order sets. The postintervention period conducted from 5/2016 – 8/2016, re-evaluated the utilization and costs of respiratory panels.

Results. 270 tests ordered preintervention (13% basic and 87% complete) and 196 postintervention (84% basic and 16% complete), nasal swab was done in 78% in pre-intervention vs. 8% in postintervention, action was taken in 51 vs. 44 in pre-vs. post intervention. cost in preintervention period was 57,420 in preintervention vs. 23,660 in post intervention. No difference between ID vs. non-ID specialist in utilization of PCR.

Conclusion. Nasal swab collections for PCR decreased post-intervention from 78% to 8%. Appropriate sources for PCR specimen, such as sputum, were utilized during the post-intervention period. Post-intervention utilization of the panel results was comparable to pre-intervention period. Elimination of PCR respiratory panels from