

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.

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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, $P = 0.0052$).

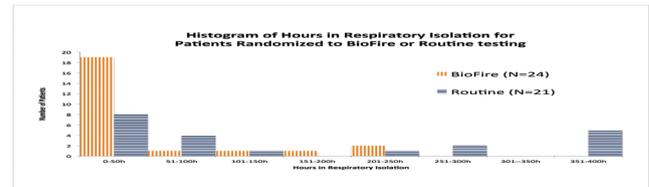
Conclusion. Implementing the BioFire FilmArray Respiratory Panel decreased infection control isolation time by approximately 4 days compared with routine testing; further study is warranted to determine the impact of this technology on patient outcomes and cost benefit.

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 $p \leq 0.05$

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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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

order sets and restrictions of complete respiratory panel ordering to ID physicians resulted in \$33,760 saved.

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1158. The Impact of Biofire Filmarray Respiratory Panel on Antibiotic Usage in the Emergency Department at an Academic Medical Center

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Background. Biofire respiratory panel is a multiplex PCR test designed to detect 17 pathogens within 1 hour. It has greater sensitivity, specificity, and number of pathogens detected compared with older testing methods. The aim of this research was to evaluate the impact of Biofire respiratory panel on antibiotic usage in the emergency department (ED) of an academic medical center.

Methods. This was an observational chart review. Patients with positive RSV or influenza rapid antigen test or PCR test, and patients with a positive Biofire test were included. RSV or influenza tests were reviewed from July to December 2015, and Biofire tests were reviewed from July to December 2016. The primary outcome was to evaluate the duration of antibiotic therapy in patients with viral respiratory infections diagnosed with RSV and influenza rapid antigen and PCR testing compared with Biofire viral respiratory panel. Secondary outcomes included virus type, antibiotic prescription rates on discharge, number of admissions, procalcitonin levels, and oseltamivir usage.

Results. In 2016, 67% (105/155) of biofire tests were positive. The most common pathogen was rhinovirus and enterovirus (42%). Of the positive results, 23/105 (22%) received antibiotics with 6 patients having antibiotics discontinued within 72 hours. Another 6 patients had bacterial coinfections. A total of 18/105 (17%) received antibiotic prescriptions on discharge. Median days of therapy (DOT) in hospital was 1 day and median DOT for prescriptions was 8.5 days. There were 5 procalcitonin tests and no oseltamivir usage. Overall 38/105 (36%) patients were admitted to inpatient. In 2015, 3% (20/1313) of RSV (14) and influenza (6) rapid antigen and PCR tests were positive. A total of 5/20 (25%) patients received antibiotics, with 3/20 (15%) patients receiving a prescription for outpatient antibiotics. Median DOT in the hospital was 3 days and median DOT for prescriptions was 10 days. There were 2 procalcitonin tests and 2 cases used oseltamivir. Overall 19 patients were admitted.

Conclusion. Antibiotics are withheld in the majority of patients with positive Biofire testing. Most patients were treated with supportive care measures only. Biofire continues to be a useful tool to identify candidates for antibiotic avoidance in the ED at our institution.

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1159. When to Order a Respiratory Viral Panel (RVP): Physician Use in Clinical Practice

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Background. Multiplex RVP assays are frequently offered at medical centers to screen for viruses using nucleic acid technology. The University of Pittsburgh Medical Center (UPMC) uses the Genmark eSensor RVP detecting 14 virus types/subtypes. This study evaluated how RVPs are used in a large medical center to better understand physician practices.

Methods. A 32 question, descriptive survey, created using the Qualtrics survey database, was sent via email to pediatric, emergency, internal, and family physicians at large academic hospitals in the UPMC network. The anonymous survey was sent 3 times between January 2017 and March 2017. Survey data were analyzed using the SPSS statistics software.

Results. 543/1,265 (43%) survey responses were received; 492 were evaluable. 56% were female; 42% see children, 45% see adults, 13% see both; 16% see patients in the ED. Training levels included 51% residents/fellows and 49% attendings. Of doctors responding, 87% order RVPs. Most (85%) have changed treatment decisions based on a RVP result; 53% changed management ~50% of the time.

Conclusion. Physicians order RVPs most frequently if they believe the results will change treatment. RVPs are ordered more for young and elderly patients, and those with underlying immunosuppression or chronic illness. Cost does not limit physician ordering and most are unaware of it. Suspected influenza or specific virus is also considered.

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Patient Characteristics: Presents with influenza like illness and

	+	-	+
	≥ 50% of time	≥ 50% of time	≥ 50% of time
Fever frequency	97%	87%	79%
RVP ordering	97%	89%	78%
ICU			Infant < 1 mon
Hospitalized organ/bone marrow transplant			Infant 1-24 mon
Hospitalized Chronic Illness	91%	68%	Adults > 65 yrs
83%			
Change management:			
Discontinue antibiotics?	+ RVP result, - pneumonia ≥ 50% of time	+ RVP result, + pneumonia ≥ 50% of time	
Influenza Cost:	82%	29%	
Knowledge of cost	28%	Does cost influence ordering?	≤ 50% of time 79%

Physicians are more likely to order a RVP if they suspect a certain virus (57%), particularly Influenza (42%). A patient's Influenza vaccine status is most commonly disregarded in regard to RVP ordering (75%). Physicians ranked impact on medical decision making (to stop or start antimicrobials) as the most important factor influencing RVP ordering (38%).

1160. A Multidisciplinary Study of the Use and Outcomes Associated with Expanded Respiratory Viral Studies at a Mid-Sized Children's Hospital

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Background. Acute respiratory infection (ARI) is a leading cause of pediatric hospitalizations in the US and are generally caused by viruses, thus antibiotics are prescribed more often than needed. Identifying viral agents using the respiratory pathogen panel (RPP) can help with judicious use of antibiotics in hospitalized patients. ProMedica Toledo Children's Hospital, a mid-sized pediatric hospital, began offering the RPP to patients in Dec 2014. This study was conducted to assess if the use of RPP would decrease the antibiotic days of therapy (DOT) and length of hospital stay for patients admitted for uncomplicated ARI and for those seen in the ED.

Methods. This was a retrospective analysis of pediatric hospital inpatient and ED data collected between December 16, 2013 and December 15, 2015. Patients before and after implementation of the RPP were compared. 299 and 263 pediatric patients between 1 month to 18 years of age with uncomplicated ARIs in the pre-RPP and post-RPP periods, respectively, were included for analysis. Similarly, 472 and 461 patients were included from the ED. Clinical data were collected by chart review. Analysis was performed using descriptive and inferential statistics.

Results. Out of 299 admitted patients in the post-RPP period, 63 (21.1%) patients did not receive the RPP (RPP-NT). 201 (67.2%) received it and tested positive (RPP-P), and 35 (11.7%) patients tested negative (RPP-N). RPP-N had an increased length of hospital stay ($P = 0.055$, borderline significance) and increased number of antibiotic DOT ($P = 0.032$) than RPP-P. Furthermore, we discovered that older patients (mean = 6.21 years) tested negative with RPP, while younger patients either did not receive the test (mean = 2.43 years) or tested positive (mean = 2.40 years). In the ED, RPP-P received fewer discharge prescriptions for antibiotics than RPP-N and RPP-NT ($P < 0.01$). The use of RPP was more prevalent in admitted patients than in ED patients ($P = 0.01$).

Conclusion. Our results suggest that the use of RPP effectively curbs unnecessary antibiotic use for pediatric patients with viral ARIs. Furthermore, age discrepancies among RPP-P, RPP-N, and RPP-NT warrant further study. Lastly, the results suggest that use of RPP in ED should be encouraged.

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1161. A Mid-Turbinate Swab Appears Comparable to Nasopharyngeal Swabs for Quantitative Detection of RSV in Infants

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