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

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

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 addmissions, 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 witheld 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.

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

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				
Fever	+	-		+
RVP ordering frequency	≥ 50% of time	≥ 50% of time		≥ 50% of time
ICU	97%	87%	Infant < 1 mon	79%
Hospitalized organ/bone marrow transplant	97%	89%	Infant 1–24 mon	78%
Hospitalized Chronic Illness	91%	68%	Adults > 65 yrs	83%
Change management:				
	+ RVP result, – pneumonia		+ RVP result, + pneumonia	
Discontinue antibiotics?	≥ 50% of time		≥ 50% of time	
Influenza	82%		29%	
Cost:				
	+			≤ 50% of time
Knowledge of cost	28%	Does cost influence ordering?		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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Background. Respiratory Syncytial Virus (RSV) is the most common cause of bronchiolitis and pneumonia in infants and children. Diagnosis of RSV can be made by molecular detection of the virus in a swab of respiratory secretions. Nasopharyngeal (NP) swabs are the most frequent swab type validated for the detection of RSV, and are often considered the "gold standard" for quantification studies. However, NP sampling is invasive and uncomfortable. We sought to determine whether a less invasive method, a mid-turbinate (MT) swab, was comparable to NP sampling for quantification of RSV in infants.

Methods. We prospectively enrolled children < 24 months with a confirmed diagnosis of RSV and hospitalized at Primary Children's Hospital (Salt Lake City, UT) during the 2015 – 2017 RSV seasons. Both an NP and MT swab were collected from each infant from different nostrils; subjects were randomized (1:1:1:1) as to the order of collection. After collection, parents were asked which collection method (NP vs. MT) they preferred. Viral loads were measured by real-time RT-qPCR. Correlation between the viral loads from the MT and NP swabs was examined. A mixed effect model was used to evaluate the mean (SD) viral loads.

Results. 83 infants were enrolled and had swabs collected. Median age was 4 months [range 0–23]. 20 infants had swabs collected on multiple consecutive days. Median (Q1,Q3) duration of symptoms prior to enrollment was 5 days (4,7) Median (Q1,Q3) hospital stay length was 2 days (2,4). 1 infant was RSV negative according to the RT-qPCR assay. The mean (SD) viral loads were similar: 7.34 (1.26) and 7.09 (1.25) $\log_{10}$ copies/mL for 77 paired NP and MT swabs, respectively; see Figure 1 for median, range and quartiles. The correlation coefficient between the paired viral loads was high (0.82); see Figure 2 for Bland-Altman plot. Most parents (49/67 [73%]) who watched the swabbing preferred the MT to the NP swab.

Conclusion. MT swabs perform as well as NP swabs for the quantification of RSV in infants. The difference in mean viral load is small compared with the standard deviation. The less invasive MT swabs are preferred by parents for sampling. MT swabs have the potential to replace the NP swab as the "gold standard" for quantitative respiratory viral sampling.

Figure 1: Boxplot of Viral Load Obtained from the NP and MT Swabs

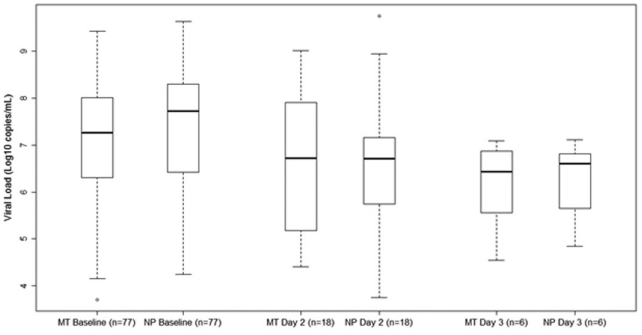
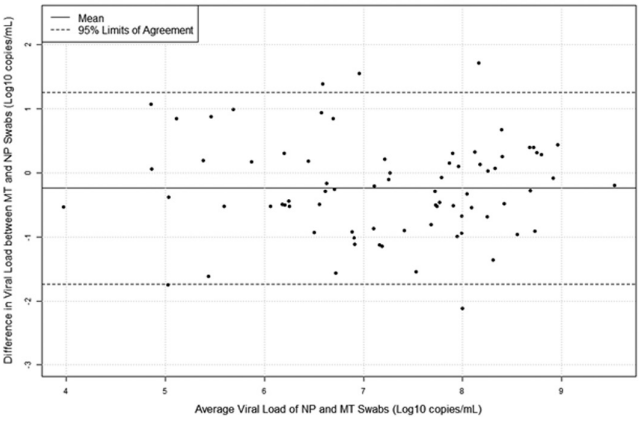


Figure 2: Bland-Altman Plot of Viral Load Obtained from the NP and MT Swabs at Enrollment



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1162. Measles Oral Swab as Field-Based Screening Test in Children

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Background. Indonesia suffered from measles outbreak for many times, especially in the last five years. Most patients were children. WHO used measles specific Ig M from the blood as a gold standard but this test is invasive. Anti measles Ig M oral swab has been used as an alternative however there has not been any study about this method in Indonesia. The objective of this study was to validate anti measles Ig M oral swab for the diagnosis of measles in children.

Methods. This study was performed in Dr. Soetomo Hospital in Surabaya for three months period. Children with fever and rash suspected having measles according to WHO criteria were used as samples. Inclusion criteria included age 6 month until 15 year-old, with maculopapular rash, fever for at least three days, and at least one of cough, coryza, and conjunctivitis. Immunocompromized children and those with history of fever and rash or measles vaccination in the last 8–12 weeks were excluded. A blood specimen for serum anti measles Ig M and oral swab using transudate in gingivo-cervicular sulcus were taken at the same time. Method for oral swab specimen was microimmune(EIA) captured antibody assay for measles IgM. Measles specific IgM antibodies from blood specimen were measured by Enzygnost anti measles IgM. Mc Nemar test and kappa were used to analyze the results with $P < 0.05$.

Results. There were fifty-six children in the study. The age range was 6 – 72 months. Boys outnumbered girls with ratio 1.6:1. Most patients came on day third-sixth of illness. As much as 75.7% of the children were not immunized. Antimeasles Ig M were truly positive by both methods in fifty sampes. Detection of Ig M antibodies were similar either by using serum or oral swab (Mc Nemar, $P = 1{,}00$). The best ROC curve to detect anti measles IgM by oral swab was shown at the value of 0.2 (sensitivity 98%, specificity 60%, Kappa 0.638 with $P < 0.0001$, PPV 96%, and NPV 75%) For the value of 0.5 we had sensitivity 90%, specificity 80%, PPV 98%, NPV 44%, and Kappa 0.516 with $P < 0.001$.

Conclusion. Anti measles IgM oral swab is highly sensitive and can be used as a field-based alternative screening method to diagnose measles infection.

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1163. Sensitivity and Specificity of the Quidel Sofia Influenza A+B FIA Rapid Influenza Detection Test in Long-Term Care Facilities

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Background. Influenza is a significant pathogen for long-term care facility (LTCF) residents. As part of a randomized controlled trial to assess early detection of influenza in LTCFs, we deployed rapid influenza detection tests (RIDTs) at intervention LTCFs. Our primary objectives for this interim analysis were to evaluate the sensitivity and specificity of the Quidel Sofia® Influenza A+B Fluorescent Immunoassay RIDT in a high-risk, nontraditional population, and to describe the virology of acute respiratory infections (ARI) in LTCF residents.

Methods. Personnel at LCTFs identified cases of ARI, collected nasal specimens, and ran RIDTs from 10/21/2016 to 4/28/2017. The residual nasal swab and leftover lysis buffer were placed into a viral transport medium tube and sent to the Wisconsin State Laboratory of Hygiene for confirmatory influenza RT-PCR testing. In addition, all specimens were tested for other viruses using the Luminex NxTAG® Respiratory Pathogen Panel. Sensitivity and specificity of the Sofia RIDT were calculated using RT-PCR results as the reference standard.

Results. Specimens were collected from 228 residents (mean age = 71.3 ± 22.4 years). The mean time from symptom onset to specimen collection was 1.4 ± 1.6 days (range: 0-7 days). Respiratory viruses were identified in 134/228 cases (58.8%); influenza viruses (A: 7.5% and B: 14.5%) were the most commonly detected virus by PCR, followed by rhinovirus/enterovirus (13.2%), RSV (11.0%) and coronaviruses (10.1%). The sensitivities of Sofia RIDT for influenza A and influenza B were 77.8% (95% CI: 52.4–93.6%) and 80.0% (95% CI: 61.4–92.3%), respectively, with specificities of 98.4% (95.3–99.7%) and 97.1% (93.4–99.1%), respectively. Overall performance assessment for influenza A or B yielded a sensitivity of 79.2% (65.0–89.5%) and specificity of 96.1% (91.7–98.6%). The estimated likelihood of discovering one of the first two influenza cases at a LTCF using this RIDT is estimated to be ≥95.7%.

Conclusion. Although a wide constellation of respiratory viruses cause ARIs within LTCF populations, influenza is very common. Early ARI recognition in residents, with testing shortly after symptom onset, likely contributed to high performance of the Sofia RIDT. Use of RIDTs allows early identification of influenza with high sensitivity and specificity in elderly LTCF residents.

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