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Abstracts of GCCMID 2018 - Poster Presentation

Performance of FilmArray RP2 Multiplex Panel for identification of MERS CoV

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Background and objective: The FilmArray Respiratory Panel 2 (RP2) is a multiplex in vitro diagnostic test for the simultaneous and rapid (~45-min) detection of 22 pathogens directly from nasopharyngeal swab (NPS) samples. It contains updated (and in some instances redesigned) assays that improve upon the FilmArray Respiratory Panel (RP; version 1.7), with a faster run time. The organisms identified are adenovirus, coronavirus 229E, coronavirus HKU1, coronavirus NL63, coronavirus OC43, human metapneumovirus, human rhinovirus/enterovirus, influenza virus A, influenza virus A H1, influenza virus A H1-2009, influenza virus A H3, influenza virus B, parainfluenza virus 1, parainfluenza virus 2, parainfluenza virus 3, parainfluenza virus 4, respiratory syncytial virus, Bordetella pertussis, Chlamydia pneumoniae, and Mycoplasma pneumoniae Two new targets are included in the FilmArray RP2: Middle East respiratory syndrome coronavirus and Bordetella parapertussis.

In this study, we are evaluating the performance and accuracy of BioFire FilmArray in comparison to our gold standard method MERS-Cov using Roche MagnPure 96 and Light Cycler 480.

Methods: 25 clinical samples were tested parallel using both Roche Light Cycler then repeated by using Respiratory Multiplex Panel 2 and performed on BioFire FilmArray.

All tested samples were respiratory such as Sputum, Tracheal aspiration, Endotracheal, Nasopharyngeal aspiration and Nasopharyngeal Swabs.

Result: 25 Patient samples were tested for MERS CoV. Overall positive percent agreement between systems was 99% and the negative percent agreement was 95%.

Conclusion: In comparison with Roche Light Cycler, there were no false positive results observe from FilmArray system, which indicate that the FilmArray system design and effective in preventing carryover and cross contamination. However, we found that FilmArray system has more reliability and accuracy than Roche Light Cycler System. Moreover, easy to perform the test and the entire process takes about one hour, which dramatically changed the Turn-Around-Time to report the result.

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Performance Evaluation of BioFire FilmArray Meningitis/Encephalitis Panel for Detection of Bacteria, Viruses, and Yeast in Cerebrospinal Fluid Specimens

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Rapid diagnosis and treatment of infectious meningitis and encephalitis are critical to minimize morbidity and mortality. Comprehensive testing of cerebrospinal fluid (CSF) often includes Gram stain, culture, antigen detection, and molecular methods, paired with chemical and cellular analyses. These methods may lack sensitivity or specificity, can take several days, and require significant volume for complete analysis. The FilmArray Meningitis/Encephalitis (ME) Panel is a multiplexed in vitro diagnostic test for the simultaneous, rapid (~1-h) detection of 14 pathogens directly from CSF specimens: Escherichia coli K1, Haemophilus influenzae, Listeria monocytogenes, Neisseria meningitidis, Streptococcus pneumoniae, Streptococcus agalactiae, cytomegalovirus, enterovirus, herpes simplex virus 1 and 2, human herpesvirus 6, human parechovirus, varicella-zoster virus, and Cryptococcus neoformans/Cryptococcus gattii.

In this study We describe an evaluation of (417) prospectively collected CSF specimens with performance compared to culture (bacterial analytes) and PCR (all other analytes).

Method: 417 CSF samples where tested parallel using routine technique of Gram stain and culture as well as Biofire filmarray.

Result: The FilmArray ME Panel demonstrated a sensitivity or positive percentage of agreement of 100% of 51 positive samples out of of 417 samples recieved. The sensitivity and specificity was 97% or greater for all analytes listed in the panel. The varies percentage difference between FilmArray ME Panel and other routine technique of Gram stain and culture is due to the ability of the FilmArray in the detection of pathogens which cannot be detected by routine techniques.

Conclusion: The FilmArray ME Panel is a sensitive and specific test to aid in diagnosis of ME. With use of this comprehensive and rapid test, improved patient outcomes and antimicrobial stewardship are anticipated.

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