641. Evaluation of the FilmArray Pneumonia Panel and Potential Impact of Antimicrobial Use on Patients in a Trauma and Medical Intensive Care Unit
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Background. Organisms causing infections of the lower respiratory tract in hospitalized patients can lead to high morbidity and mortality. Identification of the agents of pneumonia allows implementation of appropriate antimicrobial therapy and fast and accurate results are essential for the application of the correct antimicrobial regimen.

Methods. For 6 months results of quantitative bronchoalveolar lavage (Q-BALs) respiratory cultures, ordered as a standard of care for patients in our intensive care unit, were compared with the results obtained by a new multiplex molecular assay for the detection of lower respiratory tract pathogens, the FilmArray pneumonia panel (PP). The panel offers semi-quantitation of the bacterial targets that were compared with the quantitative results of the Q-BALs. Additionally, a retrospective chart review was performed to examine whether there would be any difference in the timing of appropriate antimicrobial therapy if the results of the panel were to be available for those patients. Appropriate antimicrobial therapy was determined according to the institutional protocol for treatment of patients for ventilator-associated pneumonia based on the results of the quantitative cultures.

Results. Thirty-six unique patients Q-BALs were run and of those there was 82% agreement on the detected targets between cultures and PP. Six targets were not detected by the panel (yeast, S. maltophilia, Streptococcus, Salmonella spp.). M. catarrhalis, S. agalactiae and 3 viral targets were detected only by the panel. There was 100% agreement between the panel detected resistance markers and the culture isolates susceptibility. Of the 36 patients, 12 were excluded because their medical records were not available for review. Of the 24 reviewed, 8 (33.3%) would have de-escalation in antibiotic therapy due to discordant EIA results, and three to reader flags.

Conclusion. The use of PP would lead to a reduction of unnecessary antimicrobial therapy in 1/3 of the patients examined. However, quantification of organisms otherwise reported as normal flora may lead to unnecessary treatment and requires education of staff to understand the results of the assay.

Disclosures. All authors: No reported disclosures.

642. Higher Diagnostic Accuracy with Ultrasensitive Detection of Helicobacter pylori Stool Antigen Using Single-Molecule Counting Technology

Phoebe Katzenbach, BS; Gipsia Dave, MS; Ali Mukherjee, PhD; Johanna Sandlund, MD; Joel Estis, MS; Niamh Nolan, MS; Niaz Banazet, MD; Brian Noland, PhD; Singullex, Inc., Alameda, California; Stanford University School of Medicine, Palo Alto, California

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Background. Current diagnostic methods for detection of H. pylori antigen in human stool, powered by ultrasensitive Single Molecule Counting technology, and compared the analytical performance to a commercially available enzyme-linked immunosorbent assay (ELISA) antigen test.

Methods. The Singulex Clarity H. pylori antigen assay incubates diluted stool with capture and fluorescent-labeled detection antibodies. After incubation and wash antigen test.

Results. Of the 36 unique patients, 28 unique stool samples were run and of those there was 82% agreement with the antigen test EIA results. The Clarity signal ranged from 46–665 DE’ for EIA-negative samples and 487,484–576,747 DE’ for EIA-positive samples.

Conclusion. The Singulex Clarity H. pylori antigen assay may have orders of magnitude higher analytical sensitivity than the commercial EIA and demonstrated 100% positive agreement and 100% negative agreement on detection of H. pylori antigen in human stool samples. The ultrasensitive Clarity H. pylori assay has the potential for high sensitivity and specificity to improve current diagnostic options for H. pylori infection; however, additional multicenter studies are required.

Disclosures. All authors: No reported disclosures.

643. Comparison of Multiplex Polymerase Chain Reaction (PCR) and Routine Culture for the Detection of Respiratory Pathogens in Pneumonia Patients

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Background. The identification of causative pathogens in pneumonia can be challenging, and conventional culture methods can take up to 72 hours. However, rapid molecular diagnostic tests identify organisms within hours. The BioFire FilmArray (bioMérieux, North Carolina) Pneumonia Panel was recently approved by the FDA. The multiplex PCR system identifies 33 targets from sputum and bronchoalveolar (BAL) samples, which include 18 bacteria, 8 viruses, and 7 antibiotic resistance genes.

Purpose. To compare the pan to routine culture methods for the detection of respiratory pathogens in patients with pneumonia in a 769-bed teaching hospital in northwest Ohio.

Methods. We retrospectively screened all hospitalized intensive care unit patients who met clinical and radiological criteria of pneumonia using electronic medical records between November 2018 and February 2019. Adult patients who had respiratory cultures collected within 7 days were included. Repeat specimens were excluded. Routine cultures were performed using the laboratory’s standard procedure, and Pneumonia Panel testing was performed according to manufacturer instructions.

Results. Fifty-nine respiratory or 13 BAL and 46 sputum specimens were evaluated. There was no discrepancy between culture and PCR in 63% (37/59) samples. One (8%) BAL and 10 (22%) sputum specimens had additional pathogens detected by PCR. There was a discrepancy between culture and PCR in four (31%) BAL and seven (15%) sputum samples. There was 98% discordance with the Clarity signal ranged from 46–665 DE’ for EIA-negative samples and 487,484–576,747 DE’ for EIA-positive samples.

Conclusion. The Pneumonia Panel can identify additional bacteria that did not grow in culture. This panel can rapidly identify pathogens and potentially reduce unnecessary antibiotic use.

Disclosures. All authors: No reported disclosures.

644. Comparative Evaluation of ETEST® ERV bioMérieux with the CLSI Broth Microdilution Method for Eravacycline MIC Determination

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Background. Eravacycline (XERAVA®) is a novel, FDA and EMA-approved fully-synthetic fluorocycline antibiotic developed by Tetracypha Pharmaceuticals Inc. for the treatment of complicated intra-abdominal infections (cIAI) including those caused by multidrug-resistant (MDR) pathogens that have been highlighted as urgent public health threats by the US CDC and the WHO.

The new ETEST ERV strip (MIC range 0.002 – 32 µg/mL) has been developed by bioMérieux and calibrated vs. the broth microdilution reference method (BMD) as described by the Clinical and Laboratory Standards Institute (CLSI) to determine the minimal inhibitory concentration (MIC) of eravacycline against Enterobacterales and Pseudomonas spp. The aim of the study was to compare ETEST ERV to the CLSI BMD method on a panel of 166 strains comprising 131 Enterobacteriales and 35 Enterococci.

Methods. Quality control was performed with the CLSI QC strains E.coli ATCC 25922 and E.faecalis ATCC 29212. The ETEST ERV strip was applied on a Mueller–Hinton agar plate previously seeded with a 0.5 McF bacterial suspension. After incubation for 16–20H at 35°C, the reading was performed using the bacteriostatic mode (mCIM) test. The mecA gene was detected in six of seven (86%) of methicillin-resistant Staphylococcus aureus (MRSA) isolates. CTX-M was detected in Serratia and Klebsiella pneumoniae in two samples; however, the organisms were not isolated in culture.

Conclusion. The Pneumonia Panel can identify additional bacteria that did not grow in culture. This panel can rapidly identify pathogens and potentially reduce unnecessary antibiotic use.

Disclosures. All authors: No reported disclosures.

645. Singulex Clarity Norovirus Assay (In Development) Provides Ultrasensitive Detection of Norovirus Genogroups I and II

Gipsia Dave, MS; Phoebe Katzenbach, MS; Johanna Sandlund, MD; Joel Estis, MS; Ali Mukherjee, PhD; Niamh Nolan, MS

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