Analysis of the Biofire Pneumonia Panel at University Medical Center

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Background: The Biofire Filmarray Pneumonia panel is a is a multiplex PCR-based diagnostic test performed on respiratory samples. It enables rapid identification of several common bacteria, viruses, and resistance genes and thus allow for earlier initiation of appropriate treatment. Traditional respiratory culture methods may take 48 hours or more to identify pathogens, whereas the Biofire Rapid Pneumonia panel has a turnaround time of about 1-2 hours. The use of molecular methods in patients with pneumonia has been shown to reduce the time to result-directed therapy and increased the time to de-escalation of antibiotics . Though the panel comes with its advantages, it is not yet clear what effect the test has on antibiotic prescribing. This study aims to identify characteristics of these samples, characteristics of patients being tested, and determine if the results prompted a change in antibiotics, with the goal of promoting diagnostic and antibiotic stewardship.

Methods: This study is a retrospective observational study conducted at a single site, University Medical Center in New Orleans, a 446-bed academic hospital. Data was collected from pneumonia panels resulted between January 2025 to December 2025, with data analyzed by quarter. Patient data was collected from the electronic medical record including patient characteristics, sample quality, panel results, and if and when antibiotics were modified. The primary outcome was time from result to antibiotic change. Secondary outcomes include percentage of antibiotic escalations vs de-escalations, culture congruence with the pneumonia panel, and characteristics of patients who had Pneumonia Panels ordered.

Results: Our preliminary analysis included 3 months of data, from January 2025 to March 2025 (n=140). Within this timeframe, panels were only ordered from the intensive care units, with the Medical ICU ordering 82% (n=115) of the panels. 83.9% (n=115) of panels were performed upon intubated patients and 50% (n=70) of the panels were on patients on vasopressors. 11 (9%) of panels were performed on patients who were not intubated, not on vasopressors, nor receiving a BAL. MRSA nares screening was ordered on 82% of patients with a pneumonia panel, with 46.1% of these ordered after or at the same time as the pneumonia panel within an encounter.

The panel prompted a change in antibiotics in 38% of patients and 62% of patients did not have a change in antibiotics based on the panel. In 53% of panels, the same antibiotics were continued after the result of the pneumonia panel. There were 39 antibiotic de-escalations occurring after the pneumonia panel result, of which vancomycin made up a majority of deescalations (n=22, 59.5%) and piperacillin-tazobactam was de-escalated in 18 (48.6%).

Conclusions: This study demonstrates an opportunity for diagnostic stewardship regarding the Biofire Pneumonia Panel. Although the panel did prompt a change in antibiotics for many patients, the majority of de-escalations involved vancomycin, for which the MRSA nares screen could also be used. Further research is needed to determine if the Biofire Pneumonia panel result causes a statistically significant difference in time to antibiotic change.