Comparison of Turnaround Time (TAT) and Time to Oseltamivir Discontinuation between Two Respiratory Viral Panel Testing (RVP) Methodologies

Natasha N. Pettit, PharmD | Scott Matushek, MS | Angella Charnot-Katsikas, MD | Vera Tesic, MD, MS | Sue Boonlavyangoor, MS | Benjamin Brielmaier, PharmD | Jennifer Pisano, MD

Department of Pharmacy Services1, Department of Pathology2, Infectious Diseases and Global Health3

Background

- Multiplex PCR has been shown to be highly sensitive with more rapid TAT compared to other methodologies for respiratory viral (RVP) testing.
- Our microbiology laboratory switched from Luminex xTAG® RVP (LxT) which detects 12 respiratory viruses and has an assay time of 8.5 hours to Biofire Diagnostics, Inc. FilmArray® RVP (BDFA) testing, which detects 17 respiratory viral and 3 bacterial targets and has an assay time of 1.2 hours.
- We sought to compare the actual TAT between the two testing methods and determine time to discontinuation of empiric oseltamivir.

The Intervention

- All adult patients with an RVP test result reported between 12/1/2011-2/28/2012 performed on LxT and 12/1/2012-2/28/2013 performed on BDFA were evaluated for average TAT (defined as the time period between when the specimen was received to the time when the result was reported).
- Among patients with influenza negative RVP results, the time to discontinuation of empiric oseltamivir was also determined.

Methods

Primary Endpoint
- Turnaround time (TAT) for RVP result

Secondary Endpoint
- Time to discontinuation of empiric oseltamivir following negative RVP result (negative for influenza)

Experimental Design
Retrospective, observational, single-center study
Inclusion criteria
- Age ≥ 18 years old, with an RVP result reported

Results

Figure 1: Average Turnaround Time (TAT)

Figure 2: Average Turnaround Time (TAT)

Figure 3: Average Time to De-escalation of Oseltamivir

Figure 4: Other Viral Pathogens Identified Among Patients with Influenza Negative Result

Lessons Learned/Conclusions

- The shorter TAT and reduced laboratory handling time with the BDFA RVP has important clinical advantages.
- Consistent with previous literature, we found the use of the BDFA RVP to be associated with a significantly shorter average TAT (3.1 vs. 46.4 hours) compared to LxT.
- The duration of empiric oseltamivir among patients found to be influenza negative was reduced by 50% with the improved TAT of the BDFA RVP.
- The reduction in average time to discontinuation of empiric oseltamivir resulted in cost-savings of approximately 34.16 dollars per patient (using wholesale acquisition cost (WAC) for oseltamivir, 8.54 dollars per dose), which during the 2012-2013 peak influenza season would be an overall cost-savings of 2527.84 dollars

Next Steps
- Continued collaborative efforts between antimicrobial stewardship program and microbiology laboratory in facilitating timely de-escalation of antimicrobial therapy based on availability of testing results