719. The Respiratory Pathogen Panel and Antibiotic Utilization in the Emergency Department
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Background. The multiplex polymerase chain reaction respiratory pathogen panel (RPP) is used frequently in emergency departments (EDs) for the rapid identification of viruses and atypical bacteria of the respiratory tract. Its clinical value is unclear, as numerous studies have demonstrated that its use has a limited impact on antibiotic prescribing. We aimed to describe the relationship between RPP results and antibiotic prescribing rates for ED patients in our large academic medical center.
Methods. We retrospectively analyzed the charts of 1,061 patients aged 18–90 who were treated and released from two EDs from January 1, 2015 to January 31, 2018 and underwent RPP testing. Patients with evidence of bacterial infection were excluded based on RPP detection of atypical bacteria and microbiological analysis of blood, urine, wound, and sputum specimens. The results of the RPP and the rates of subsequent respiratory pathogen-directed antibiotic prescribing (including ED and outpatient pharmacy orders) were compared.
Results. Antibiotic prescription rates were 21.5% in patients who tested negative for any respiratory virus, compared with 14.5% in patients who tested positive (OR 0.70, 95% CI 0.55–0.90). When positive RPPs were subdivided based on virus type (influenza and non-influenza) and compared with negative RPPs, only influenza-detection was associated with a significant reduction in antibiotic prescriptions (Table 1).
Conclusion. In our study population, the presence of a respiratory virus detected by the RPP was correlated with a significant decrease in antibiotic prescribing. This effect was largely driven by influenza detection. This demonstrates that at our institution, the RPP may have a role in reducing unnecessary antibiotic utilization, but providers need further guidance in the interpretation of non-influenza respiratory virus positivity.
Table 1. Antibiotic Prescription Rates by RPP Result, Subdivided by Virus Type

| RPP Result | No. of Patients | Given Antibiotics | Odds Ratio (95% CI) | P-value |
|------------|----------------|-------------------|---------------------|---------|
| Negative   | 628            | 135 (21.5%)       | Reference           |         |
| Positive   | 433            | 63 (14.5%)        | 0.70 (0.56–0.88)    | <0.01   |
| Influenza* | 169            | 20 (11.8%)        | 0.49 (0.30–0.81)    | <0.01   |
| Non-influenza virus(es) | 264 | 43 (16.3%) | 0.71 (0.49–1.04) | 0.08   |

*Includes RPPs that were positive for multiple viruses if influenza was present.

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720. Respiratory and Nonrespiratory Complications Among Patients Hospitalized with Influenza, FluSurv-NET, 2016–2017
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Background. Respiratory infections are common and cause significant morbidity and mortality. The burden of respiratory illness varies annually in the U.S. and is associated with increased healthcare utilization and costs. We examined the incidence and risk for respiratory and nonrespiratory complications among patients hospitalized with influenza, from influenza season 2016–2017, as detected by the FluSurv-NET.
Methods. We described complications in patients hospitalized with influenza and assessed differences in complications across region, age, and underlying health status. We used a nested case-control design to assess patient risk factors for complications.
Results. A total of 201,260 patients were included in our study population with 104,904 influenza-positive and 96,356 influenza-negative patients. Overall, 23.2% of patients experienced at least one complication; 8.9% severe complications. Risk factors for complications included age ≥65 years (OR = 3.39), underlying health status (OR = 1.43), and influenza-negative hospitalization (OR = 1.24). Among influenza-positive patients, hospitalization in the Northeast region (OR = 1.31) and being admitted to a teaching hospital (OR = 1.24) increased the risk for complications.
Conclusion. Influenza is associated with significant morbidity and mortality. Our data demonstrate that influenza is associated with increased risk for both respiratory and nonrespiratory complications and that hospitalization in the Northeast region and admission to a teaching hospital increase the risk for influenza complications.
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