Incidence and characteristics of concomitant bacterial infection in ED patients admitted to the hospital with a positive viral target on FilmArray Respiratory panel

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Background*:* This study sought to determine the frequency and associated clinical variables of concomitant bacterial infection present in patients admitted to the hospital with a positive viral target on molecular testing in the Emergency Department.

Methods*:* A retrospective observational study was conducted at three EDs in the greater Des Moines area between July and December 2022. Inclusion criteria included patients admitted to the hospital with a positive viral target on FilmArray Respiratory Panel (FARP). A multidisciplinary chart review classified patients as viral infection only or viral plus concomitant bacterial infection. Only infections deemed to be present on admission were reviewed.

Results*:* During the six-month period, 395 patients with positive FARP were admitted to the hospital. Among those hospitalized, 77% were categorized as viral only infections (Vi) and 22% categorized as a concomitant bacterial infection (ViCon). Bandemia >10% was more common in ViCon group compared to (VI) group (15.00% vs 1.19%, $p = 0.005$). Procalcitonin values were higher in ViCon vs Vi group as well (10.6 vs 1.5, $p = 0.012$). Antibiotic days of therapy (DOT) for Vi patients was shorter than the ViCon group (4.41 DOT vs 8.22 DOT, $p < 0.0001$). Finally, the PPV for concomitant bacterial infection with bandemia ≥5% and ≥10% were 0.81 and 0.692, respectively.

Conclusion: This study opens the door to develop parameters for bandemia and procalcitonin levels to aid in clinical decision making when considering the need for antibiotic treatment in patients being admitted to the hospital with a positive viral FARP and potential bacterial concomitant infection.