BACKGROUND

• Symptoms associated with viral respiratory illness often prompt evaluation for bacterial illnesses
• Rapid, point of care testing for RSV and influenza has been associated with reductions in resource utilization in the pediatric emergency department
• Less is known of the impact of a diagnosis of other viral respiratory pathogens on clinical care
• Many prior studies have assessed the effects of having the test performed, rather than the impact of the result itself

OBJECTIVES

• Describe use of multiplex PCR testing for respiratory viral pathogens (RVP) excluding RSV and influenza in PED ED setting
• Describe distribution of respiratory viral pathogens, other than RSV and influenza
• Assess impact of a positive test result on resource utilization (blood, urine, CSF cultures; chest x-ray, antibiotic administration)

METHODS

• Subjects: all children < 18 years of age seen in PED from 12/11 -4/12 who had RVP performed. Subjects + for RSV and/or flu excluded
• RVP: multiplex PCR (Film Array, BioFire Diagnostics) detects influenza A and B viruses, RSV, parainfluenza viruses 1-4, coronaviruses HKU1, and NL63, human metapneumovirus, rhinovirus/enterovirus, and adenovirus with < 2 hour turn around time
• Cases = subjects < 2 years of age with positive RVP results
• Controls = subjects < 2 years of age with negative RVP results
• Outcomes: blood, urine, CSF culture, chest x-ray, antibiotic (IV or PO in hospital) obtained from clinical data warehouse and associated with ED visit by PATCOM number

RESULTS

• 154/230 (67%) children <18 yrs who did not have influenza or RSV tested positive for another respiratory virus
• Distribution of viral pathogens was similar except for absence of adenovirus in children ≤3 mos of age
• Rhin/enteroviruses predominate in all age groups
• Cases were less likely to have blood or urine cultures performed
• Cases were less likely to receive antibiotics
• 8% of cases and 15% of controls had lumbar puncture performed
• Infants <3 mos with a positive RVP were just as likely to have blood, urine, and CSF cultures, and to receive antibiotics as those with a negative result

CONCLUSIONS

Rapid molecular testing for respiratory viral pathogens has the potential to reduce resource utilization in young children seen in a pediatric ED setting.

FUTURE DIRECTIONS

• Evaluate resource usage in additional seasons
• Evaluate resource utilization by pathogen
• Examine cost effectiveness of rapid RVP diagnosis

CONTACT INFORMATION

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OUTCOMES

• 10 mos - 2 years
• 2 - 18 years

• Infants <3 mos
• 4 mos - 2 years

• 27/48
• 55/73
• 72/109

• % with BLD Cx
• % with UR Cx
• % with CSF Cx
• % with ABX

• Odds of having the test or treatment in cases vs. controls

• 0.47
• 0.33
• 0.52
• 1.21
• 0.41

• 95% CI
• 0.22 - 1.00
• 0.15 - 0.74
• 0.16 - 1.60
• 2.54
• 0.18 - 0.89

• Percent of infants ≤3 mos with test or antibiotic

• Percent of children ≤2 years with test or antibiotic

• Distribution of viral pathogens by age group

• Percent of children < 2 years with test or antibiotic

• Percent of infants <2 years with test or antibiotic

• Evaluating the impact of a positive RVP result on resource utilization (blood, urine, CSF cultures; chest x-ray, antibiotic administration)