



# Comparing the Clinical Course of Human Rhinovirus/Enterovirus (HRV/ENT) Infections to Influenza (FLU) and Respiratory Syncytial Viral (RSV) Infections Among Children in an Outpatient Setting



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## Background & Problem

Human rhinovirus/enterovirus (HRV/ENT) infections are common among children and cause significant morbidity. Data regarding their clinical impact are limited, inconsistent, and focus largely on inpatient outcomes.

## Objective

Compare the clinical outcomes of children with HRV/ENT infection to Influenza A/B (FLU) and Respiratory Syncytial Virus (RSV) in the outpatients

## Methods & Study Population

- Retrospective analysis of nasopharyngeal samples positive for HRV/ENT, FLU, or RSV on multiplex PCR
- Submitted between 2016 and 2019
- Patients ≤ 17 years
- Outcome measures within proximity to the positive result were assessed via chart review and were: days of symptoms; outpatient visits for respiratory symptoms; bacterial diagnosis; and hospital admission.

### Exclusion Criteria

- Samples positive for more than one virus
- Samples arising from the same patient within 3 months

### Statistical Analysis

- Multivariable linear regression to compare the number of days of symptoms
- Kruskal-Wallis test to compare the number of outpatient visits
- Multivariable logistic regression to compare antibiotic use as well as hospitalization.

## Results

Figure 1: Comparison of Number of Days of Symptoms and Number of Outpatient Visits Between HRV/ENT, FLU, and RSV Among 1359 Children with Positive Respiratory FilmArray®

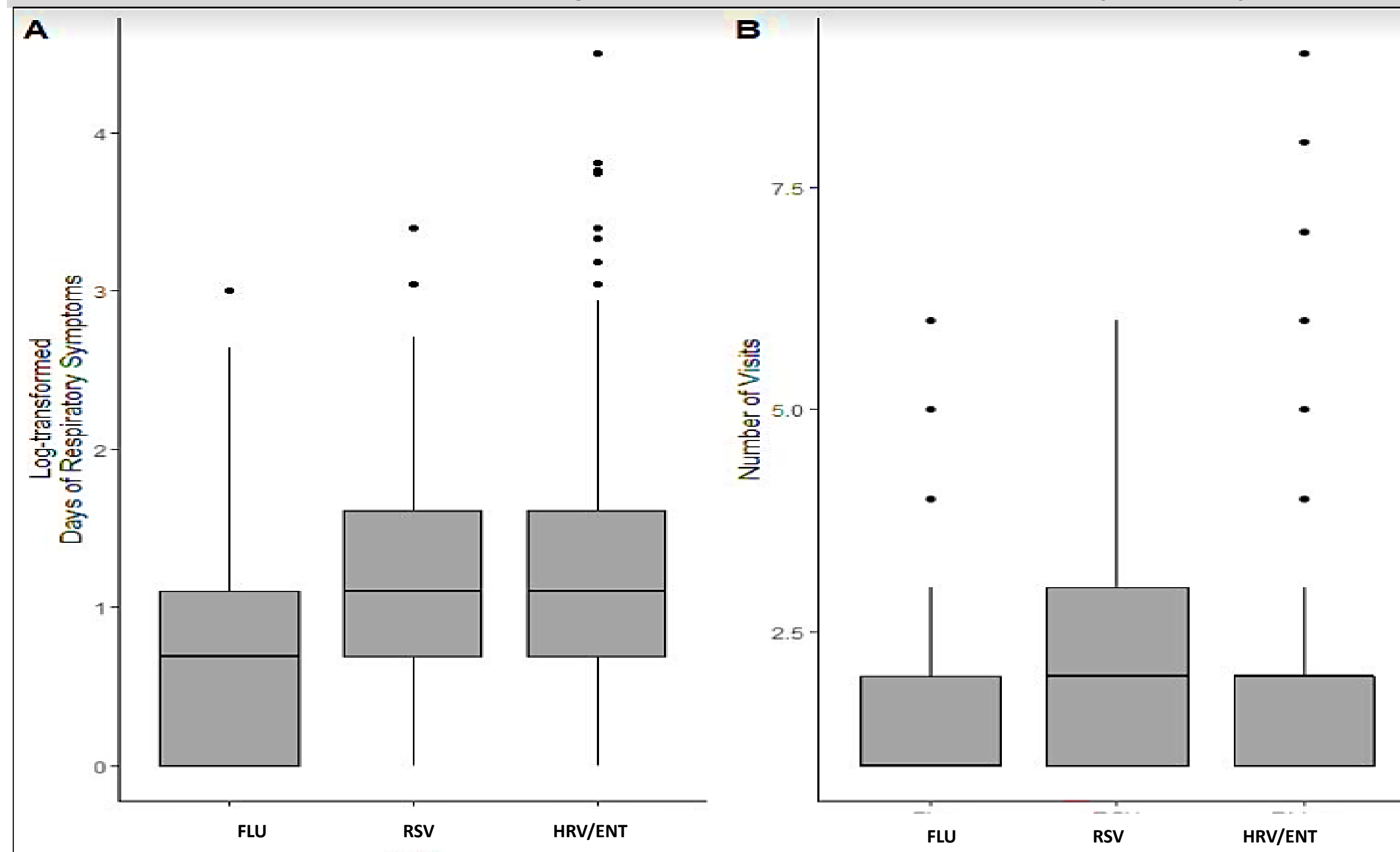
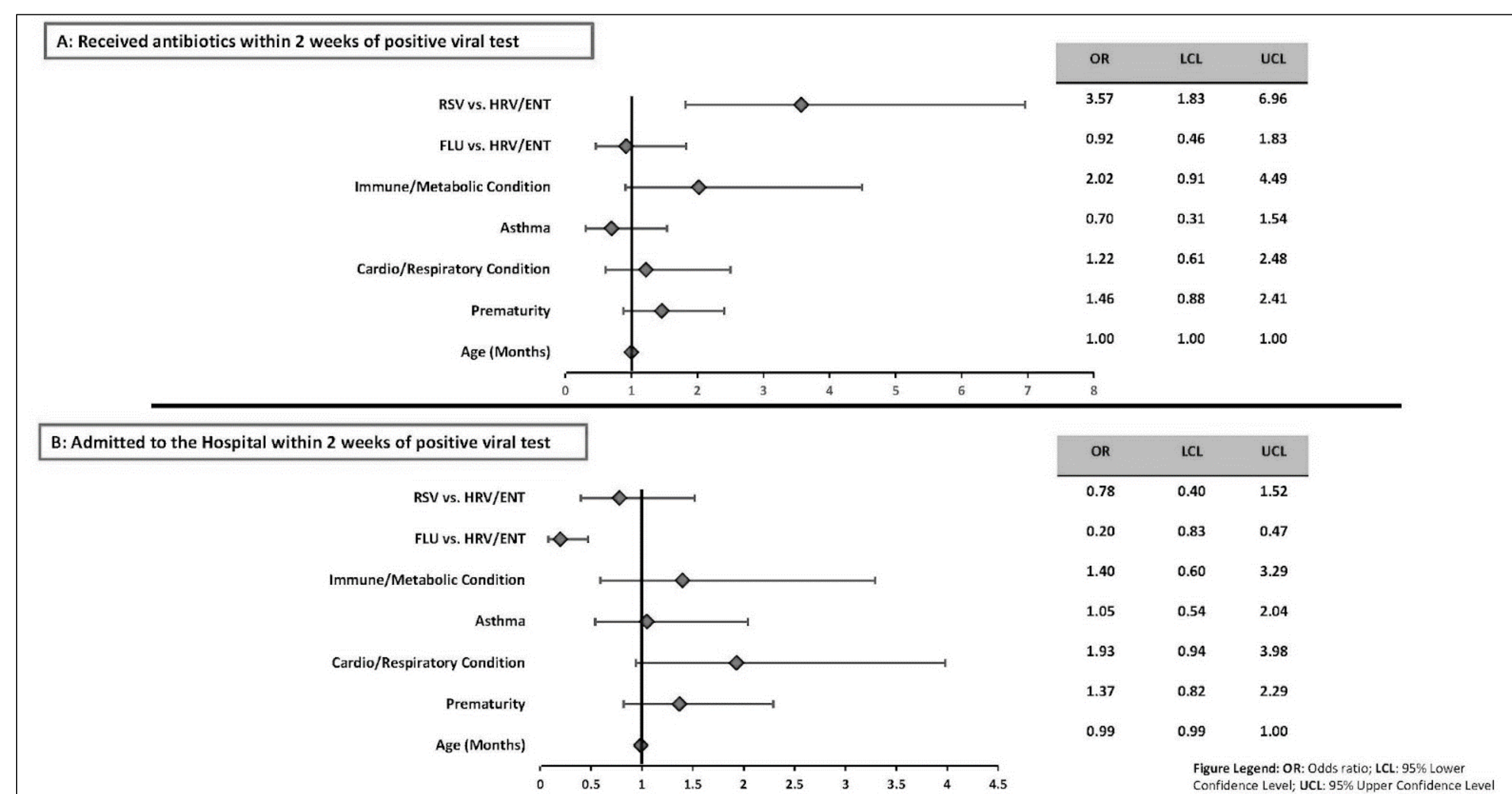


Figure 2: Multivariable Logistic Regression Comparing Clinical Outcomes Between HRV/ENT, FLU, and RSV Among 1359 Children with Positive Respiratory FilmArray®



## Results

- 1359 positive samples analyzed
- HRV/ENT n=746 | FLU n=304 | RSV n=309
- After controlling for comorbid conditions
  - Children with FLU had 29% fewer days of respiratory symptoms prior to testing versus HRV/ENT [ $\beta$  -0.34; 95% CI -0.54, -0.15;  $p < 0.001$ ] (Fig1A) and had fewer outpatient visits (median [M] = 1) for respiratory symptoms in proximity to a positive result versus HRV/ENT (M = 2) or RSV (M= 2) (Fig 1B). and Children with FLU had ~ 80% decreased odds of hospitalization versus children with HRV/ENT (Fig 2)
  - Children with RSV infection had 3 times the odds of bacterial infection than children with HRV/ENT.

## Discussion

- Children with HRV/ENT had more outpatient visits and higher odds of hospitalization as compared to those with FLU.
- Outcomes between HRV/ENT and RSV were similar, except for bacterial infection.
- Differences in outcomes could be related to available testing and treatment for FLU as compared to HRV/ENT

## Conclusions

Clinicians should have a high level of vigilance when managing children with HRV/ENT infections given the potential for clinical outcomes similar to and, in some cases, worse than known highly pathogenic viruses.