mildly/severely or extremely severe ill patients; lower IL-5 levels were seen in LTD (Figure 3). VL correlated with TNF-α ($P < 0.001$) and IL-10 ($P < 0.001$) levels. After logistic regression analysis, socioeconomic, pregnancy and infant variables showed no association with bad outcomes; only frequent consumption of fruits and vegetables during pregnancy conferred protection (aOR 0.03; $P < 0.001$).

Conclusion. RSV titers did not correlate with LTD. Lower levels of IFN-γ were associated with increased disease severity.

These findings could provide additional data for future RSV preventive and therapeutic strategies.

Figure 1. Viral load and life-threatening disease

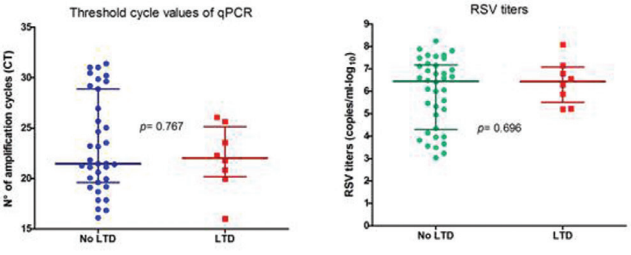


Figure 2. Viral load according to clinical presentation, acute phase reactants and hospital course

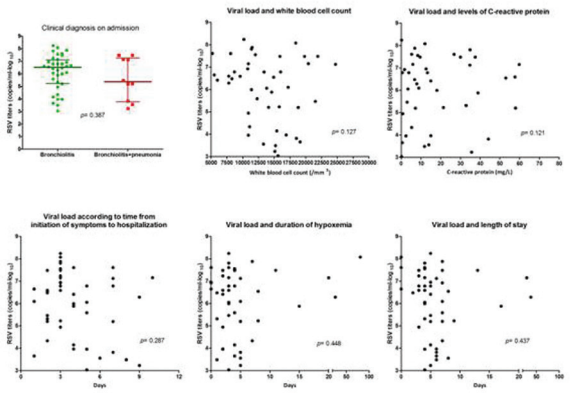
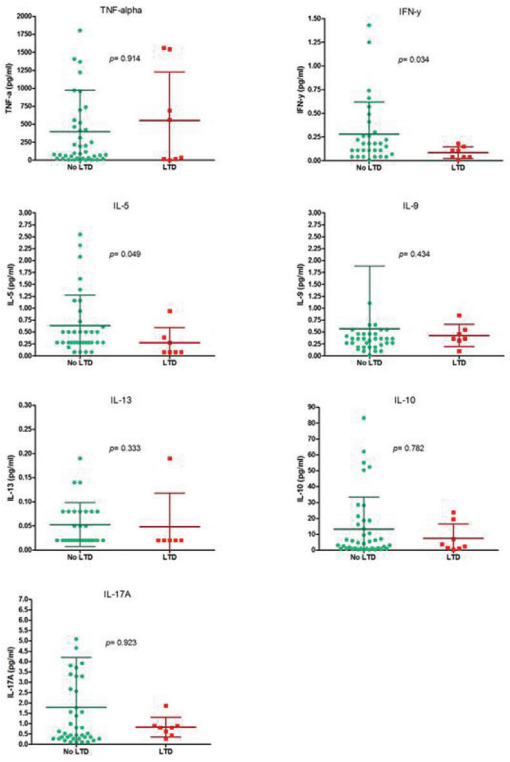


Figure 3. Cytokine levels and life-threatening disease



Disclosures. **All authors:** No reported disclosures.

727. Evaluation of Antibiotic Prescribing Practices for Upper Respiratory Infections in the Adult and Pediatric Emergency Departments

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Background. Emergency medicine physicians are among the top five specialties prescribing antibiotics. New accreditation standards for outpatient antimicrobial stewardship are now in effect, thus evaluation of antibiotic prescribing practices in the emergency department (ED) is needed. Upper respiratory infections (URIs) have been shown to be a common culprit for inappropriate antibiotic use and are among the leading primary diagnoses seen at ED visits. We aimed to assess the management of URIs in the adult and pediatric EDs by diagnosis and provider type, in order to target interventions to improve use.

Methods. In this retrospective, single-center cohort study, we included adult and pediatric patients seen in the ED and discharged home from September 2015 through August 2017. Patients with one of eight ICD-10 primary diagnosis codes associated with URIs were included (Figure 1). The primary outcome was to evaluate prescriber compliance with guidelines for the treatment of URIs among our adult and pediatric ED departments. Secondary outcomes included assessment of patient outcomes (14-day hospital and clinic revisit rates) between the compliant and noncompliant cohorts, and a comparison of prescribing practices among prescriber types.

Results. A total of 1,646 adult ED encounters and 2,589 pediatric ED encounters were included, with overall 84.0% and 94.4% compliance, respectively. Among URIs, compliance rates were low for bronchitis in adult patients (68.3%) and tonsillitis in both the adult (44.3%) and pediatric patients (57.6%). No difference in outcomes, including 14-day hospital and clinic revisit rates, were observed between groups for both the adult (12.7% vs. 14.8%, $P = 0.37$) and pediatric (18.8% vs. 17.9%, $P = 0.91$) cohorts. Higher rates of noncompliance were seen in adult and pediatric physicians (37.5% and 10.3%) compared with corresponding advanced practice providers (14.9% and 9.6%) and residents (12.1% and 4.5%).

Conclusion. The ED provides care for a large number of patients with URIs and should be a focus for antimicrobial stewardship. To be most effective, future stewardship interventions in the ED should target physician groups, and bronchitis in adults and tonsillitis in all patients.

Figure 1: Compliance rates stratified by infection type

Infection type (ICD10)	Adult Patients (n=1,646)	Pediatric Patients (n=2,589)
Asthma (J45)	93.0%	95.5%
Acute pharyngitis or nasopharyngitis (J02.9, J00)	82.6%	92.1%
Acute upper respiratory infection (J06.9)	86.3%	94.6%
Acute bronchiolitis or bronchitis (J20, J21.9)	68.3%	95.6%
Acute tonsillitis (J03.9)	44.3%	57.6%
Viral pneumonia (J12.9)	100.0%	96.4%

Disclosures. **All authors:** No reported disclosures.

728. Regional Validation of Distinct RSV Seasonality Thresholds for Antigen and PCR Testing

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Background. Respiratory syncytial virus (RSV) produces annual epidemics that vary in the timing of season onset, peak, and duration by season and by geographic region. Recent analyses by the US Centers for Disease Control at the national level have demonstrated that polymerase chain reaction (PCR) testing has largely replaced rapid antigen testing as the predominant test type and that the traditional 10% positivity threshold for defining an RSV season based on antigen testing should not be applied to PCR testing, for which the comparable threshold for real-time surveillance was 3%. The aim of this study was to validate and model implementation of the antigen (10%) and PCR (3%) positivity thresholds at regional, state, and local levels in a large national dataset of RSV testing results from US hospitals.

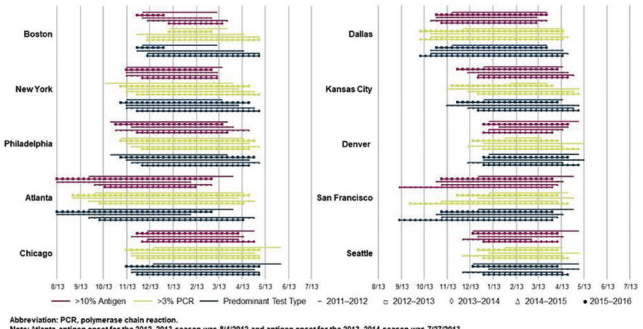
Methods. RSV test results were obtained from 599 laboratories that participated from 2011 to 2016 in RSVAlert®, a national RSV surveillance program. For laboratories that provided consistent weekly data (≥10 tests for ≥30 weeks of a season), regional test numbers and positivity were summarized weekly by test type within each season. Season onset and offset were calculated for the 10 US Department of Health and Human Services (HHS) regions and 10 large states plus Hawaii based on (1) antigen only for all seasons, (2) PCR only for all seasons, and (3) the predominant test type used in a specific geography in a season (either antigen or PCR).

Results. An average of 543,340 RSV tests was reported each season. At the regional and state levels, there were fewer outlier estimates of RSV season length when the predominant regional test type was used to define the season (Figures 1 and 2). Exceptions were few and occurred with antigen testing data.

Conclusion. Overall, PCR positivity of 3% was comparable to antigen positivity of 10% at the regional and state levels. Local RSV season determination was most reliable when based on the predominant test type utilized.

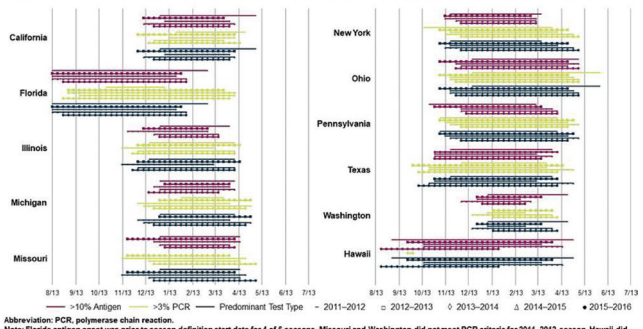
Funded by AstraZeneca

Figure 1. RSV Season Onset and Offset by HHS Region for 2011–2016, by Analytic Rule



Abbreviation: PCR, polymerase chain reaction.
Note: Atlanta antigen onset for the 2012–2013 season was 8/4/2012 and antigen onset for the 2013–2014 season was 7/27/2013.

Figure 2. RSV Season Onset and Offset for 10 Large States Plus Hawaii for 2011–2016, by Analytic Rule



Abbreviation: PCR, polymerase chain reaction.
Note: Florida antigen onset was prior to season definition start date for 4 of 6 seasons. Missouri and Washington did not meet PCR criteria for 2011–2012 season. Hawaii did not meet PCR criteria at all in 4 seasons and only for 2 weeks in the 2015–2016 season.

Disclosures. **C. S. Ambrose**, AstraZeneca: Employee, Salary and Stocks.

729. Improved Detection of Adenovirus with the FilmArray Respiratory Panel 2 Panel in a Pediatric Population

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Background. Human adenovirus (ADV) respiratory infections are associated with up to 8% of all identified viral causes of acute respiratory illnesses, especially among young children. They are therefore included as part of multiplex syndromic respiratory testing. Earlier versions of the FilmArray Respiratory Panel were targeted to genogroups B, C, and E. However, all adenovirus genogroups are associated with disease particularly in immunocompromised patients. Recently, a new version of the FilmArray Respiratory Panel 2 (RP2) has been FDA cleared with significant modifications to the adenovirus assay. The goal of this study was to compare the RP2 adenovirus assay to that of the previous version (RP1.7) and our laboratory-developed (LD) adenovirus PCR.

Methods. Analytical comparison: Ten stocks of know adenovirus serotypes representing genogroups A-F were diluted in M4 media and tested on RP2, RP1.7 and LD PCR to determine the relative limits of detection (LOD). Clinical comparison: A total of 423 pediatric nasopharyngeal samples were tested using RP2, RP1.7, adenovirus LD PCR. In addition we performed genotyping PCRs on most adenovirus positive samples based on the availability.

Results. Analytical evaluation revealed that for the 10 serotypes (18, 32, 7, 14, 5, 6, 20, 29, 4 and 40), RP2 showed at least 100-fold increase in sensitivity for six serotypes representing genogroups A, D and F. For B, C and E, the relative LODs were comparable.

In the 423 clinical samples, there was an overall agreement of 94% between RP2 and RP1.7. Among those RP2+/RP1.7− samples ($n = 20$), 17 samples were confirmed ADV positive by LD PCR. They all had low viral burden (Ct values >30), among them nine samples had sole detections of adenovirus types A, D and F. Five samples were RP2-/RP1.7+, two samples were confirmed by LD PCR and both were type C. Overall, there was a 22% increase in Adenovirus with RP2 compared with RP1.7.

Conclusion. The RP2 adenovirus assay has enhanced inclusivity and lower LOD for all adenovirus genogroups in comparison to RP1.7. Coupled with its faster run time and additional targets, RP2 represents a significant improvement for the syndromic detection of respiratory infections.

Disclosures. **A. Leber**, Nationwide Children's Hospital: Research Contractor, Research support.

730. Hospital Readmissions Following Laboratory-Confirmed Influenza

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Background. Further understanding of hospital readmissions after influenza illness could reduce readmissions. The aim of our study was to characterize the morbidity associated with laboratory confirmed influenza hospitalizations.

Methods. This was a retrospective study using data from 2006 to 2016 from the Tennessee (TN) Emerging Infections Program Influenza Surveillance Network, which prospectively identifies laboratory-confirmed influenza hospitalizations in Nashville, TN and surrounding counties. Using the TN Hospital Discharge Data System, which collects information on all hospitalizations and discharges in TN, cases were linked to subsequent hospitalizations up to 1 year. The *International Classification of Diseases* was used to define the primary diagnosis associated with each hospitalization. Demographic characteristics and outcomes were compared by using χ^2 tests for categorical variables. Multivariable logistic regression was used to compare study outcomes.

Results. Of the 2,897 patients with a laboratory-confirmed influenza hospitalization, 1,364 (47%) had a hospital readmission during the subsequent year (figure). Multiple readmissions occurred in 740 patients (54%). The readmission group was older, female predominant, and had more comorbidities than patients not re-hospitalized. Acute COPD/asthma exacerbation, pneumonia, septicemia, and acute renal failure were the most common causes for readmission. Underlying cardiovascular disease (OR 1.6), lung disease (OR 1.6), kidney disease (OR 1.7), diabetes (OR 1.3), immunosuppression (OR 1.6), and liver disease (OR 2.1) were associated with increased risk of readmission (table).

Conclusion. An influenza hospitalization is associated with increased hospital readmissions. Approximately 47% of patients hospitalized with influenza are readmitted within 1 year. Patient comorbidities could be an important link to influenza readmissions.

Table. Multivariable Analysis of Hospital Readmission

	OR	*P*
Age	0.7	0.039
Male	0.8	0.012
CVD	1.6	<0.001
Stroke	1.1	0.391
Diabetes	1.3	0.017
Lung disease	1.6	<0.001
Kidney disease	1.7	<0.001
Immunosuppression	1.6	<0.001
Dementia	1.3	0.124
Liver disease	2.1	0.006
Smoker	1.0	0.947

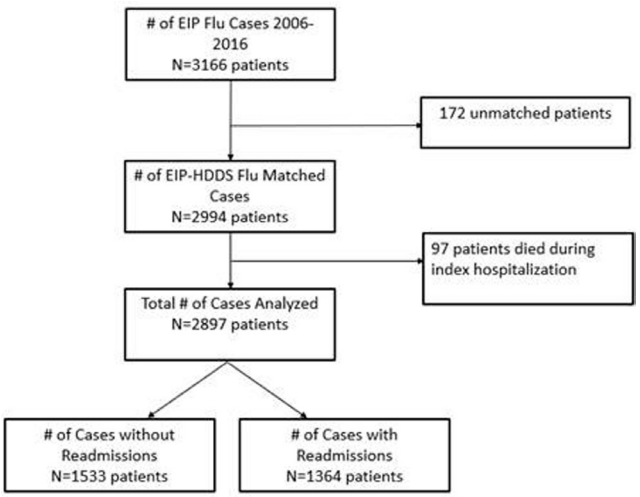

Figure. Flow chart of patient inclusion

Disclosures. **W. Schaffner**, Merck: Member, Data Safety Monitoring Board, Consulting fee. Pfizer: Member, Data Safety Monitoring Board, Consulting fee. Dynavax: Consultant, Consulting fee. Seqirus: Consultant, Consulting fee. SutroVax: Consultant, Consulting fee. Shionogi: Consultant, Consulting fee. **H. K. Talbot**, sanofi pasteur: Investigator, Research grant. Gilead: Investigator, Research grant.