Background: Obesity is a serious public health problem in Puerto Rico, where 31% of the population is obese. Multiple studies have suggested that adults with influenza who are underweight, overweight, or obese have increased risk of hospitalization compared with those of normal weight. We sought to determine whether risk of hospitalization among patients infected with influenza or other respiratory viruses differs by BMI among patients in Puerto Rico.

Methods: We analyzed data from patients enrolled in the Sentinel Enhanced Dengue Surveillance System (SEDSS), a prospective study of patients with acute febrile illness (AFI), from May 2012 to September 2018. We evaluated those older than 24 months, who had height, weight, and clinical disposition recorded, and tested positive by RT–PCR for infection with influenza A (n = 1253), influenza B (n = 844), adenovirus (n = 435), respiratory syncytial virus (n = 289), parainfluenza virus (n = 361), metapneumovirus (n = 247), or coronavirus (n = 15). BMI categories were determined using standard cutoffs in adults and BMI-for-age percentiles for children and adolescents. Risk of hospitalization by BMI category was calculated using multivariate Poisson regression.

Results: Among the 3,388 patients included, 675 (20%) were overweight, 926 (27%) were obese, 405 (12%) were underweight, and 1382 (41%) were normal weight. Median age was 13.4 (range: 2–100 years), and 50% were male. Risk of hospitalization was not significantly different in children and adult patients infected with a respiratory virus who were overweight relative to those that had normal BMI; however, once hospitalized, obese individuals of any age had a mean length of hospital stay 1.7 days longer than normal weight persons (95% CI: 0.27–3.17 days). Among adult patients, underweight patients were nearly 3 times more likely to be hospitalized compared with normal weight patients (relative risk 2.8, 95% CI: 1.4–5.9). Underweight children were not at increased risk of hospitalization.

Conclusion: Among patients infected with a respiratory virus, risk of hospitalization was higher among underweight adult patients, and obese patients had a longer mean length of stay once hospitalized. Body mass index should be considered when evaluating risk and managing these patients.

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2793. Influenza and Bacterial Pneumonia Coinfection: Rates and Outcomes

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Background: Limited evidence suggests that influenza leads not only to bacterial colonization and greater risk of bacterial pneumonia, but to poor outcomes and increased mortality. We compared bacterial culture results between patients positive (FLU+) and negative (FLU-) for influenza in the setting of community-acquired pneumonia (CAP). Among FLU+ patients we compared bacterial etiology, characteristics, treatment and outcomes between patients with and without bacterial coinfection.

Methods: We included adults admitted with pneumonia 2010–2015 to 179 US hospitals participating in the Premier database. Pneumonia was identified using an ICD-9-CM algorithm. Among patients tested for FLU, we limited the microbiology results to the first 14 hospital days. We assessed inpatient mortality, ICU admission, use of vasopressors, mechanical ventilation (MV), cost, and LOS using mixed multiple logistic regression and gamma generalized linear mixed models.

Results: Among 166,273 patients hospitalized with CAP, 38,665 (23.3%) were tested for influenza and 4,313 (11.15%) were positive. In FLU+ patients the most common bacterial co-infection was *Staphylococcus aureus* (37.6%) followed by *Streptococcus pneumoniae* (25.9%) and *Pseudomonas aeruginosa* (10.9%), varying based on the day of coinfection (days 1–3 vs. days 4–14) (Figure 1). In FLU- patients, *S. pneumoniae* (30.5%) and *S. aureus* (30.3%) were similarly common, followed by *P. aeruginosa* (10.0%). FLU+ patients with bacterial co-infection were younger (66.3 vs. 69.1 years), with more comorbidities (3.2 vs. 2.7) than influenza patients with no bacterial co-infection (all comparisons $P < 0.001$). Bacterial co-infection was also associated with increased odds of in-hospital mortality (OR 1.86, 95% CI,1.31–2.65), ICU admission (OR 3.46, 2.44–4.9), use of vasopressors (OR 3.74, 2.61–5.36), and MV (OR 3.51, 2.49–5.36), increased cost (risk-adjusted ratio of geometric means, 1.6, (1.47–1.73) and LOS (risk-adjusted ratio of geometric means 1.42, (1.33–1.52).

Conclusion: In a large US inpatient sample hospitalized for CAP, 11% of patients with influenza had or acquired a bacterial co-infection. Bacterial co-infection was associated with significantly worse outcomes and higher cost.

Day 1-3 (N = 445)	Day 4-14 (N = 92)
Staphylococcus aureus (34.2%)	*Staphylococcus aureus* (53.3%)
MSSA (29%)	MSSA (35.9%)
MRSA (14.6%)	MRSA (17.4%)
Streptococcus pneumoniae (27.9%)	*Pseudomonas aeruginosa* (8.7%)
Pseudomonas aeruginosa (11.5%)	*Streptococcus pneumoniae* (7.6%)
Hemophilus influenza (8.5%)	*Esherichia coli* (5.4%)

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

2794. Testing and Treatment in Patients Hospitalized with Suspected Influenza Pneumonia

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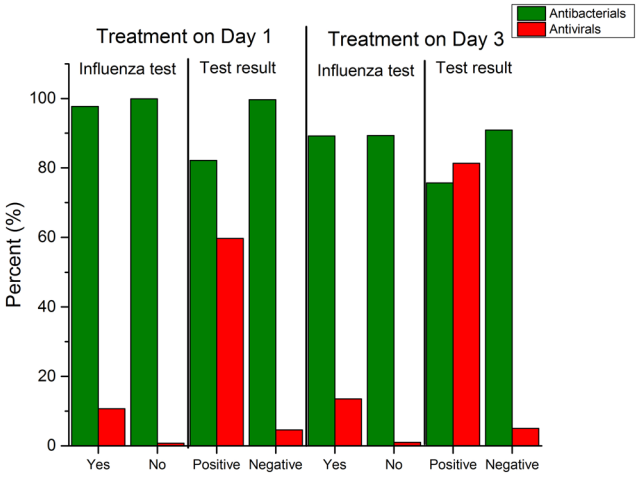
Background: Influenza is a leading cause of community-acquired pneumonia (CAP). Little is known about the effect of influenza testing on antimicrobial treatment among adult patients hospitalized with CAP. We quantified prevalence of testing and impact of positivity on treatment with antibacterials, antivirals, and outcomes.

Methods: We included adults admitted with pneumonia in 2010–2015 to 179 US hospitals contributing to the Premier database. Patients had CAP if radiographic evidence of pneumonia and antimicrobial treatment were present on day 1. We assessed influenza testing and compared antimicrobial utilization and outcomes of patients who tested positive vs negative vs not tested. Using mixed logistic regression and gamma generalized linear mixed models, we assessed the impact of influenza testing on inpatient mortality, length of stay (LOS) and cost.

Results: Among 166,273 patients with CAP, 38,665 (23.2%) were tested for influenza; 11.5% of these tested positive. The influenza testing rate increased from 15.4% in 2010/7–2011/6 to 35.6% in 2014/7–2015/6, ranging from 28.8% during flu season (October–May) to 8.2% in other months. Positive tests were more common during flu season (12.2% vs. 2.8%, $P < 0.001$). Patients tested for influenza were younger (66.6 vs. 70.3 years), less likely admitted from SNF (5.4% vs. 7.9%), with fewer comorbidities (2.9 vs. 3.3). Of patients tested for influenza, positive patients were younger (66.3 vs. 68.8 years), less likely admitted from SNF (5.2% vs. 6.8%), with more comorbidities (2.9 vs. 2.7) (all comparisons $P < 0.001$). Patients testing positive more likely received antivirals, were slightly less likely to receive antibacterials (Figure 1), but received shorter antibacterial courses than negative patients (5.3 vs 6.4 days, $P < 0.001$). Influenza tests were associated with reduced odds of in-hospital mortality compared with no testing (adjusted OR 0.71, 95% CI 0.63–0.81) and positive vs. negative tests with reduced costs (0.95, 0.92–0.99) and LOS (0.97, 0.94–0.99) (Figure 2).

Conclusion: In a large US inpatient sample hospitalized for pneumonia, only 23.2% of the patients were tested for influenza, but testing varied widely by hospital. A positive influenza test was associated with antiviral treatment but had minimal impact on antibiotic prescribing.



Outcome	Contrast	OR/Mean Multipliers (95% CI)
		Adjusted
In hospital mortality	Influenza test vs. no test	0.71 (0.63 - 0.81)
	Positive vs. negative test	0.92 (0.80 - 1.06)
Cost	Influenza test vs. no test	0.99 (0.95 - 1.02)
	Positive vs. negative test	0.95 (0.92 - 0.99)
Length of stay	Influenza test vs. no test	0.98 (0.96 - 1.00)
	Positive vs. negative test	0.97 (0.94 - 0.99)

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2795. Clinical and Economic Impact of a Ribavirin Intervention Program in Hematopoietic Cell and Solid-organ Transplant Recipients with Respiratory Syncytial Virus Infection

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Background: While data are limited, oral ribavirin (RBV) has been shown to be a cost-effective alternative to aerosolized RBV for the treatment of respiratory syncytial virus (RSV) in immunocompromised patients with significant reductions in acquisition and administration costs. We evaluated the clinical and economic impact of an RBV intervention program at a large, academic medical center.

Methods: This single-center, retrospective cohort study evaluated hematopoietic cell and solid-organ transplant patients admitted to Duke University Hospital (DUH) with documented or suspected RSV receiving aerosolized and/or oral RBV from July 2013 to April 2018. The ID consult service approval requirement was initiated for aerosolized RBV beginning in October 2015. Education was done at this time to promote oral RBV as the preferred therapy for immunocompromised, RSV-infected adults and children. No restrictions or treatment protocols were in place prior to that time for either formulation. Clinical outcomes, adverse effects, and drug acquisition cost were collected. A cost-avoidance analysis was performed using DUH acquisition cost for actual and alternate RBV therapy.

Results: A total of 118 treatments (115 unique adult and pediatric patients) were included. Demographics were comparable between groups with and median age was 52 years in the Oral RBV and 61 years in the Aerosol RBV group. The predominant transplant type was lung (62.5% in Oral RBV and 55.6% in Aerosol RBV) followed by hematopoietic (16.7% in Oral RBV and 27% in Aerosol RBV). The median (range) duration of therapy was 4 (1–16) days for oral RBV and 5 (1–23) days for aerosolized RBV. The total cost avoidance was $2,522,915 with oral RBV. Clinical outcomes are summarized in Table 1.

Conclusion: In our large tertiary care center, the use of oral RBV led to substantial cost avoidance with clinical outcomes comparable to aerosolized RBV in immunocompromised patients. Larger prospective trials evaluating oral RBV for RSV treatment are warranted.

Table 1. Clinical outcomes by RSV Route of Administration

	Oral RBV (n = 48) n (%)	Aerosol RBV (n = 63) n (%)	Both (n = 7) n (%)
Unfavorable outcome*	24 (50)	43 (68)	5 (71)
30-day all-cause mortality	9 (19)	10 (16)	2 (28)
ICU admission	4 (8)	8 (13)	2 (28)
New albuterol requirement	17 (35)	30 (48)	4 (57)
Anemia (decline in Hgb >=2.0 mg/dL)	5 (10)	9 (14)	3 (43)

*composite of elements below

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

2796. The Impact of Syndromic Molecular Point-of-Care Testing for Respiratory Viruses on Antibiotic Use in Adults Presenting to Hospital with Exacerbation of Airways Disease: Further Analysis From a Randomized Controlled Trial

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Background: The ResPOC study demonstrated that syndromic molecular point-of-care testing (POCT) for respiratory viruses was associated with earlier discontinuation of unnecessary antibiotics. Subgroup analysis suggests this occurs predominantly in patients with exacerbation of airways disease. Molecular POCT use is becoming widespread but there is a lack of evidence to inform the choice between multiplex syndromic panels vs. uniplex tests for influenza.

Methods: We evaluated patients with exacerbation of asthma or COPD who were treated with antibiotics. The duration of antibiotics and proportion with early discontinuation were compared between patients testing positive for viruses by POCT (FilmArray Respiratory Panel) those testing negative by POCT and controls. Patients testing positive for viruses by POCT were compared according to virus types detected. Survival curves were generated for duration of antibiotics and compared using the log-rank test.

Results: There were 118 patient with exacerbation of airways disease in the POCT group who received antibiotics and 111 in the controls. In the POCT group 49/118 (42%) patients tested positive for viruses. Of those testing positive for viruses by POCT 17/49 (35%) had early discontinuation of antibiotics vs. 9/81 (13%) in those testing negative and 7/111 (6%) in controls, $P < 0.0001$. Survival curve analysis showed a reduced time to antibiotic discontinuation in those testing positive for viruses, $P = 0.034$. Of those positive for viruses by POCT 20% were positive for influenza, 43% for rhinovirus and 37% for other viruses combined. The proportion with early discontinuation of antibiotics was not different between the virus types, $P = 0.53$.

Conclusion: Syndromic molecular POCT for viruses in adults with exacerbation of airways disease leads to early discontinuation in those positive for viruses. As most viruses detected were non-influenza viruses and there was no difference in antibiotic use between virus types, syndromic molecular POCT for respiratory viruses should be favored over uniplex POCT for influenza.

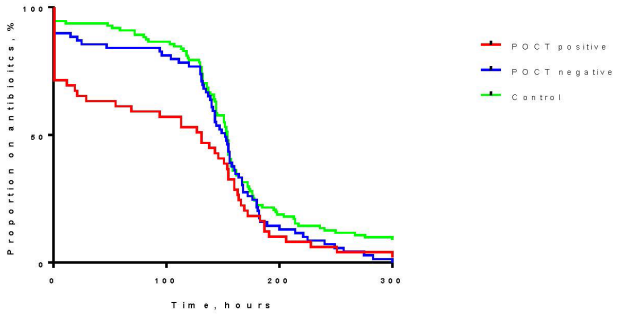

Figure 1. Kaplan Meier curve showing antibiotic use over time for patients with exacerbation of airways disease testing positive and negative by POCT and for control patients. Log rank test, p=0.034

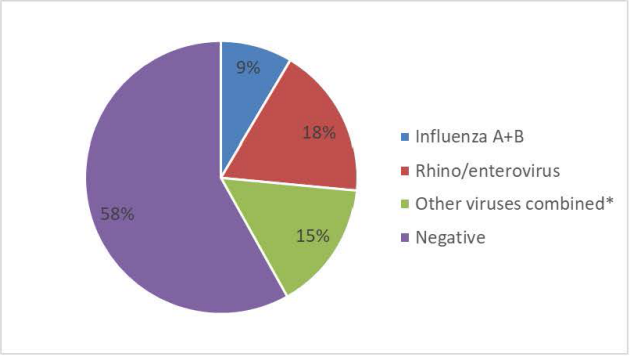

Figure 2. Proportion of patients with exacerbation airways disease with viruses detected in POCT group, n=118.*RSV, parainfluenza virus 1-4, human metapneumovirus, and human coronavirus.

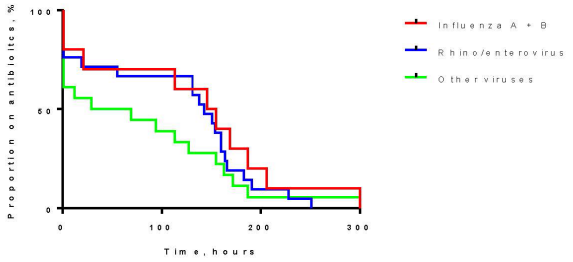

Figure 3. Kaplan Meier curve showing antibiotic use over time for patients testing positive by POCT for influenza, rhino/enterovirus and other viruses combined. Log rank test, p=0.53

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2797. Rates of Respiratory Syncytial Virus (RSV) Infection among Hospitalized Adults by Congestive Heart Failure Status—United States, 2015–2017

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Background: Respiratory syncytial virus (RSV) can cause severe disease in older adults and adults with cardiopulmonary conditions, such as congestive heart failure (CHF). RSV vaccines in development may target adults based on age or medical conditions. We assessed rates of RSV infection in hospitalized adults by CHF status using RSV surveillance conducted through the Centers for Disease Control and Prevention's Emerging Infections Program, a population-based platform in the United States

Methods: RSV surveillance was performed during two seasons (2015–2017) from October 1–April 30 at seven US sites covering an annual catchment population up