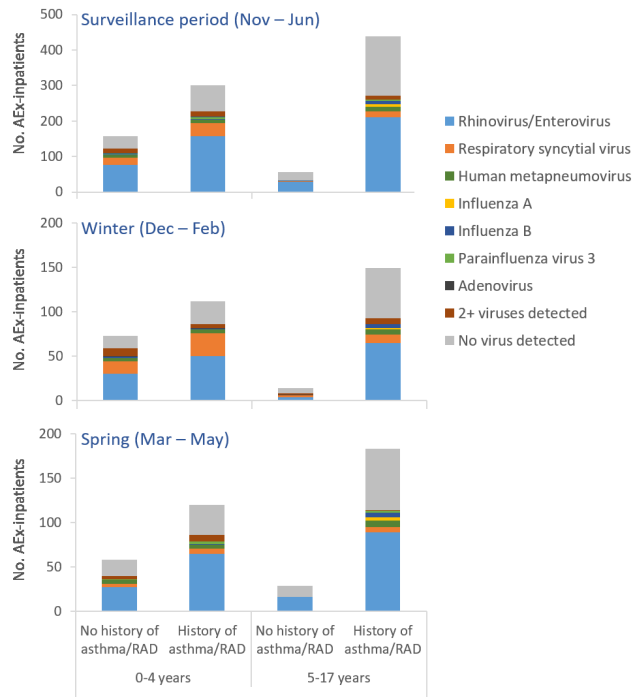


December–February; spring: March–May), and by patient age and history of asthma/reactive airway disease (asthma/RAD).

**Results:** We tested 3,897 inpatients with ARI; of whom, 954 were AEx-inpatients. Most AEx-inpatients (741/954 [78%]) reported an asthma/RAD history. Viruses were more frequently detected among AEx-inpatients <5 years (350/458 [76%]) than 5–17 years (305/496 [61%],  $P < 0.001$ ). Most (615/655 [94%]) detections were of single viruses. The most frequent single virus detections were RV/EV (474/954 [50%]) and RSV (76/954 [8%]) but the frequency of each virus varied by season and age group (figure). Single RV/EVs were the most common virus detections in both seasons and all groups. Single RSV detections were prominent among <5 year olds in winter (40/185 [22%]). Among those with single RV/EV or RSV detections, 285/474 (60%) and 49/76 (64%) required supplemental oxygen, respectively ( $P = 0.676$ ); median length of stay was 1 day (range: 0–45; IQR: 1–2) and 2 days (range: 0–6; IQR: 1–2.5), respectively ( $P < 0.001$ ).

**Conclusion:** AEx-inpatients <5 years were more likely to have respiratory virus detections than those 5–17 years. Single RV/EVs formed the majority of virus detections throughout the surveillance period, regardless of age. RSV played a notable role in winter among patients <5 years. These findings could inform prevention or treatment strategies for virus-associated AEx.

#### Virus detections among inpatients with asthma exacerbations (AEx-inpatients)



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#### 2640. Aerosol vs. Oral Ribavirin for the Treatment of Community-Acquired Respiratory Virus Infections in Lung Transplant Recipients

Emily Mui, PharmD, BCIDP<sup>1</sup>; Marisa Holubar, MD, MS<sup>2</sup>; Roy Lee, PharmD, BCPS<sup>3</sup>; Danielle Pham, PharmD<sup>3</sup>; Lina Meng, PharmD<sup>4</sup>; Vinhkhua Nguyen, PharmD<sup>1</sup>; Brian G. Blackburn, MD<sup>2</sup>; Janjri Desai, PharmD, MBA<sup>1</sup>; Saurabh Gombar, MD, PhD<sup>2</sup>; Robert Ohgami, MD, PhD<sup>4</sup>; Benjamin A. Pinsky, MD, PhD<sup>2</sup>; Amy Chang, MD PharmD<sup>5</sup>; Stan Deresinski, MD<sup>5</sup>; <sup>1</sup>Stanford Health Care, Stanford, California; <sup>2</sup>Stanford University School of Medicine, Stanford, California; <sup>3</sup>VA Palo Alto, Palo Alto, California; <sup>4</sup>University of California, San Francisco, San Carlos, California; <sup>5</sup>Stanford University, Menlo Park, California

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**Background:** Community-acquired respiratory virus (CARV) infections are associated with an increased risk of chronic lung allograft dysfunction (CLAD) and graft loss in lung transplant recipients (LTR). Administration of ribavirin by aerosol was the standard of care at Stanford Health Care in the management of CARV infections. Given the sparse evidence of benefit with aerosol ribavirin (AR) and its increasing cost and teratogenic risk for exposed healthcare personnel, AR was restricted to the treatment of respiratory syncytial virus (RSV) in 2016 and was ultimately removed from formulary in 2017. Oral (PO) ribavirin was used at the discretion of the transplant team. The objective of this study was to evaluate the clinical outcomes of AR compared with PO ribavirin in lung transplant recipients.

**Methods:** We performed a retrospective cohort analysis of adult lung transplant recipients diagnosed with CARV (metapneumovirus, parainfluenza virus, and RSV)

infections treated with either AR or PO ribavirin. The analysis included the first treatment course of ribavirin by either route and patients were excluded if they received ribavirin in the prior 12 months. The primary outcome was the development/progression of CLAD, acute organ rejection, and overall mortality.

**Results:** Of 85 patients, 41 received AR and 44 received PO ribavirin. There was no significant difference in the following clinical outcomes with AR and oral ribavirin, respectively: development or progression of CLAD (30 days: 9.7% vs. 4.5%,  $P = 0.4227$ ; 90 days: 14.6% vs. 6.8%,  $P = 0.303$ ; 6 months: 17% vs. 9%,  $P = 0.3413$ ; 12 months: 24% vs. 15.9%,  $P = 0.4188$ ), acute organ rejection (90 days: 7.3% vs. 4.5%,  $P = 0.6689$ ; 6 months: 12.1% vs. 9%,  $P = 0.7329$ ; 12 months: 19.5% vs. 13.6%,  $P = 0.5635$ ), and overall mortality (30 days: 0% vs. 4.5%,  $P = 0.4947$ ; 90 days: 7.3% vs. 4.5%,  $P = 0.6689$ ; 6 months: 7.3% vs. 9%,  $P = 1.0$ ; 12 months: 7.3% vs. 13.6%,  $P = 0.4858$ ). There was no observable difference in reported adverse effects between AR and PO ribavirin.

**Conclusion:** Lung transplant recipients with CARV infections had similar outcomes when treated with AR or PO ribavirin. Oral ribavirin is a less costly treatment than AR, but the efficacy of ribavirin by any route remains questionable.

**TABLE 1. Baseline Characteristics**

Patient Variable	Aerosol Ribavirin (n=41)	Oral Ribavirin (n=44)
Age, years (mean)	48.9	53.0
Male gender (%)	23 (56%)	25 (57%)
Ethnicity		
White	32	27
Hispanic	3	9
Asian	1	3
Other	5	5
Underlying Diagnosis		
Cystic Fibrosis	15	10
Pulmonary hypertension	1	3
Interstitial lung disease	17	18
Chronic obstructive pulmonary disease (COPD)	6	9
Lymphangioleiomyomatosis (LAM)	0	2
Other	2	2
Rejection History		
History of CLAD prior to CARV event	10	20
History of acute organ rejection prior to CARV event	20	23
Active acute rejection at CARV event	2	4
Respiratory Virus Treated		
Metapneumovirus (MPV)	12	15
Parainfluenza Virus (PIV)	16	20
Respiratory Syncytial Virus (RSV)	13	9

**TABLE 2. Outcomes of Lung Transplant Recipients Treated with Aerosol or Oral Ribavirin for CARV Infections**

Outcome	Aerosol Ribavirin (n=41)	Oral Ribavirin (n=44)	p-value
Development/Progression of Chronic Lung Allograft Dysfunction (CLAD)			
30-days	4 (9.7%)	2 (4.5%)	0.4227
90-days	6 (14.6%)	3 (6.8%)	0.303
6-months	7 (17.0%)	4 (9%)	0.3413
12-months	10 (24%)	7 (15.9%)	0.4188
Acute Rejection			
90-days	3 (7.3%)	2 (4.5%)	0.6689
6-months	5 (12.1%)	4 (9%)	0.7329
12-months	8 (19.5%)	6 (13.6%)	0.5635
Mortality			
30-days	0 (0%)	2 (4.5%)	0.4947
90-days	3 (7.3%)	2 (4.5%)	0.6689
6-months	3 (7.3%)	4 (9%)	1
12-months	3 (7.3%)	6 (13.6%)	0.4858
Other outcomes			
Upper respiratory tract infection (URTI)	26 (63.4%)	22 (50%)	0.2748
Progression to Lower respiratory tract infection (LRTI)	2 (7.7%)	1 (4.5%)	0.6073
ICU admission	0	2 (4%)	0.4947
Mechanical ventilation	0	1 (2.2%)	1
Concurrent infection	6 (14.6%)	12 (27.2%)	0.1897

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#### 2641. The Characteristics of Influenza-Like Illness (ILI) Management in Japan

Shinya Tsuzuki, MD, MSc<sup>1</sup>; Keisuke Yoshihara, PhD<sup>2</sup>; <sup>1</sup>University of Antwerp, Tokyo, Tokyo, Japan; <sup>2</sup>Nagasaki University, Nagasaki, Nagasaki, Japan

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**Background:** Influenza-like illness (ILI) is a common disease that imposes a severe disease burden at the population level. ILI management is important in view of population health, and Japan's management is distinct from that in other countries, especially regarding diagnosis and treatment of seasonal influenza. This study's main objective was to quantitatively assess ILI management in Japanese healthcare settings.

**Methods:** In February 2019, we conducted an online survey of 600 participants in 200 households concerning ILI and its management in Japan. Respondents reported ILI episodes they and/or their family members experienced during January 2019. The 12-Item Short-Form Health Survey, Version 2 (SF-12v2) was included in the questionnaire to estimate quality of life (QOL) lost through ILI, and quality-adjusted life years (QALYs) lost in that way. We analyzed participants' healthcare-seeking behavior to clarify the characteristics of Japanese ambulatory care for ILI.

**Results:** Of the participants, 261 of 600 (43.5%) reported at least one episode of ILI during January 2019. Of these, 194 (75.5%) visited healthcare facilities and 167 (86.1%) visited facilities within 2 days of symptom onset. A rapid influenza diagnostic test (RIDT) was given to 169 of 191 (88.5%) and 101 patients received a diagnosis of influenza, rather than ILI. Antivirals were used to treat 92.2% of the influenza cases.