

## Introduction

- Clinician antiviral treatment practices in outpatient settings for influenza and COVID-19 are not always consistent with CDC guidelines
- Antivirals are prescribed infrequently even to patients in high-risk age and medical condition groups for whom therapy would be most beneficial
- Clinicians may continue to test and treat influenza and COVID-19 with inconsistency

## Purpose

- CDC and Denver Health (DH) guidelines provide clear antiviral treatment recommendations
- Primary outcome: To gather information on antiviral prescribing practices of urgent care clinicians for the treatment of influenza and COVID-19
- Secondary outcome: To determine patient pick-up rates of antiviral medications for influenza and COVID-19

## Methods

### Study Design

- Declared non-human subject research by Denver Health and Hospital Authority Quality Improvement Committee (QuIRC), authorized by the Colorado Multiple Institutional Review Board (COMIRB) at the University of Colorado, Denver
- Retrospective cohort study based on electronic health record (EHR) data collected from visits at Federico F. Peña Southwest and Adult Urgent Care Clinics, Federally Qualified Health Centers, affiliated with Denver Health and Hospital Authority (DH)
- Encounter based visits for influenza and COVID-19



### Inclusion Criteria:

- Patients age  $\geq 18$
- Diagnosis of influenza (urgent care visit 10/1/2016 – 3/31/2025) based on ICD-10 code or PCR test result
- Diagnosis of COVID-19 (urgent care visit 12/1/2021 – 3/31/2025) based on ICD-10 code or PCR test result

### Exclusion criteria

- Allergy to oseltamivir and/or nirmatrelvir/ritonavir



### Statistical Analysis

- Encounter based data to include visits during the study period
  - A patient could be counted more than once if they experienced multiple episodes of influenza/COVID-19
- Data analysed via multivariable logistic regression to calculate odds ratios
- Multivariate chi-squared analysis on demographic variables to identify differences between groups
- R studio software used to conduct analysis
- Demographic variables:
  - Sex/gender
  - Age
  - Ethnicity/Race
  - Language
  - Housing status and payer source
  - High-risk medical conditions

## Results

- 11,888 encounters (4728 influenza and 7160 COVID-19)
- 37.0% (1751/4728) received an influenza antiviral
- 27.7% (1982/7160) received a COVID-19 antiviral
- Influenza patients had greater odds of receiving antiviral (aOR=1.54, 95% CI 1.42-1.66) compared to COVID-19 patients

### Influenza versus COVID-19 Antiviral Prescribing:

Demographics	OR	CI	p-value
Gender (Sex)			
Male			
Influenza	1.46	(1.28-1.67)	<0.001
COVID	ref		
Female			
Influenza	1.62	(1.46-1.80)	<0.001
COVID	ref		
Age Group			
18-44 Years Old			
Influenza	1.82	(1.63-2.02)	<0.001
COVID	ref		
45-64 Years Old			
Influenza	1.43	(1.22-1.67)	<0.001
COVID	ref		
65+ Years Old			
Influenza	1.82	(1.37-2.42)	<0.001
COVID	ref		
Race/Ethnicity			
NH American Indian/Alaskan Native			
Influenza	1.39	(0.56-3.49)	0.478
COVID	ref		
NH Asian			
Influenza	1.07	(0.64-1.79)	0.792
COVID	ref		
NH Black/African American			
Influenza	1.38	(1.02-1.87)	0.037
COVID	ref		
NH White/Caucasian			
Influenza	1.54	(1.30-1.82)	<0.001
COVID	ref		
Hispanic			
Influenza	1.52	(1.37-1.69)	<0.001
COVID	ref		
Other/ unreported*			
Influenza	1.58	(0.99-2.52)	0.053
COVID	ref		
Payer			
Commercial Insurance			
Influenza	1.51	(1.29-1.78)	<0.001
COVID	ref		
Medicaid/Medicare			
Influenza	1.68	(1.50-1.89)	<0.001
COVID	ref		
CICP/DFAP			
Influenza	1.19	(0.95-1.49)	0.136
COVID	ref		
Self Pay/Other			
Influenza	1.51	(1.18-1.94)	0.001
COVID	ref		

- Hispanic patients had greater odds of receiving an influenza antiviral (aOR 1.48, 95% CI 1.26-1.74) compared to non-Hispanic White pts
- Medicaid patients had greater odds of receiving an influenza antiviral (aOR 1.18, 95% CI 1.01-1.38) compared to commercial insurance pts
- Older patients (65+) had greater odds of receiving a COVID-19 antiviral (aOR 1.65, 95% CI 1.38-1.97) compared to young pts (18-44)
- Hispanic patients had greater odds of receiving a COVID-19 antiviral (aOR 1.29, 95% CI 1.12-1.49) compared to non-Hispanic White pts

### Secondary Outcomes:

- Older patients had greater odds of picking up their prescription
- Non-White patients had decreased odds of picking up their prescription

## Discussion

### Findings

- Overall, antivirals for influenza and COVID-19 are under-prescribed
- Antivirals for influenza and COVID-19 are under-prescribed for patients with co-morbid conditions
- There were higher antiviral prescribing rates for influenza compared with COVID-19
- Some significant differences were seen in patient demographics for both primary and secondary outcomes
- Clinicians appear to have varied treatment practices for influenza and COVID-19
- Clinicians appear to have varied treatment practices based on patient demographic factors
- Patients do not consistently pickup prescribed antiviral medications

### Clinical Implications

## Limitations

- Only two urgent care clinics involved in the study thus limiting generalizability
- Prescription pickup data was limited to prescriptions sent to the internal pharmacy
- There were changing recommendations for influenza treatment during the course of the study
- EHR data was not available to identify symptom duration to determine if patients were in the antiviral treatment window

## Next Steps

- Publish results in full manuscript
- Replicate study in other UC clinics/systems
- Future research to understand factors that contribute to identified differences
- Creation of interventions to support clinicians in prescribing guideline-concordant antiviral treatment for influenza and COVID-19
- Creation of interventions to support patients in picking up prescribed antiviral treatments for influenza and COVID-19

## Conclusions

- Influenza and COVID-19 antiviral treatment is under-prescribed
- Influenza antivirals are prescribed at higher rates than COVID-19 antivirals
- Patient demographic factors may influence clinician antiviral prescribing
- Patient demographic factors may influence odds of patients picking up their antiviral medications