



# Impact of COVID 19 on urgent care diagnoses and antibiotic stewardship metrics

Adam Hersh,<sup>1</sup> Edward Stenehjem,<sup>2</sup> Matthew Samore,<sup>3,4</sup> Traci Wood,<sup>5</sup> Hollis Ricker,<sup>5</sup> Heather Mueller,<sup>6</sup> Emily Spivak<sup>3,7</sup>

1 Division of Infectious Diseases, Department of Pediatrics, University of Utah; 2 Intermountain Healthcare 3 VA Salt Lake City Health Care System, Salt Lake City, UT; 4 Division of Epidemiology, Department of Internal Medicine, University of Utah School of Medicine, Salt Lake City, UT; 5 Urgent Care, University of Utah; 6 Medical Group Analytics, University of Utah, 7 Division of Infectious Diseases, Department of Medicine, University of Utah School of Medicine, Salt Lake City, UT

## Background

The percentage of all respiratory encounters prescribed an antibiotic is an outpatient stewardship metric and was introduced as a HEDIS measure in 2022. With a stable case mix of respiratory encounters, this metric is not affected by differences in coding practices between clinicians or health systems since all respiratory diagnoses are considered together. The onset of the COVID-19 pandemic introduced a high number of viral illness episodes for which antibiotics are not recommended. The impact of this shift in case mix on respiratory diagnoses coding and prescribing metrics has not been explored.

## Methods

We examined antibiotic prescribing rates for respiratory encounters in a network of urgent care clinics affiliated with University of Utah during 2 periods.

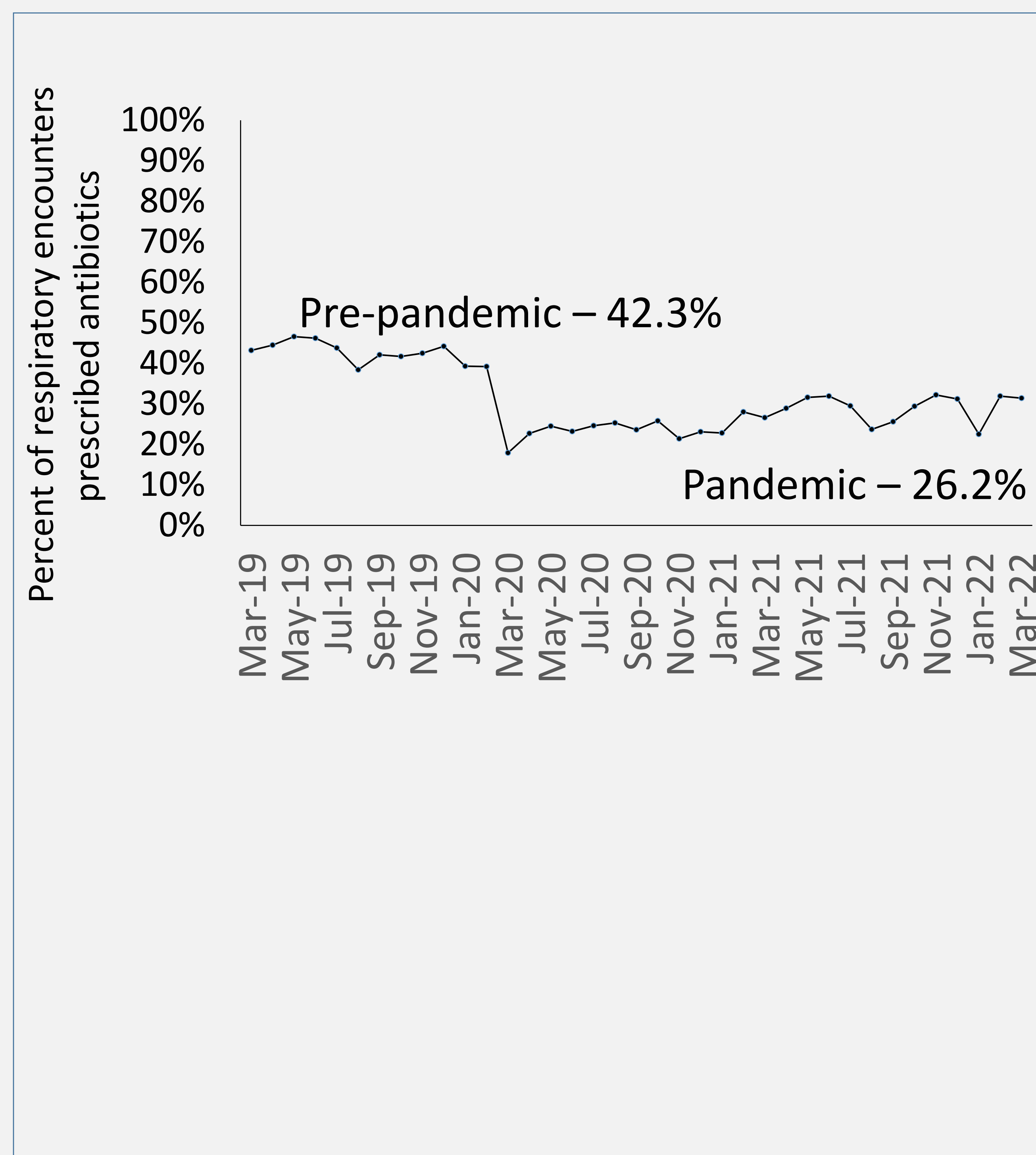
Pre-pandemic period: May 2019-Feb 2020

Pandemic period: Mar 2020-Mar 2022

Respiratory encounters were identified using ICD10 codes and further stratified into one of three Tiers:

- **Tier 1:** antibiotics indicated (e.g. pneumonia)
- **Tier 2:** antibiotics sometimes indicated (e.g. sinusitis)
- **Tier 3:** antibiotics not indicated (e.g. URI NOS)

We examined trends in antibiotic prescribing across these periods including the percentage of all respiratory encounters prescribed antibiotics and by tier and the distribution of diagnoses within a tier.



	Pre-pandemic	Pandemic
<b>Tier 1</b>	N=2191	N=1974
% respiratory	5%	2%
% antibiotic	92%	88%
<b>Tier 2</b>	N=22289	N=30364
% respiratory	47%	31%
% antibiotic	60%	54%
<b>Tier 3</b>	N=22945	N=67138
% respiratory	48%	67%
% antibiotic	21%	12%
<b>Tier 3 Diagnoses</b>	URI NOS (36%)	URI NOS (30%)
	Resp other (20%)	COVID (23%)
	Cough (18%)	Cough (19%)
	Influenza (7%)	Resp other (18%)
	Bronchitis (7%)	Asthma (3%)
	Asthma (4%)	Bronchitis 2%)
	Laryngitis (4%)	Serious OM (2%)
<b>Overall</b>	47423	99474

## Results

- There were 146,897 urgent care visits during the study period (47,423 Pre-pandemic and 99,474 Pandemic)
- The respiratory prescribing rate declined from 42.3% Pre-pandemic to 26.2% during the pandemic (Figure).
- The distribution of respiratory encounters by tier and prescribing within tier are shown in the Table. Tier 3 diagnoses increased from 48% to 67%, while Tier 2 diagnoses declined from 47% to 31%.
- Antibiotic prescribing declined for Tier 2 and 3 diagnoses
- 23% of Tier 3 diagnoses during the Pandemic period were COVID-19
- 50% of the reduction in prescribing for respiratory encounters during the Pandemic is attributable to the shift to a higher percentage of Tier 3 diagnoses

## Conclusions

- The COVID-19 pandemic was associated with a shift in the distribution of respiratory diagnoses by tier, with an increase in the proportion of Tier 3 encounters and reductions in Tier 2. This shift in respiratory diagnoses during the COVID-19 pandemic was associated with a reduction in the overall percentage of respiratory encounters prescribed antibiotics, which is a new HEDIS measure.
- Half was due to an increase in Tier 3 encounters, although declines in prescribing occurred within other Tiers in addition
- Using this new measure for benchmarking requires accounting for the impact of changes in case mix over time and between systems or clinicians

Funding Support: Contract number 1 U54CK000602-01-00f from the Centers for Disease Control and Prevention