HSD82

Which Providers Prescribe Antivirals for COVID-19 Treatment in the US?

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BACKGROUND

- Despite the availability of effective antiviral therapies, many patients with COVID-19 who are at high risk of progression to severe COVID-19 remain untreated, contributing to a potentially avoidable patient- and system-level burden.[1, 2]
- Limited evidence exists on how healthcare providers (HCPs) make antiviral prescribing decisions for eligible patients.
- To understand factors influencing prescribing behavior and inform improved patient care, we examined characteristics of HCPs prescribing COVID-19 antivirals to eligible outpatients based on reported prescribing rate.

METHODS

- From July to September 2025, US-based primary care (PC), urgent care (UC), and emergency department (ED) HCPs completed a self-report survey on antiviral prescribing practices.
- Data collected included demographics, years in practice, practice setting, percentage of time spent in direct patient care, number of outpatients with COVID-19 seen, factors influencing prescribing decisions, and percentage of outpatients with COVID-19 prescribed antivirals.
- HCP characteristics were analyzed by antiviral prescribing volume. Based on the HCP-reported percentage of all outpatients with COVID-19 to whom they prescribed antivirals in the past 12 months, HCPs were categorized as low prescribers (LP; 0–20.0%), medium prescribers (MP; >20.0–62.0%), or high prescribers (HP; >62.0%). Cut-points were defined post-hoc.

RESULTS

- 684 HCPs (257 PC, 201 UC, 226 ED) participated in the study.
- 31% of participants were LP, 44% were MP, and 25% were HP (**Table 1**).
- HP were more often aged ≥45 years (59%) than LP (49%) and MP (44%).

Table 1. HCP sociodemographics by COVID-19 antiviral prescribing volume

Variable	Low prescribers (N=211) n (%)	Medium prescribers (N=302) n (%)	High prescribers (N=171) n (%)	*P-value*
Age				**0.025[a]**
25-34 years	28 (13.3)	47 (15.6)	21 (12.3)	
35-44 years	80 (37.9)	122 (40.4)	50 (29.2)	
45-54 years	59 (28.0)	72 (23.8)	40 (23.4)	
55-64 years	31 (14.7)	44 (14.6)	40 (23.4)	
65-74 years	10 (4.7)	12 (4.0)	18 (10.5)	
≥75 years	3 (1.4)	5 (1.7)	2 (1.2)	
Gender[b]				**0.049[a]**
Male	119 (56.4)	183 (60.6)	108 (63.2)	
Female	90 (42.7)	117 (38.7)	56 (32.7)	
Non-binary	1 (0.5)	0 (0.0)	2 (1.2)	
Race[b]				
African American/Black	3 (1.4)	17 (5.6)	6 (3.5)	**0.048**
Asian	25 (11.8)	56 (18.5)	40 (23.4)	**0.012**
American Indian/Alaska Native	0 (0.0)	3 (1.0)	4 (2.3)	0.078[a]
Native Hawaiian/OPI	0 (0.0)	3 (1.0)	2 (1.2)	0.318[a]
White or Caucasian	167 (79.1)	199 (65.9)	107 (62.6)	**<0.001**
Another race	3 (1.4)	10 (3.3)	3 (1.8)	0.319[a]
Ethnicity[b]				0.449
Hispanic or Latino/a	6 (2.8)	13 (4.3)	10 (5.8)	
Not Hispanic or Latino/a	193 (91.5)	268 (88.7)	146 (85.4)	
Highest medical degree or position[c]				
MD or DO	152 (72.0)	235 (77.8)	135 (78.9)	0.205
Physician Assistant	29 (13.7)	38 (12.6)	18 (10.5)	0.634
Nurse Practitioner	30 (14.2)	29 (9.6)	18 (10.5)	0.250

Abbreviations: DO, Doctor of Osteopathic Medicine; HCP, healthcare provider; MD, Doctor of Medicine; OPI, Other Pacific Islander. P-values are based on chi-square tests comparing distributions across groups. [a]More than 20% of cells in this subtable have expected cell counts less than 5. Chi-square results may be invalid. [b]Participants could choose "prefer not to answer"; these responses are not shown. Percentages are based on the full sample. [c]Participants were requested to select all degrees or positions that applied.

RESULTS (continued)

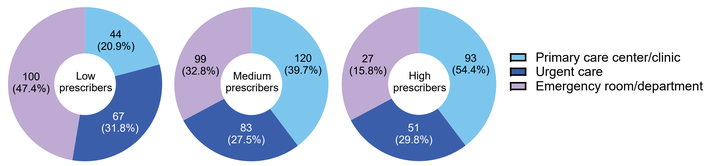
- HP more often had ≥10 years of practice experience than LP or MP (**Table 2**).
- HP practiced in primary care or internal medicine and spent most of their patient-facing time in primary care centers or clinics more often than LP or MP (**Figure 1**).
- In contrast, LP were more often emergency medicine physicians and more likely to practice primarily in EDs or hospital-based settings.
- HP reported treating more outpatients with COVID-19 in the prior 12 months than LP (**Table 3**).
- HP also reported greater use of molnupiravir and remdesivir and were more likely to address issues related to treatment interruption or dose modification of concomitant medications due to drug interactions, compared to LP.
- Common factors driving HCP prescribing decisions included patient risk factors and patient-reported symptom severity (**Table 4**).
- HP were more often influenced by patient-reported symptom severity, patient age, and comorbidities when making antiviral prescribing decisions than LP.

Table 2. HCP practice characteristics by COVID-19 antiviral prescribing volume

Variable	Low prescribers (N=211) n (%)	Medium prescribers (N=302) n (%)	High prescribers (N=171) n (%)	*P-value*
Years treating patients[b]				**0.002[a]**
2 to <10	79 (37.4)	110 (36.4)	38 (22.2)	
10 to <20	69 (32.7)	109 (36.1)	61 (35.7)	
≥20	63 (29.9)	83 (27.5)	72 (42.1)	
Primary medical specialty[c]				
Family Medicine/General Medicine/PC/Pediatrics	73 (34.6)	132 (43.7)	84 (49.1)	**0.013**
Emergency Medicine	131 (62.1)	124 (41.1)	43 (25.1)	**<0.001**
Infectious Disease	2 (0.9)	4 (1.3)	12 (7.0)	**<0.001**
Internal Medicine	27 (12.8)	74 (24.5)	64 (37.4)	**<0.001**
Other[d]	11 (5.2)	10 (3.3)	3 (1.8)	
Percentage of work time spent in direct patient care				0.054[a]
51% to 75%	15 (7.1)	11 (3.6)	4 (2.3)	
>75%	196 (92.9)	291 (96.4)	167 (97.7)	

Abbreviations: HCP, healthcare provider; PC, primary care. Only responses reported by >1% of HCPs in at least one prescriber group are shown. Percentages are based on the full sample. P-values are based on chi-square tests comparing distributions across groups. [a]>20% of cells in this subtable have expected cell counts <5. Chi-square results may be invalid. [b]Excluding any supervised experience during residency. [c]Participants were requested to select all specialties that applied. [d]Includes the following primary medical specialties: cardiology, endocrinology, gynecology/obstetrics, hematology oncology, medical oncology, nephrology, neurology, pharmacy, psychiatry, pulmonology, surgery, and other.

Figure 1. Setting of most time spent with patients by COVID-19 antiviral prescribing volume



Differences were statistically significant with p-values <0.001 based on chi-square tests comparing distributions across groups (>20% of cells with expected counts <5).

Table 3. COVID-19 practice characteristics of HCPs by COVID-19 antiviral prescribing volume in the past 12 months

Variable	Low prescribers (N=211)	Medium prescribers (N=302)	High prescribers (N=171)	*P-value*
Outpatients with COVID-19 seen or consulted with, median % (Q1-Q3) of patients				
Best estimate	100 (50-200)	110 (65-250)	150 (100-300)	**0.006**
Antivirals prescribed to treat COVID-19, n (%)[b,c]				
Nirmatrelvir-ritonavir	188 (99.5)	301 (99.7)	170 (99.4)	0.910[a]
Molnupiravir	30 (15.9)	110 (36.4)	87 (50.9)	**<0.001**
Remdesivir	33 (17.5)	83 (27.5)	65 (38.0)	**<0.001**
Medication management, median % (Q1-Q3) of patients				
Drug-drug interaction assessment	50 (20-70)	40 (20-60)	40 (20-50)	0.831
Medication interruption	15 (5-25)	20 (10-33)	25 (10-35)	**<0.001**
Dose modification	5 (0-20)	15 (5-25)	15 (10-30)	**<0.001**

Abbreviations: HCP, healthcare provider; Q, quartile. P-values are based on chi-square tests comparing distributions across groups. [a]More than 20% of cells in this subtable have expected cell counts less than 5. Chi-square results may be invalid. [b]Participants were requested to select all antivirals that applied. [c]N=189 for low prescribers for this variable.

Table 4. Top ten factors influencing HCP decisions to prescribe antivirals to outpatients with mild-to-moderate COVID-19 by COVID-19 antiviral prescribing volume

Variable	Low prescribers (N=211) n (%)	Medium prescribers (N=302) n (%)	High prescribers (N=171) n (%)	*P-value*
If patient is immunocompromised (e.g., due to HIV, cancer, corticosteroid use)	160 (75.8)	252 (83.4)	144 (84.2)	**0.049**
If patient has chronic lung disease (e.g., COPD, asthma, bronchiectasis)	168 (79.6)	244 (80.8)	138 (80.7)	0.941
If patient has cardiovascular conditions (e.g., heart failure, coronary artery disease)	134 (63.5)	230 (76.2)	127 (74.3)	**0.005**
Patient age	138 (65.4)	229 (75.8)	121 (70.8)	**0.036**
If patient has chronic kidney disease	123 (58.3)	200 (66.2)	122 (71.3)	**0.025**
If patient has obesity or diabetes	116 (55.0)	203 (67.2)	119 (69.6)	**0.004**
If patient is on medication that should be interrupted during antiviral treatment	123 (58.3)	200 (66.2)	92 (53.8)	**0.020**
Patient-reported COVID-19 symptom severity	96 (45.5)	199 (65.9)	116 (67.8)	**<0.001**
If patient inquires about or requests an antiviral	127 (60.2)	183 (60.6)	90 (52.6)	0.200
If patient is on one or more medications that require a drug interaction assessment	119 (56.4)	172 (57.0)	87 (50.9)	0.409

Abbreviations: COPD, chronic obstructive pulmonary disease; HCP, healthcare provider; HIV, human immunodeficiency virus. HCPs could choose more than one factor influencing their antiviral prescribing decisions. The top ten most common factors across provider groups are shown. P-values are based on chi-square tests comparing distributions across groups.

DISCUSSION & CONCLUSION

- Higher outpatient antiviral prescribing was observed among HCPs who were older, had been in clinical practice longer, and practiced in primary care settings.
- PC HCPs, who often have longitudinal relationships with patients and a deep understanding of their medical history, may be better equipped to assess risk and make treatment decisions, potentially increasing their willingness to prescribe antivirals.
- In contrast, HCPs in emergency or hospital-based settings, who often lack prior knowledge of patients and are more likely to be time-constrained, may be more cautious in prescribing.
- HP demonstrated deeper engagement in medication management and greater consideration of patient risk factors than LP.
- Limitation: recall bias or biases related to social norms may have influenced the prescribing volume category some HCPs were assigned to.
- The present findings highlight key HCP characteristics that can inform targeted education and outreach for HCPs to increase appropriate antiviral use among high-risk outpatients.

References

1. Bai Y et al. *Emerging Infectious Diseases.* 2024;30:262-9.
2. Monach PA et al. *Morbidity and Mortality Weekly Report.* 2024;73:57-61.

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