UPTAKE OF THE POST COVID-19 CONDITION ICD-10-CM DIAGNOSIS CODE BY SOCIAL FACTORS

Annika D. Lee,[1] Chris Prener,[1] Amie M. Scott,[1] Tamuno Alfred,[1] David Oliveri,[2] Deepa Malhotra,[1] Leah J. McGrath[1]

[1] Pfizer Inc., New York, NY; [2] Genesis Research, Hoboken, NJ.

INTRODUCTION

- Post-COVID conditions (PCC; e.g., long COVID and post-acute sequalae of SARS-CoV-2) are increasingly reported and not well understood.
- Certain racial or socioeconomic groups may be at greater risk for PCC and simultaneously less likely to seek care.

OBJECTIVE

- To examine the uptake of the new ICD-10-CM diagnosis code for post COVID-19 condition (PCC) in routine clinical practice in the U.S.
- To identify potential disparities by race and payor type (proxy for socioeconomic status)

METHODS

- Using the Optum® de-identified Electronic Health Record (EHR) dataset, we identified patients with (a) an ICD-10-CM code for PCC (U09.9) between 10/01/2021 and 03/31/2022, and (b) 6 months of prior EHR activity.
- All variables were measured on the index date (first PCC diagnosis during study period) or closest available date.
- Prior COVID diagnosis was assessed using all available data before the index date.
- We assessed the frequency of all ICD-10-CM diagnosis code categories (e.g., R05 instead of R05.3) concurrently coded on the index date.
- Of the top 100 categories, we examined the most common symptom codes (R00-R99) and five select diagnosis codes (J96, J18, J12, Z99, and N17).

RESULTS

OVERALL PCC COHORT

- White patients were overrepresented in the PCC cohort (77.5%) compared to the overall EHR in 2021 (72.6%) (Table 1).[1]
- African American patients had the highest percentage of prior documented COVID diagnosis (61.2%) compared to all other racial groups (e.g., white patients = 53.8%) (data not shown).

Table 1. Baseline characteristics of patients diagnosed with PCC and the overall EHR.

| Characteristic	PCC Cohort N = 33,480		Optum EHR[2] N = 25,307,748
	n	%	%
Age			
Median (IQR)	52	40.0, 64.0	-
0-17	1,083	3.2	13.4
18-64	24,425	73.0	63.1
65+	7,972	23.8	23.4
Gender			
Male	12,533	37.4	43.5
Female	20,933	62.5	56.5
Unknown	14	0.0	0.1
Race			
White	25,963	77.5	72.6
African American	3,232	9.7	10.2
Asian	736	2.2	2.6
Other/unknown	3,549	10.6	14.6
Ethnicity			
Hispanic	2,317	6.9	6.4
Not Hispanic	25,712	76.8	74.9
Unknown	5,451	16.3	17.7
Payor Type[3]			
Commercial	20,066	59.9	-
Medicaid	4,647	13.9	-
Medicare	7,170	21.4	-
Other payor type	294	0.9	-
Uninsured	378	1.1	-
Unknown	925	2.8	-

[1] Note that 68.1% of the U.S. population in 2021 identified as white, according to the Census Bureau's American Community Survey.
[2] All patients in Optum EHR with at least 1 day of active status in 2021.
[3] We have omitted the distribution of payor types for the overall EHR due to the possibility of an individual patient having multiple payor types throughout the year. There is only one payor type for patients in the PCC cohort because it is only measured on the index date.
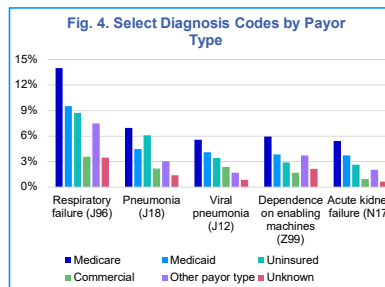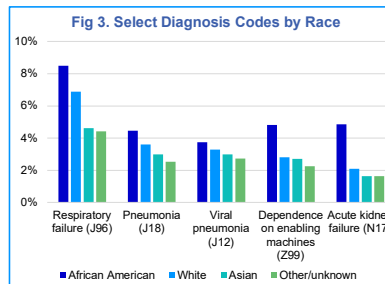
PCC DIAGNOSIS LOCATION

- Most PCC diagnoses were recorded in outpatient settings (78.7%).
- More African American (20.6%), Medicaid (22.2%), and uninsured (29.9%) patients were diagnosed in inpatient settings or EDs than white (12.1%) and commercially insured patients (8.0%) (Fig.1, Fig. 2).

Fig. 1. PCC Diagnosis Location by Race

Fig. 2. PCC Diagnosis Location by Payor Type
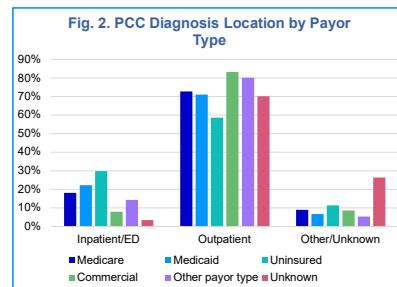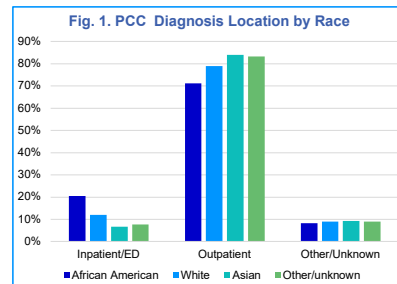
CONCURRENT DIAGNOSES

- The most common symptom codes were breathing abnormalities (R06), cough (R05), and fatigue (R53).
- African Americans had the highest proportion in all five select diagnosis codes, with the greatest disparity seen in acute kidney failure (N17) (Fig. 3).
- Medicare, Medicaid, and uninsured patients consistently had higher proportions of these select diagnosis codes than other payor types (Fig. 4).

Fig 3. Select Diagnosis Codes by Race

Fig. 4. Select Diagnosis Codes by Payor Type

CONCLUSION

- **Use of the PCC code varies by racial groups and payor types, but this may reflect who seeks care and not the underlying prevalence of PCC.**
- **The differences in diagnosis locations underscore the importance of using data capturing all care settings when conducting studies using this code.**
- **Subgroup analyses are important for future studies using the PCC code due to variability in code application.**

LIMITATIONS

- Optum EHR has very limited racial categories that do not reflect U.S. Census racial categories.
- The percentage of prior COVID diagnoses only represents medically-attended cases, and thus may be underestimated.
- We could not stratify by COVID vaccination status because the EHR does not capture vaccinations completely.

Contact

Annika Lee
Pfizer Inc., 66 Hudson Blvd E, New York, NY, 10001
Phone: +1-917-576-0550
Email: annika.lee@pfizer.com