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Characterization of Demographics and Concomitant Symptoms in Patients with Post COVID-19 Conditions or Long COVID

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Background & Objective

- Post COVID-19 conditions or long COVID continues to burden the healthcare system.
- With the introduction of a new code in October 2021 to appropriately capture this condition (U09.9), we have enough data to understand the detailed demographic and clinical characterization of the patients with long COVID.

Methods

- Patients were identified retrospectively from using administrative claims data from the Komodo Health claims database
- The Komodo Health database contains complete medical and prescription claims information for US payers across all geographic regions
- The study population included all patients with at least one ICD-10 code for COVID (U07.1) between June 1, 2021, and November 30, 2022.
- Patients with at least one ICD-10 code for long COVID (U09.9), at least 7 days after COVID diagnosis were termed “Long COVID” patients. Index date was defined as the first long COVID diagnosis date.
- Assessed prevalence of clinical codes (i.e., diagnosis, medication and procedure) in a 30 day pre- and post-index period
- Clinical characterization was performed by considering clinical events that either persisted or increased in prevalence in the 30-day post index period as compared to the pre-index period. We followed this approach to understand the temporal clinical trends after long COVID diagnosis

Figure 1: Demographic characterization

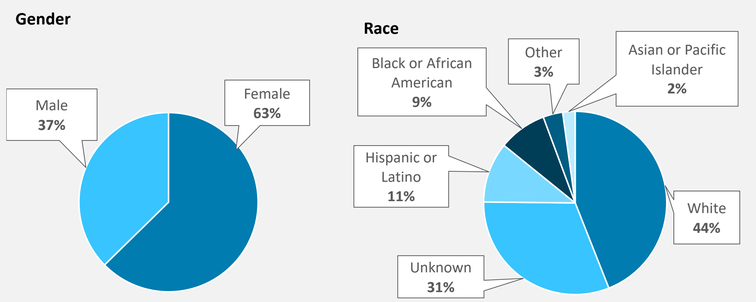

Table 1: Prevalent Covid- 19 Symptoms and associated comorbidities that persisted post long covid diagnosis

Covid-19 related Symptoms	Number of patients in a 30-day period	
	Pre-index	Post-index
Essential hypertension	71,443	91,480
COVID-19	176,154	79,758
Shortness of breath	52,492	62,345
Personal history of COVID-19	33,284	49,759
Hyperlipidemia	31,774	41,707
Cough	42,878	40,780
Other fatigue	22,271	39,112

Table 2: Temporal trends in other concomitant symptoms/screenings pre- and post- long covid diagnosis

Other Concomitant symptoms and screenings	Number of patients in a 30-day period	
	Pre-index	Post-index ↓
Encounter for screening mammogram for malignant neoplasm of breast	5,341	9,054
Chronic respiratory failure with hypoxia	4,578	8,953
Allergic rhinitis	4,314	7,866
Prediabetes	4,075	6,933
Encounter for screening for malignant neoplasm of colon	3,559	6,889
Pulmonary fibrosis	3,305	6,488
Other symptoms and signs involving cognitive functions and awareness	1,789	5,654
Other amnesia	1,637	3,904
Postviral fatigue syndrome	1,220	3,430
Snoring	1,433	3,230
Sleep disorder, unspecified	850	1,954

Results

- A cohort of 322,081 patients were identified. Of them, 63% of patients are female patients; 37% of patients are male *(Figure 1)*
- Age distribution: 4% (0 -17 years), 75% (18-64 years) and 22% (65+)
- Race distribution: 44% are white, 25% are minority and 31% unknown *(Figure 1)*
- COVID-19 symptoms and associated comorbidities continues to persist post –long COVID diagnosis. *(Table 1)*
- Concomitant conditions with significant changes pre- and post index, are related to five important physiological categories: Lung Diseases, Respiratory Disease, Nervous System and Cognitive Functions, Sleep Disorders, etc. *(Table 2)*
- Long COVID patients underwent increased screening for numerous diseases such as lipid disorders, diabetes, depression, colon cancer, cervix cancer, prostate cancer, breast cancer, etc. *(Table 2)*

Discussion & Conclusion

- Long covid is more prevalent in female patients. The COVID 19 symptoms such as shortness of breath, cough and fatigue continues to persist in long COVID patients, along with decline in cognitive functions and sleep impacting multiple organ systems.
- Increase in screening for multiple types of cancer immediately post long COVID diagnosis may indicate correlations with early-stage cancer diagnosis. Although, predisposition of long COVID patients to cancer development is reviewed in literature, additional studies are needed to further understand the effects of long COVID-19 on cancer susceptibility.
- Additional analyses are planned to better understand how health disparities are driving the disease outcomes in this patient population. We were limited by the availability of these variables, so we have linked additional sources of socioeconomic data to conduct further studies.

References

1. Saini G, Aneja R. Cancer as a prospective sequela of long COVID-19. Bioessays. 2021
2. Cancino RS, Su Z, Mesa R, Tomlinson GE, Wang J. The Impact of COVID-19 on Cancer Screening: Challenges and Opportunities. JMIR Cancer. 2020;6(2):e21697. Published 2020 Oct 29. doi:10.2196/21697.