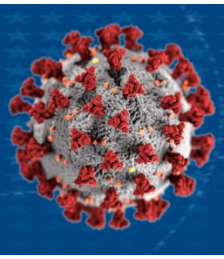
Supplement:
Patterns and Trends in COVID-19 Severity Fact Sheet: Data on Veterans Using VA Health Care



Cooperative Studies Program Epidemiology Analytics Resource (CSPEAR)
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U.S. Department of Veterans Affairs
Veterans Health Administration
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Contributions
This fact sheet is the result of a joint effort the VA Cooperative Studies Program Epidemiology Centers (CSPECs) in Boston, MA, Durham, NC, and Seattle, WA.

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About CSPEAR
CSPEAR translates VA electronic health record (EHR) data into brief, scientifically-reliable reports on the health status of Veterans. CSPEAR is a collaborative effort of the Cooperative Studies Program's national network of Epidemiology Centers.

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1 Introduction

Coronavirus disease (COVID-19) severity ranges widely from asymptomatic to multiorgan failure and death. As the pandemic evolves, several factors may shift COVID-19 severity in a population, such as the emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) variants, improvements in therapies and diagnostics, and increased vaccine coverage.

This fact sheet presents data on COVID-19 disease severity in Veterans who use the Department of Veterans Affairs (VA) health care system. Objectives include:

a) To characterize the population of SARS-CoV-2-positive Veteran VA health care users by disease severity

b) To describe changes over time in severity of illness among SARS-CoV-2-positive Veteran VA health care users

By characterizing the epidemiology of COVID-19 in Veterans, the fact sheet will help guide VA's ongoing research and clinical response to COVID-19.

2 Methods

2.1 Data Source

Data were pulled from multiple domains within the VA Corporate Data Warehouse (CDW), a national database that integrates Veterans Health Administration (VHA) clinical and administrative information. CDW houses patient-level data for the full range of services received by VHA health care users in the United States, Puerto Rico, Virgin Islands, American Samoa, Philippines, and Guam. CDW data are routinely extracted from VA medical centers and other data sources and consolidated into a single data model.[1]

Data on SARS-CoV-2 testing, COVID-19 severity, comorbidities, and other COVID-19-related information originate from the VA COVID-19 Shared Data Resource (CSDR), a data domain within CDW.[2]

2.2 Population

The population includes patients meeting the following criteria:

1. Age ≥18 and ≤110 years
2. Veterans
3. Have a valid positive test result for SARS-CoV-2 infection performed in a VA medical center
4. Index date falls between March 1, 2020 – March 31, 2022; Index date is defined as the date of the first positive SARS-CoV-2 test result or the inpatient admit date closest to first positive test result in the 15 days prior
5. Not in long-term care facility prior to testing positive for SARS-CoV-2
6. Records have consistent and complete numeric identifiers
7. Not labeled as a test patient

Note: COVID-19 testing data were unavailable in the CSDR for 2 sites following the transition to the Cerner electronic health record (EHR) system: Spokane, WA (transitioned 10/24/2020) and Walla Walla, WA (transitioned 3/26/2022).

2.3 Classification of Phenotypes

SARS-CoV-2 Infection

SARS-CoV-2-positive patients include those with a valid positive test result for SARS-CoV-2 infection performed in a VHA facility.

COVID-19 Disease Severity

Veterans were classified into one of the following categories according to their most advanced stage of COVID-19 disease reached within 30 days of the index date.

- Mild: Valid positive lab result for SARS-CoV-2 infection
- Moderate: Hospitalized with or without low-flow oxygen therapy
- Severe: Hospitalized and treated with high-flow oxygen, mechanical ventilation, intubation, dialysis, vasoactive or inotropic infusion, or extracorporeal membrane oxygenation
- Death: Date of death recorded within 30 days

Severity of illness was quantified using the CSDR variable 'PatientState30d' [3], an adaptation of the Veterans Affairs Severity Index for COVID-19 (VASIC). The Million Veteran Program (MVP) Data Core team created VASIC by adapting the World Health Organization (WHO) Clinical Progression Scale for COVID-19. [4-6] VASIC summarizes the 10-point WHO scale into 4 categories: mild 6 (WHO scores 1-3), moderate (4-5), severe (6-9), and most severe (10).[5,6] It is a reliable, standardized tool to assess the severity of COVID-19 disease using routinely-measured EHR data. VASIC was validated and applied to a nationwide sample of SARS-CoV-2 positive Veterans' data to assess the association of VASIC severity and long-term complications (stroke, myocardial infarction, pulmonary embolism/deep vein thrombosis, heart failure, and mortality.[5]

3 Notes

This work was conducted under the research protocol approved by the institutional review boards of Emory University (IRB# 389) and VA Boston Healthcare System (IRB# 3310-X). This material is the result of work supported with resources and the use of facilities at the VA Cooperative Studies Program Epidemiology Centers in Boston, MA, Durham, NC, and Seattle, WA. The contents do not represent the views of VA or the US Government.

4 Results

Figure 1. Flow diagram for population selection (data pull date: 6/3/2022)

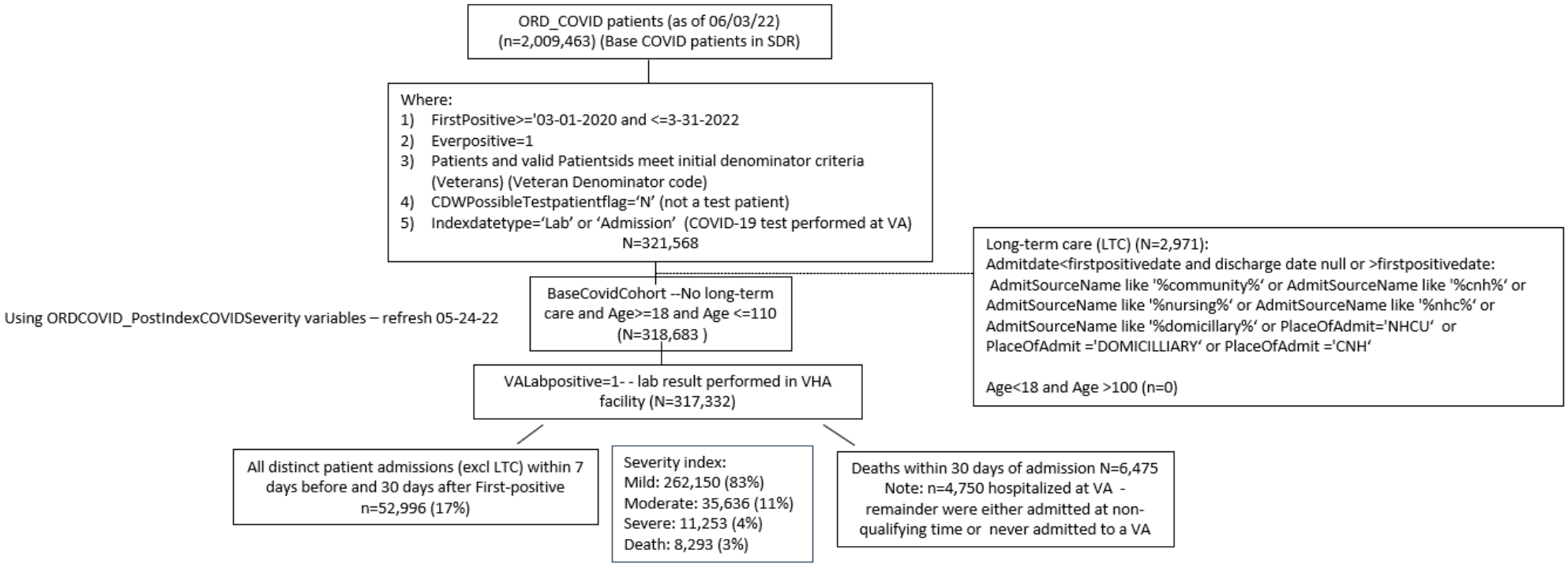


Table 1. Quarterly trends in COVID-19 severity

COVID-19 Severity Category, n(%)*	Index date								All time periods (N=315,258)**
	04/01/20 – 06/30/20 (n=9,873)	07/01/20 – 09/30/20 (n=18,262)	10/01/20 – 12/31/20 (n=52,797)	01/01/21 – 03/31/21 (n=31,073)	04/01/21 – 06/30/21 (n=9,396)	07/01/21 – 09/30/21 (n=41,587)	10/01/21 – 12/31/21 (n=51,197)	01/01/22 – 03/31/22 (n=101,073)	
Mild	6,502 (65.9)	13,972 (76.5)	42,423 (80.4)	24,247 (78.0)	7,046 (75.0)	33,137 (79.7)	44,090 (86.1)	89,575 (88.6)	26,2150 (82.6)
Moderate	2,032 (20.6)	2,836 (15.5)	6,556 (12.4)	4,552 (14.7)	1,586 (16.9)	4,895 (11.8)	4,389 (8.6)	8,296 (8.2)	35,636 (11.2)
Severe	722 (7.3)	889 (4.9)	2,116 (4.0)	1,319 (4.2)	505 (5.4)	2,057 (5.0)	1,589 (3.1)	1,868 (1.9)	11,253 (3.6)
Death	617 (6.3)	565 (3.1)	1,702 (3.2)	955 (3.1)	259 (2.8)	1,498 (3.6)	1,129 (2.2)	1,334 (1.3)	8,293 (2.6)

*COVID-19 severity is determined by the most advanced stage of COVID-19 illness achieved in the 30 days following index date

**The total adds up to less than the sample size (N=317,332) because the table starts with the first quarter with complete data (April 1, 2020 – June 30, 2020).

Table 2. Age and sex distribution of the population of SARS-CoV-2-positive Veterans each quarter

Characteristic	Index date								All time periods (N=315,258)*
	04/01/20 – 06/30/20 (n=9,873)	07/01/20 – 09/30/20 (n=18,262)	10/01/20 – 12/31/20 (n=52,797)	01/01/21 – 03/31/21 (n=31,073)	04/01/21 – 06/30/21 (n=9,396)	07/01/21 – 09/30/21 (n=41,587)	10/01/21 – 12/31/21 (n=51,197)	01/01/22 – 03/31/22 (n=101,073)	
Age Mean (SD)	58.3 (17.1)	56.9 (16.5)	58.4 (16.2)	59.1 (16.0)	56.2 (16.4)	56.4 (16.5)	56.2 (16.3)	57.2 (16.1)	57.3 (16.3)
Age Median (Q1, Q3)	60.0 (46.0,71.0)	58.0 (44.0,70.0)	60.0 (46.0,71.0)	61.0 (48.0,72.0)	58.0 (43.0,70.0)	58.0 (42.0,70.0)	58.0 (42.0,70.0)	59.0 (44.0,71.0)	59.0 (44.0,71.0)
Age categories, n(%)									
18-34	1,151 (11.7)	2,243 (12.3)	5,281 (10.0)	2,843 (9.2)	1,199 (12.8)	5,037 (12.1)	6,082 (11.9)	10,309 (10.2)	34,289 (10.8)
35-44	1,202 (12.2)	2,430 (13.3)	6,790 (12.9)	3,757 (12.1)	1,402 (14.9)	6,590 (15.9)	8,220 (16.1)	15,495 (15.3)	46,139 (14.5)
45-54	1,471 (14.9)	3,068 (16.8)	8,369 (15.9)	4,649 (15.0)	1,560 (16.60)	6,613 (15.9)	8,329 (16.3)	16,575 (16.4)	50,972 (16.1)
55-64	2,155 (21.8)	3,715 (20.3)	10,623 (20.1)	6,765 (21.8)	1,962 (20.9)	8,176 (19.7)	10,706 (20.9)	21,204 (21.0)	65,801 (20.7)
65-74	2,329 (23.6)	4,473 (24.5)	13,982 (26.5)	8,433 (27.1)	2,156 (23.0)	9,743 (23.4)	11,208 (21.9)	22,984 (22.7)	75,849 (23.9)
75-84	965 (9.8)	1680 (9.2)	5,791 (11.0)	3,441 (11.1)	841 (9.0)	4,239 (10.2)	5,161 (10.1)	11,349 (11.2)	33,681 (10.6)
85+	600 (6.1)	653 (3.6)	1,961 (3.7)	1,185 (3.8)	276 (2.9)	1,189 (2.9)	1,491 (2.9)	3,157 (3.1)	10,601 (3.3)
Sex, n(%)									
Male	8,842 (89.6)	16,142 (88.4)	47,241 (89.5)	27,938 (89.9)	8,249 (87.8)	36,562 (87.9)	44,471 (86.9)	87,728 (86.8)	279,059 (87.9)
Female	1,031 (10.4)	2,120 (11.6)	5,556 (10.5)	3,135 (10.1)	1,147 (12.2)	5,025 (12.1)	6,726 (13.1)	13,345 (13.2)	38,273 (12.1)

*The total adds up to less than the sample size (N=317,332) because the table starts with the first quarter with complete data (April 1, 2020 – June 30, 2020).

Table 3. Race and ethnicity distribution of the population of SARS-CoV-2-positive Veterans each quarter

Characteristic	Index date								All time periods (N=315,258)*
	04/01/20 – 06/30/20 (n=9,873)	07/01/20 – 09/30/20 (n=18,262)	10/01/20 – 12/31/20 (n=52,797)	01/01/21 – 03/31/21 (n=31,073)	04/01/21 – 06/30/21 (n=9,396)	07/01/21 – 09/30/21 (n=41,587)	10/01/21 – 12/31/21 (n=51,197)	01/01/22 – 03/31/22 (n=101,073)	
Primary Race, n(%)									
American Indian/Alaskan Native	112 (1.2)	185 (1.0)	613 (1.2)	329 (1.1)	99 (1.1)	462 (1.1)	512 (1.0)	1,211 (1.2)	3,533 (1.1)
Asian	105 (1.1)	221 (1.2)	602 (1.2)	380 (1.2)	78 (0.8)	400 (1.0)	598 (1.2)	1,653 (1.7)	4,066 (1.3)
Black or African American	3,817 (39.1)	5,551 (30.7)	10,741 (20.6)	7,902 (25.7)	2,432 (26.2)	9,201 (22.4)	12,652 (25.0)	23,654 (23.7)	77,104 (24.6)
White	5,136 (52.6)	10,910 (60.4)	37,057 (70.9)	20,321 (66.1)	6,155 (66.2)	28,562 (69.4)	33,607 (66.3)	66,754 (66.8)	209,264 (66.7)
Unknown	590 (6.1)	1,190 (6.6)	3,231 (6.2)	1,814 (5.9)	537 (5.8)	2,520 (6.1)	3,331 (6.6)	6,629 (6.6)	19,949 (6.4)
Ethnicity, n(%)									
Hispanic or Latino	1,408 (14.3)	2,555 (14.0)	5,283 (10.0)	3,179 (10.2)	854 (9.1)	3,740 (9.0)	4,751 (9.3)	10,050 (9.9)	32,063 (10.1)
Not Hispanic or Latino	8,103 (82.1)	15,003 (82.2)	45,333 (85.9)	26,596 (85.6)	8,076 (86.0)	35,312 (84.9)	43,141 (84.3)	84,145 (83.3)	267,471 (84.3)
Unknown	362 (3.7)	704 (3.9)	2,181 (4.1)	1,298 (4.2)	466 (5.0)	2,535 (6.1)	3,305 (6.5)	6,878 (6.8)	17,798 (5.6)

*The total adds up to less than the sample size (N=317,332) because the table starts with the first quarter with complete data (April 1, 2020 – June 30, 2020).

Table 4. Geographic distribution of the population of SARS-CoV-2-positive Veterans each quarter

Geographic area	Index date								All time periods (N=315,258)*
	04/01/20 – 06/30/20 (n=9,873)	07/01/20 – 09/30/20 (n=18,262)	10/01/20 – 12/31/20 (n=52,797)	01/01/21 – 03/31/21 (n=31,073)	04/01/21 – 06/30/21 (n=9,396)	07/01/21 – 09/30/21 (n=41,587)	10/01/21 – 12/31/21 (n=51,197)	01/01/22 – 03/31/22 (n=101,073)	
Veterans Integrated Services Networks (VISN), n(%)									
1: VA New England Healthcare System	492 (5.0)	123 (0.7)	1,346 (2.6)	1,051 (3.4)	262 (2.8)	687 (1.7)	2,278 (4.5)	3,446 (3.4)	9,762 (3.1)
2: New York/New Jersey VA Health Care Network	1,106 (11.2)	244 (1.3)	1,607 (3.0)	1,622 (5.2)	438 (4.7)	789 (1.9)	2,869 (5.6)	3,291 (3.3)	12,390 (3.9)
4: VA Healthcare – VISN 4	351 (3.6)	315 (1.7)	2,358 (4.5)	1,206 (3.9)	462 (4.9)	898 (2.2)	3,046 (6.0)	3,382 (3.4)	12,070 (3.8)
5: VA Capitol Health Care Network	369 (3.7)	347 (1.9)	1,188 (2.3)	959 (3.1)	362 (3.9)	915 (2.2)	2,268 (4.4)	2,769 (2.7)	9,233 (2.9)
6: VA Mid-Atlantic Health Care Network	468 (4.7)	1,114 (6.1)	2,905 (5.5)	2,611 (8.4)	615 (6.6)	2,880 (6.9)	3,029 (5.9)	8,202 (8.1)	21,910 (6.9)
7: VA Southeast Network	675 (6.8)	2,063 (11.3)	2,741 (5.2)	2,643 (8.5)	444 (4.7)	3,274 (7.9)	2,583 (5.1)	6,745 (6.7)	21,286 (6.7)
8: VA Sunshine Healthcare Network	1,031 (10.4)	2,578 (14.1)	3,423 (6.5)	2,846 (9.2)	1,225 (13.0)	6,953 (16.7)	3,843 (7.5)	11,210 (11.1)	33,239 (10.5)
9: VA Midsouth Healthcare Network	292 (3.0)	962 (5.3)	2,709 (5.1)	1,553 (5.0)	436 (4.6)	2,424 (5.8)	2,015 (3.9)	4,958 (4.9)	15,402 (4.9)
10: VA Healthcare System Serving Ohio, Indiana and Michigan	554 (5.6)	827 (4.5)	4,993 (9.5)	2,285 (7.4)	882 (9.4)	2,184 (5.3)	6,012 (11.7)	6,145 (6.1)	24,089 (7.6)

Geographic area	Index date								All time periods (N=315,258)*
	04/01/20 – 06/30/20 (n=9,873)	07/01/20 – 09/30/20 (n=18,262)	10/01/20 – 12/31/20 (n=52,797)	01/01/21 – 03/31/21 (n=31,073)	04/01/21 – 06/30/21 (n=9,396)	07/01/21 – 09/30/21 (n=41,587)	10/01/21 – 12/31/21 (n=51,197)	01/01/22 – 03/31/22 (n=101,073)	
12: VA Great Lakes Health Care System	595 (6.0)	753 (4.1)	3,263 (6.2)	934 (3.0)	407 (4.3)	944 (2.3)	2,775 (5.4)	3,107 (3.1)	12,916 (4.1)
15: VA Heartland Network	230 (2.3)	1,030 (5.6)	3,731 (7.1)	1,364 (4.4)	411 (4.4)	1,976 (4.8)	2,143 (4.2)	5,221 (5.2)	16,141 (5.1)
16: South Central VA Health Care Network	599 (6.8)	1,384 (8.3)	2,302 (4.9)	1,760 (6.5)	490 (5.8)	3,840 (10.0)	2,549 (5.4)	5,733 (6.6)	19,015 (6.7)
17: VA Heart of Texas Health Care Network	671 (7.6)	1,433 (8.6)	2,322 (4.9)	1,516 (5.6)	390 (4.7)	2,730 (7.1)	1,821 (3.8)	5,472 (6.3)	16,377 (5.8)
19: Rocky Mountain Network	319 (3.6)	777 (4.6)	3,472 (7.4)	1,272 (4.7)	587 (7.0)	2,099 (5.4)	2,759 (5.8)	4,735 (5.5)	16,087 (5.7)
20: Northwest Network	155 (1.8)	362 (2.2)	1,201 (2.5)	508 (1.9)	319 (3.8)	1,459 (3.8)	1,071 (2.3)	3,059 (3.5)	8,163 (2.9)
21: Sierra Pacific Network	229 (2.6)	908 (5.4)	2,186 (4.6)	1,333 (4.9)	464 (5.5)	2,686 (7.0)	2,156 (4.5)	5,453 (6.3)	15,453 (5.5)
22: Desert Pacific Healthcare Network	1,095 (12.4)	1,548 (9.3)	4,703 (10.0)	2,945 (10.8)	437 (5.2)	2,347 (6.1)	3,787 (8.0)	8,692 (10.1)	25,627 (9.1)
23: VA Midwest Health Care Network	269 (3.0)	822 (4.9)	3,677 (7.8)	971 (3.6)	463 (5.5)	1,545 (4.0)	3,014 (6.4)	3,989 (4.6)	14,766 (5.2)
Region, n(%)									
Pacific	1,749 (19.8)	3,336 (19.9)	10,890 (23.1)	5,691 (21.0)	1,749 (20.8)	7,919 (20.5)	9,510 (20.1)	20,973 (24.3)	62,021 (22.0)
Continental	2,303 (26.0)	5,529 (33.0)	15,341 (32.5)	6,710 (24.7)	2,151 (25.6)	11,600 (30.1)	12,349 (26.0)	23,637 (27.3)	80,150 (28.4)
Southeast	2,741 (31.0)	6,993 (41.8)	15,579 (33.0)	10,718 (39.5)	3,253 (38.8)	16,305 (42.3)	16,372 (34.5)	32,056 (37.1)	104,500 (37.0)
Northeast	2,059 (23.3)	878 (5.3)	5,409 (11.5)	4,043 (14.9)	1,240 (14.8)	2,735 (7.1)	9,212 (19.4)	9,832 (11.4)	35,908 (12.7)

*The total adds up to less than the sample size (N=317,332) because the table starts with the first quarter with complete data (April 1, 2020 – June 30, 2020).

Table 5. Distribution of comorbidity burden of the population of SARS-CoV-2-positive Veterans each quarter

Charlson Comorbidity Index (CCI)[7]	Index date								All time periods (N=315,258)*
	04/01/20 – 06/30/20 (n=9,873)	07/01/20 – 09/30/20 (n=18,262)	10/01/20 – 12/31/20 (n=52,797)	01/01/21 – 03/31/21 (n=31,073)	04/01/21 – 06/30/21 (n=9,396)	07/01/21 – 09/30/21 (n=41,587)	10/01/21 – 12/31/21 (n=51,197)	01/01/22 – 03/31/22 (n=101,073)	
CCI past 2 yrs, Mean (SD)	1.9 (2.4)	1.6 (2.2)	1.6 (2.2)	1.7 (2.2)	1.5 (2.2)	1.4 (2.1)	1.3 (2.0)	1.4 (2.1)	1.5 (2.1)
CCI past 2 yrs, Median (Q1, Q3)	1.0 (0.0, 3.0)	1.0 (0.0, 2.0)	1.0 (0.0, 2.0)	1.0 (0.0, 3.0)	1.0 (0.0, 2.0)	1.0 (0.0, 2.0)	1.0 (0.0, 2.0)	1.0 (0.0, 2.0)	1.0 (0.0, 2.0)
CCI Ever, Mean (SD)	2.9 (3.2)	2.6 (2.9)	2.5 (2.9)	2.7 (3.0)	2.4 (2.9)	2.4 (2.8)	2.2 (2.7)	2.4 (2.8)	2.4 (2.9)
CCI Ever, Median (Q1, Q3)	2.0 (0.0, 4.0)	2.0 (0.0, 4.0)	2.0 (0.0, 4.0)	2.0 (0.0, 4.0)	1.0 (0.0, 4.0)	1.0 (0.0, 4.0)	1.0 (0.0, 3.0)	1.0 (0.0, 4.0)	1.0 (0.0, 4.0)

*The total adds up to less than the sample size (N=317,332) because the table starts with the first quarter with complete data (April 1, 2020 – June 30, 2020).

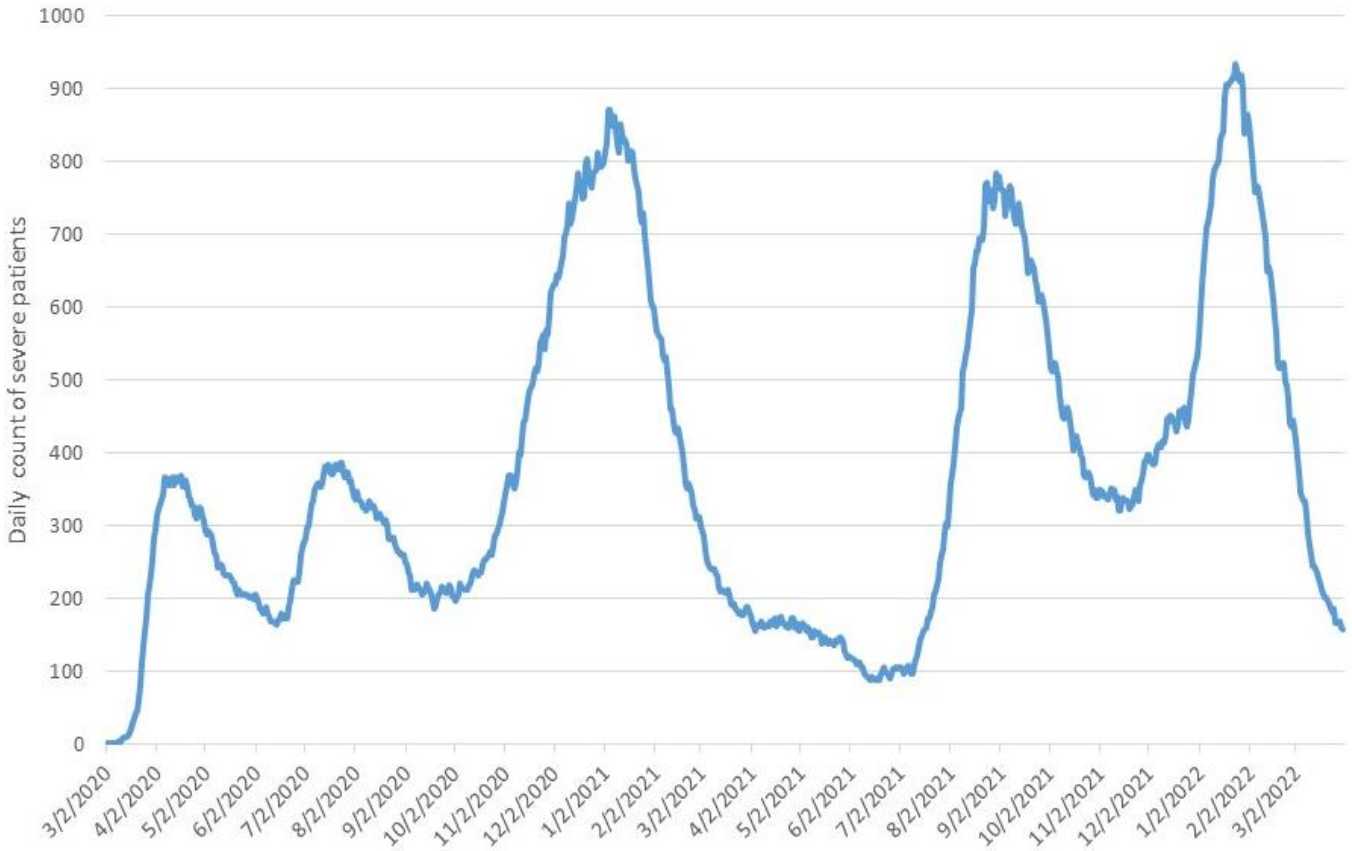
Table 6. Demographic and clinical characteristics of SARS-CoV-2-positive Veteran VHA users, by COVID-19 severity status (most severe stage within 30 days of positive test)

Characteristic	SARS-CoV-2-positive Veteran VHA Users				
	Mild (n=262,150)	**Moderate** (n=35,636)	**Severe** (n=11,253)	**Death** (n=8,293)	**Any level of COVID-19 severity** (317,332)
Age mean (SD)	55.1 (15.9)	67.0 (14.2)	67.2 (12.6)	74.9 (11.2)	57.3 (16.3)
Age median (Q1, Q3)	56.0 (42.0, 68.0)	69.0 (59.0, 76.0)	70.0 (60.0, 75.0)	74.0 (69.0, 82.0)	59.0 (44.0, 71.0)
Age, n (%)					
18-34	33,055 (12.6)	1,023 (2.9)	185 (1.6)	26 (0.3)	34,289 (10.8)
35-44	43,553 (16.6)	1,974 (5.5)	521 (4.6)	91 (1.1)	46,139 (14.5)
45-54	46,317 (17.7)	3,364 (9.4)	1,038 (9.2)	253 (3.1)	50,972 (16.1)
50-64	55,795 (21.3)	6,899 (19.4)	2,216 (19.7)	891 (10.7)	65,801 (20.7)
65-74	56,538 (21.6)	12,024 (33.7)	4,344 (38.6)	2,943 (35.5)	75,849 (23.9)
75-84	22,095 (8.4)	7,013 (19.7)	2,215 (19.7)	2,358 (28.4)	33,681 (10.6)
85+	4,797 (1.8)	3,339 (9.4)	734 (6.5)	1,731 (20.9)	10,601 (3.3)
Sex					
Male	226,822 (86.5)	33,417 (93.8)	10,719 (95.3)	8,101 (97.7)	279,059 (87.9)
Female	35,328 (13.5)	2,219 (6.2)	534 (4.8)	192 (2.3)	38,273 (12.1)
Primary Race, n (%)					
American Indian/Alaska Native	2,919 (1.1)	376 (1.1)	129 (1.2)	109 (1.3)	3,533 (1.1)
Asian	3,642 (1.4)	246 (0.7)	114 (1.0)	64 (0.8)	4,066 (1.3)
Black or African American	62,263 (24.0)	10,173 (28.8)	2,866 (25.8)	1,802 (22.0)	77,104 (24.6)
White	172,983 (66.7)	22,907 (64.9)	7,498 (67.4)	5,876 (71.7)	209,264 (66.7)
Unknown	17,470 (6.7)	1,608 (4.6)	523 (4.7)	348 (4.2)	19,949 (6.4)
Ethnicity, n (%)	27,437 (10.5)	2,908 (8.2)	1,071 (9.5)	647 (7.8)	32,063 (10.1)
Hispanic or Latino	219,245 (83.6)	31,209 (87.6)	9,701 (86.2)	7,316 (88.2)	267,471 (84.3)
Not Hispanic or Latino	15,468 (5.9)	1,519 (4.3)	481 (4.3)	330 (4.0)	17,798 (5.6)
Unknown	2,919 (1.1)	376 (1.1)	129 (1.2)	109 (1.3)	3,533 (1.1)
Charlson comorbidity index (CCI) in the 2 years prior to index date					
Mean (SD)	1.2 (1.8)	2.9 (2.7)	3.0 (2.7)	3.4 (2.8)	1.5 (2.1)
Median (Q1, Q3)	0.0 (0.0, 2.0)	2.0 (1.0, 4.0)	2.0 (1.0, 4.0)	3.0 (1.0, 5.0)	1.0 (0.0, 2.0)
CCI categories, n(%)					
CCI = 0	134,586 (51.3)	7,717 (21.7)	2,345 (20.8)	1,280 (15.4)	145,928 (46.0)
CCI = 1-2	83,833 (32.0)	11,494 (32.3)	3,615 (32.1)	2,496 (30.1)	101,438 (32.0)
CCI = 3-4	27,074 (10.3)	7,772 (21.8)	2,486 (22.1)	1,936 (23.3)	39,268 (12.4)
CCI >4	16,657 (6.4)	8,653 (24.3)	2,807 (24.9)	2,581 (31.1)	30,698 (9.7)

Table 7. Geographic distribution of COVID-19 severity status (most severe stage within 30 days of positive test)

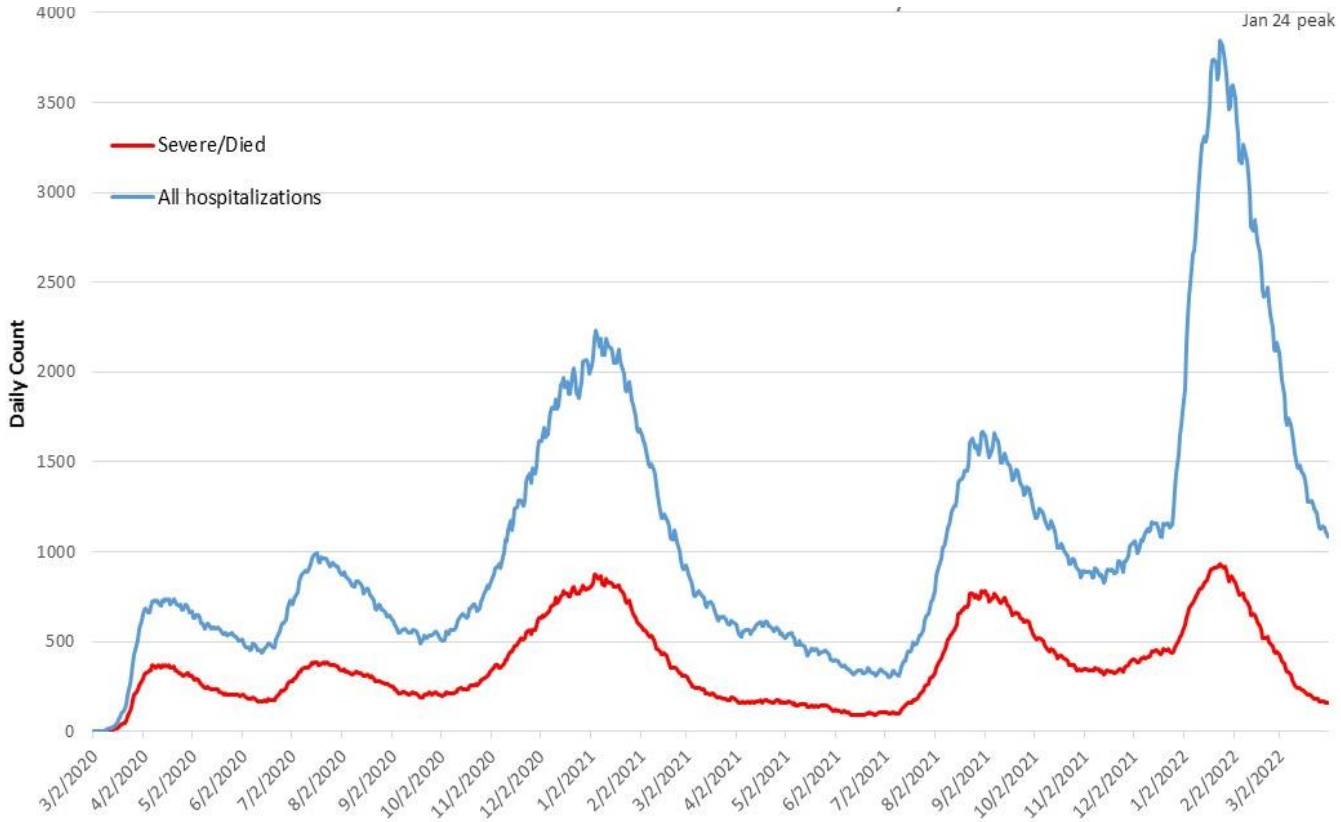
Characteristic	SARS-CoV-2-positive Veteran VHA Users				
	Mild (n=262,150)	**Moderate** (n=35,636)	**Severe** (n=11,253)	**Death** (n=8,293)	**Any level of COVID-19 severity** (317,332)
Region, n (%)					
Pacific	59,246 (22.6)	7,332 (20.6)	2,427 (21.6)	1,814 (21.9)	70,819 (22.3)
Continental	70,308 (26.8)	10,266 (28.8)	3,596 (32.0)	2,457 (29.6)	86,627 (27.3)
Southeast	98,522 (37.6)	13,123 (36.8)	3,847 (34.2)	2,893 (34.9)	118,385 (37.3)
Northeast	34,074 (13.0)	4,915 (13.8)	1,383 (12.3)	1,129 (13.6)	41,501 (13.1)
Veterans Integrated Services Network (VISN), n (%)					
1: VA New England Healthcare System	8,410 (3.2)	932 (2.6)	216 (1.9)	204 (2.5)	9,762 (3.1)
2: New York/New Jersey VA Health Care Network	9,626 (3.7)	1,781 (5.0)	518 (4.6)	465 (5.6)	12,390 (3.9)
4: VA Healthcare – VISN 4	10,231 (3.9)	1,183 (3.3)	392 (3.5)	264 (3.2)	12,070 (3.8)
5: VA Capitol Health Care Network	7,294 (2.8)	1,342 (3.8)	353 (3.1)	244 (2.9)	9,233 (2.9)
6: VA Mid-Atlantic Health Care Network	19,248 (7.3)	1,695 (4.8)	568 (5.1)	399 (4.8)	21,910 (6.9)
7: VA Southeast Network	17,408 (6.6)	2,437 (6.8)	873 (7.8)	568 (6.9)	21,286 (6.7)
8: VA Sunshine Healthcare Network	27,795 (10.6)	3,743 (10.5)	970 (8.6)	731 (8.8)	33,239 (10.5)
9: VA Midsouth Healthcare Network	11,881 (4.5)	2,390 (6.7)	582 (5.2)	549 (6.6)	15,402 (4.9)
10: VA Healthcare System Serving Ohio, Indiana and Michigan	20,247 (7.7)	2,502 (7.0)	754 (6.7)	586 (7.1)	24,089 (7.6)
12: VA Great Lakes Health Care System	10,181 (3.9)	1,864 (5.2)	548 (4.9)	323 (3.9)	12,916 (4.1)
15: VA Heartland Network	13,483 (5.1)	1,646 (4.6)	548 (4.9)	464 (5.6)	16,141 (5.1)
16: South Central VA Health Care Network	16,446 (6.3)	2,462 (6.9)	852 (7.6)	653 (7.9)	20,413 (6.4)
17: VA Heart of Texas Health Care Network	14,533 (5.5)	2,379 (6.7)	912 (8.1)	451 (5.4)	18,275 (5.8)
19: Rocky Mountain Network	14,732 (5.6)	1,646 (4.6)	668 (5.9)	477 (5.8)	17,523 (5.5)
20: Northwest Network	7,571 (2.9)	738 (2.1)	245 (2.2)	178 (2.2)	8,732 (2.8)
21: Sierra Pacific Network	15,425 (5.9)	1,734 (4.9)	718 (6.4)	451 (5.4)	18,328 (5.8)
22: Desert Pacific Healthcare Network	24,156 (9.2)	3,711 (10.4)	1,112 (9.9)	890 (10.7)	29,869 (9.4)
23: VA Midwest Health Care Network	13,483 (5.1)	1,451 (4.1)	424 (3.8)	396 (4.8)	15,754 (5.0)

Figure 2. Daily count of hospitalized SARS-CoV-2-positive Veterans with severe COVID-19 on that day or recovering in the hospital after being severe



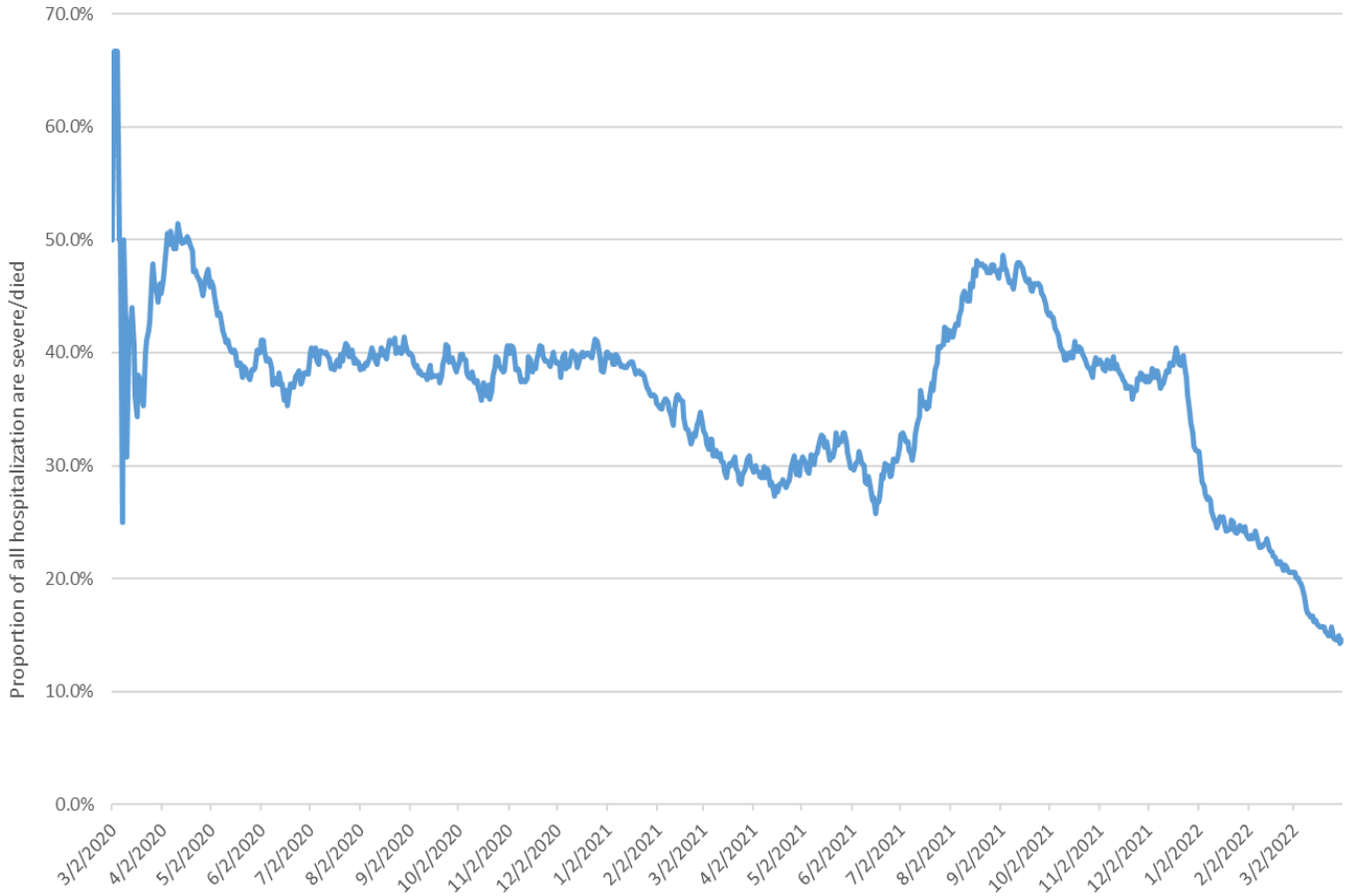
Excludes long-term care. Daily status is from the first positive test result through discharge or death.

Figure 3. Daily count of hospitalizations, severe cases, and deaths among SARS-CoV-2-positive Veterans



Excludes long-term care. Daily status is from the first positive test result through discharge or death.

Figure 4. Proportion of all hospitalized SARS-CoV-2-positive Veterans that are severe or died on that day



5 Notes on Interpretation

The fact sheet is intended to provide a snapshot of the Veteran patient population and to serve as a springboard for further discussion and research. No methods were applied to adjust for confounding or other biases. Therefore, no conclusions can be drawn from these results. Gaining such insights requires research using appropriate methods to control for confounding and other biases.

The following limitations should be noted when reviewing these data:

- While data on non-VA SARS-CoV-2 testing are available in the CSDR, the results here are restricted to tests performed at a VA medical center. The data do not all events, such as non-VA hospitalizations and out-of-hospital deaths following discharge.
- There is no way to fully differentiate high-and low-flow oxygen in the EHR data. Patients were categorized as high-flow oxygen recipients if their records included an oxygen procedure code and a note mentioning a high-flow oxygen mask manufacturer.
- Results are affected by secular trends in testing, vaccination, and SARS-CoV-2 viral variants.
- Limitations inherent to the EHR data include variations in coding practices and diagnostic approaches, which may result in data discrepancies across facilities.
- The fact sheet presents information on Veterans using VHA health care services and are not generalizable to other US Veterans or COVID patients more broadly.

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