

Patterns and Trends in COVID-19 Severity

June 2022

Fact Sheet: Data on Veterans Using VA Health Care

CSPEAR provides timely epidemiologic information on VA health care users. This fact sheet presents summary data to inform a broad community of VA leaders, investigators, and clinicians as they consider how best to address the needs of Veterans.

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 increased vaccine coverage. This fact sheet presents data on COVID-19 disease severity in Veterans who use the VA health care system.

Methods

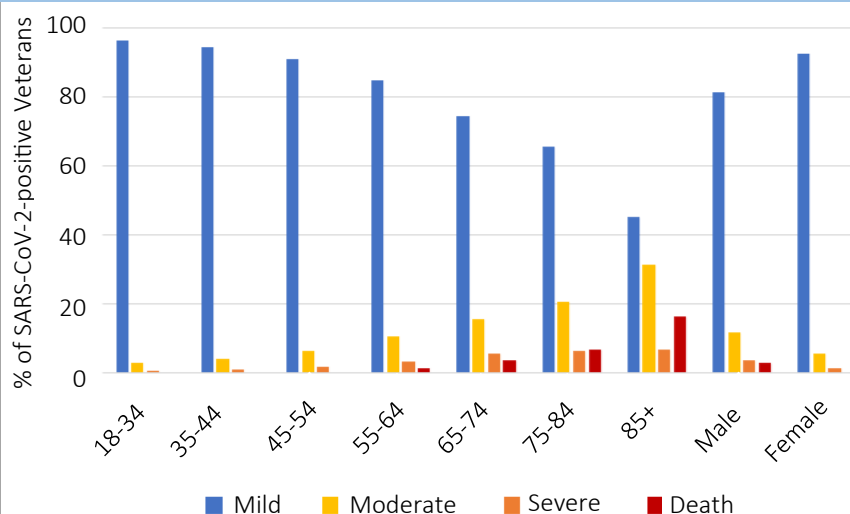
Data Source: Data were pulled from the VA Corporate Data Warehouse and the VA COVID-19 Shared Data Resource (CSDR).¹

Population: Veterans with a valid positive test for SARS-CoV-2 infection performed at a VA medical center, whose index date* fell between 03/01/2020 and 03/31/2022 (N=317,332). Veterans were categorized based on their most advanced stage of COVID-19 disease reached within 30 days of the index date (*see Definitions). Veterans were excluded if they were in a long-term care facility prior to SARS-CoV-2 testing. COVID-19 testing data were unavailable for 2 sites following the transition to the Cerner electronic health record (EHR) system: Spokane, WA (10/24/2020) and Walla Walla, WA (03/26/2022). **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). It was supported with resources of 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.

Fast Facts

- Most SARS-CoV-2-positive Veterans had mild disease. This finding was observed across age, sex, race, and ethnicity groups, with the exception of Veterans ≥85 years old.
- The proportion of Veterans suffering severe disease or death was higher in males and increased with age and comorbidity burden.
- Mild cases were highest in Asian Veterans. Other variations in disease severity by race and ethnicity were relatively small.
- VA hospitalizations, severe disease, and deaths among SARS-CoV-2-positive Veterans follow US trends.⁴ These outcomes peaked with each pandemic wave and were highest in late Jan 2022 during the omicron variant wave.
- Over time, severe illness and death decreased across all Veterans Integrated Services Networks (VISN). In the 2nd quarter of 2020, the highest severity burden was found in VISNs 2, 5, 12, 21, and 23. One year later, this shifted to VISNs 2, 7, 17, and 22. By early 2022, all VISNs had ≤5% of COVID-19 cases reaching severe illness or death.

COVID-19 Severity Distribution by Age and Sex



Definitions

COVID-19 Severity Categories

Severity of illness was quantified using the CSDR variable 'PatientState30d'² adapted from the VA Severity Index for COVID-19 (VASIC).³

- **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

Index date: 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.

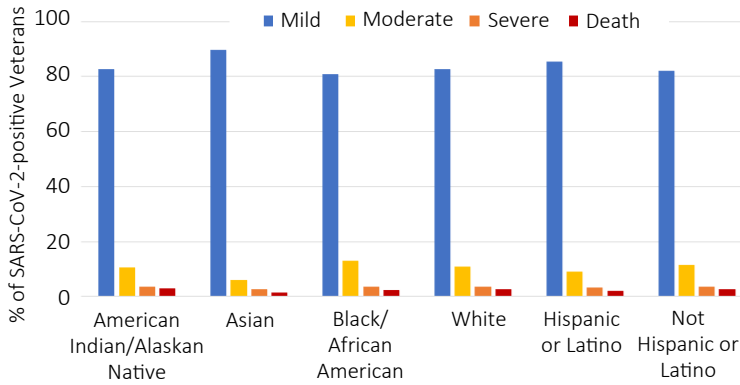
Visit [CSPEAR's website](https://www.va.gov/cspear) or contact CSPEAR@va.gov for more information.

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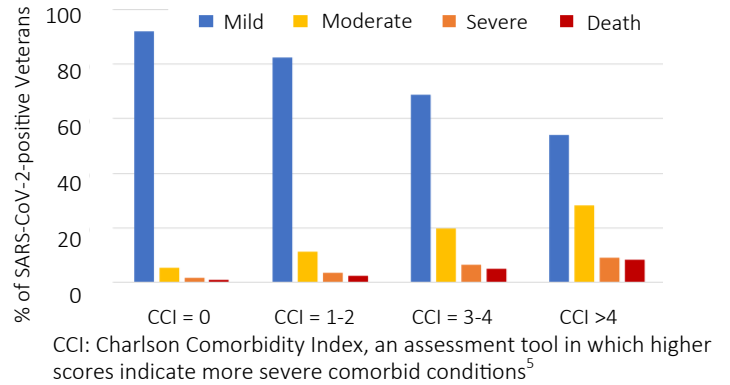


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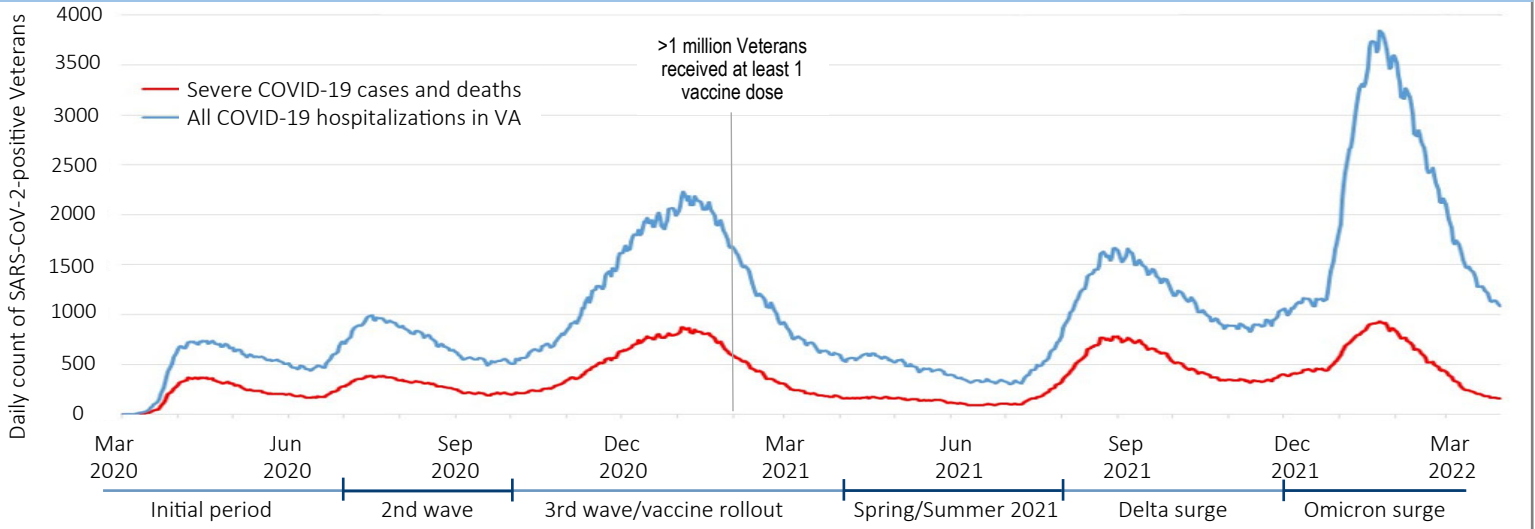
COVID-19 Severity Distribution by Race and Ethnicity



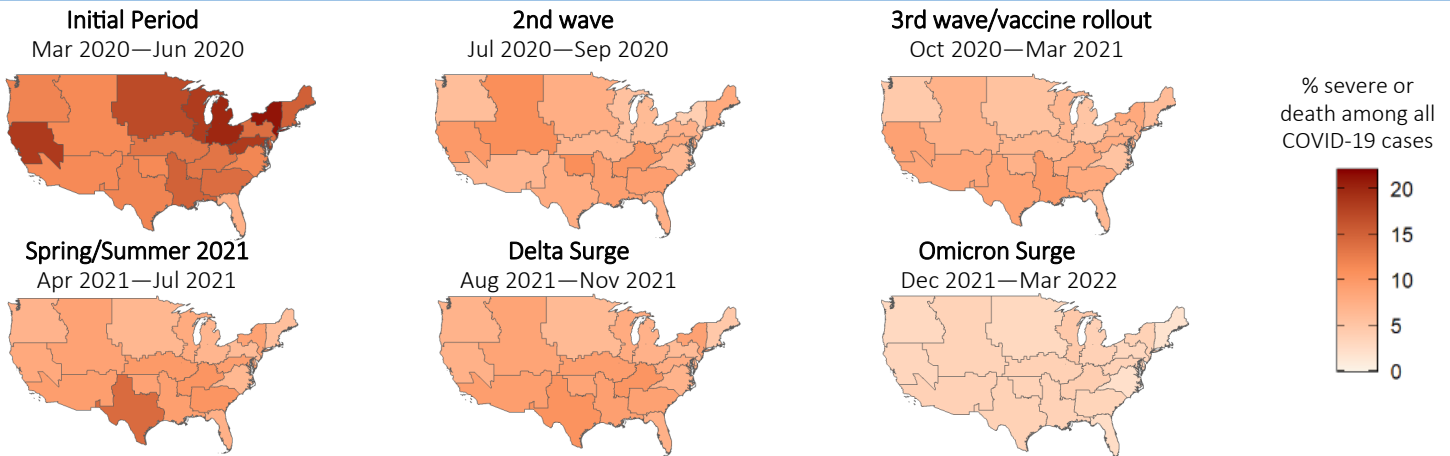
COVID-19 Severity Distribution by Comorbidity



Daily Hospitalizations, Severe Disease, and Deaths among SARS-CoV-2-Positive Veterans



Geographic Distribution of SARS-CoV-2-Positive Veterans with Severe Disease or Death



Maps show distribution by VISN. Not shown - VISN 20: Alaska; VISN 21: Hawaii, Philippines, Guam, American Samoa; VISN 8: Puerto Rico, Virgin Islands

Limitations and Challenges

- 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.

References and Resources

1. VA CSDR. https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/COVID-19:Shared_Data_Resource. Accessed 05/04/2022.
2. [COVID-19:ORDCovid PostIndexCOVIDSeverity](#). Accessed 05/16/2022.
3. Galloway A, et al. [Impact of COVID-19 Severity on Long-term Events in US Veterans using the Veterans Affairs Severity Index for COVID-19 \(VASIC\)](#), 2022 May 5. *J Infect Dis*. 2022;jjac182.
4. [CDC COVID Data Tracker Weekly Review](#). Accessed 05/04/2022.
5. Charlson ME, et al. [A new method of classifying prognostic comorbidity in longitudinal studies: development and validation](#). *J Chronic Dis*. 1987;40:373-383.