

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Temporal Trends of COVID-19 Mortality and Hospitalization Rates: An observational cohort study from the US Department of Veterans Affairs
AUTHORS	Cai, Miao; Bowe, Benjamin; Xie, Yan; Al-Aly, Ziyad

VERSION 1 – REVIEW

REVIEWER	Guoqing Wang Jilin University
REVIEW RETURNED	24-Dec-2020

GENERAL COMMENTS	<p>The manuscript “Temporal Trends of COVID-19 Mortality and Hospitalization Rates: An observational cohort study from the US Department of Veterans Affairs” submit by Miao Cai, et al. is reported that the 30-day mortality rate and hospital stay trend in the United States, the 30-day mortality rate of veterans with COVID-19 and hospitalized COVID-19 veterans in each state; and break down the impact Contribution of changes in the basic characteristics of the population to these changes over time.</p> <p>This manuscript does not have enough scientific significance. From the selection of samples to the final analysis, I don’t think the results can be used to inform effort to optimize the collective public health response to this ongoing pandemic.</p>
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REVIEWER	Bruno Masquelier Catholic Univ Louvain
REVIEW RETURNED	08-Jan-2021

GENERAL COMMENTS	<p>This article is well written and presents with clarity the trends in mortality and hospitalization rates of veterans in the United States. I have only a few comments that I hope will strengthen the article.</p> <p>1) One element that I feel is missing to grasp the scope of this study is a summary comparison of the general population and veterans. How does the veteran population differ from the general U.S. population? For example, in terms of age, race, pre-existing conditions, smoking, etc.? The fact that they are disproportionately older white males is mentioned, but a more systematic comparison using a few indicators would be welcome.</p> <p>2) Supplementary Table 1 indicates that the use of UCI, mechanical ventilation and LOS decreased over the period. However, it is difficult to make sense of this decline as it may reflect a decreased use of these care resources, as noted in the text, or a triage effect where veteran patients had less access to these services as other segments of the population, perhaps younger, competed for the same resources as the pandemic progressed. Is this a plausible</p>
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	<p>explanation?</p> <p>Minor Comments</p> <ul style="list-style-type: none"> - in each 30-day interval between March 20, 2020 and September 19, 2020" - this is a bit confusing as March 20 is the start of the first interval, and Sep 19 is the end of the second interval considered in Figure 2A/B. Could you revise? For example, "in each 30-day interval after March 20, 2020 and August 20, 2020". - In both of two cohorts over time" do you mean when comparing the two cohorts (over time)? - I don't understand why the testing capacity is calculated by dividing the number of tests by the number of veterans served by this hospital. Why is the number of veterans involved here, and not, for example, the total number of patients served by the hospital (unless you didn't have access to such data)?
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

The manuscript “Temporal Trends of COVID-19 Mortality and Hospitalization Rates: An observational cohort study from the US Department of Veterans Affairs” submit by Miao Cai, et al. is reported that the 30-day mortality rate and hospital stay trend in the United States, the 30-day mortality rate of veterans with COVID-19 and hospitalized COVID-19 veterans in each state; and break down the impact Contribution of changes in the basic characteristics of the population to these changes over time.

This manuscript does not have enough scientific significance. From the selection of samples to the final analysis, I don't think the results can be used to inform effort to optimize the collective public health response to this ongoing pandemic.

Our response: Thank you for your review of this manuscript.

Reviewer: 2

This article is well written and presents with clarity the trends in mortality and hospitalization rates of veterans in the United States. I have only a few comments that I hope will strengthen the article.

1) One element that I feel is missing to grasp the scope of this study is a summary comparison of the general population and veterans. How does the veteran population differ from the general U.S. population? For example, in terms of age, race, pre-existing conditions, smoking, etc.? The fact that they are disproportionately older white males is mentioned, but a more systematic comparison using a few indicators would be welcome.

Our response: Thank you for the suggestion. We have added the following comparison to the Discussion section in our revised manuscript. We hope that this statement would help potential readers gain a better understanding of the differences between the US Veteran population and the general population.

“While we investigated the temporal trends of COVID-19 mortality and hospitalization rates within the US Veteran population, some important differences between our cohort and the general US population are noteworthy to better contextualize the broader implications of our findings; in our cohort the median age was 63.6 years, the percentages of White and Black race were 60.6% and 33.9%, 11.5% were women, and 17.6% were current smokers; whereas the median age is 38.1 years, the percentages of White and Black race are 60.1% and 13.4%, 50.8% are women, and 13.7% are current smokers in the US general population.”

2) Supplementary Table 1 indicates that the use of ICU, mechanical ventilation and LOS decreased over the period. However, it is difficult to make sense of this decline as it may reflect a decreased use of these care resources, as noted in the text, or a triage effect where veteran patients had less access to these services as other segments of the population, perhaps younger, competed for the same resources as the pandemic progressed. Is this a plausible explanation?

Our response: Thank you for your suggestion. This study includes all the US Veterans who were treated in the VA hospitals, in which non-VA patients will not seek care. Therefore, it is unlikely that the decline of medical resource use can be explained by triage effect or competing effect from other sources of patients.

Minor Comments

- in each 30-day interval between March 20, 2020 and September 19, 2020" - this is a bit confusing as March 20 is the start of the first interval, and Sep 19 is the end of the second interval considered in Figure 2A/B. Could you revise? For example, "in each 30-day interval after March 20, 2020 and August 20, 2020".

Our response: Thank you for your suggestion. We have revised the sentence for clarity.

- In both of two cohorts over time" do you mean when comparing the two cohorts (over time)?

Our response: Yes. To increase the clarity of the sentence, we have revised this sentence into “In both of two cohorts, the percent of individuals living in disadvantaged neighborhood (higher ADI) and COVID-19 testing capacity were increasing over time, while hospital occupancy was decreasing.”

- I don't understand why the testing capacity is calculated by dividing the number of tests by the number of veterans served by this hospital. Why is the number of veterans involved here, and not, for example, the total number of patients served by the hospital (unless you didn't have access to such data)?

Our response: Thank you for your comment. Because we are exclusively studying the temporal trend in the veteran population, non-veterans are not included in our sample. Therefore, the number of veterans served by the hospital is equivalent to the number of patients served by the hospital.

VERSION 2 – REVIEW

REVIEWER	Bruno Masquelier Catholic Univ Louvain
REVIEW RETURNED	06-Apr-2021
GENERAL COMMENTS	Thanks for revising the paper and responding to my questions.