

LETTERS TO THE EDITOR

RESEARCH

Trends in 30-day mortality from COVID-19 among older adults in the Veterans Affairs system

INTRODUCTION

The brunt of mortality related to coronavirus disease 2019 (COVID-19) has been borne by older adults. In the United States, over 80% of all COVID-19 deaths have been among people over the age of 65 years.¹ Likewise, Centers for Disease Control data show a dramatic age-associated rise in case fatality rates among individuals admitted for COVID-19, from 2.1% for those aged 18–49 to 20% for those aged 65 and older.² Over time, however, there has been a trend toward lower case fatality rates among individuals hospitalized for COVID-19.³ Whether this has held among older patients has implications for the effectiveness of changes in care among those at the highest risk for adverse outcomes from COVID-19. We present temporal trends in COVID-19 mortality for individuals hospitalized in the Veterans Affairs (VA) Health Care System.

METHODS

Data were obtained from the VA Corporate Data Warehouse. Hospitalizations for COVID-19 were defined as new hospitalization in a VA hospital within 30 days after a positive COVID-19 Polymerase Chain Reaction test or a positive COVID-19 PCR during an ongoing hospitalization. All veterans admitted to any VA hospital across the United States from March 1 to November 30, 2020, and who were aged 65 and older at time of their positive COVID-19 test were eligible for inclusion in this study.

Trends in 30-day mortality by month of admission and by age category (65–74, 75–84, and 85+) were examined using the Cochran–Armitage test for trend. The impact of time on mortality was assessed using logistic regression with adjustment for age, sex, race, region, Charlson Comorbidity Index, and Systemic Inflammatory Response Syndrome criteria. Analysis was conducted in SAS, version 9.4.6. IRB approval was obtained from the Boston VA Health Care System. This work was funded by the VA, which did not have a role in study design, analysis, or reporting of results.

RESULTS

The final sample included 11,162 veterans, mean age was 76 (SD 7.8) years, and 98% were male (see Table S1 and Figure S1). Over 9 months, the average 30-day mortality rate was 19.2%, starting at 32% in March and declining to 16.8% in November. Figure 1 shows trends in 30-day mortality by month of admission for veterans admitted for COVID-19 according to age category. The overall trend demonstrated a significant decline in the 30-day mortality proportion ($p < 0.001$, Table S2), which remained significant for all age groups. The greatest proportion of this decline occurred between March and May. Adjusted odds ratios (95% CIs) for mortality by month of admission are 0.91 (0.89–0.93) overall and 0.907 (0.881–0.935) for those aged 65–74, 0.95 (0.92–0.98) for those aged 75–84, and 0.871 (0.84–0.91) for those 85+ years.

DISCUSSION

As with the general population, in a cohort of older adults, even the oldest olds (aged 85 and older) hospitalized with COVID-19 in the VA system have realized a significant and linear decline in 30-day mortality. The disparity in mortality outcome among age groups also seems to have decreased, although it remains. Compared with data representing all ages from three health systems in New York, mortality rates in this national older population are approximately 1.5- to 2-fold greater, although the comparator study considered in-hospital rather than 30-day mortality.³ These are also similar to age-adjusted 28-day mortality trends in England.⁴ Improvements in mortality over the first 10 months of the pandemic may reflect improved care for all hospitalized patients, for which even the oldest olds have benefitted as well. Given that older individuals do not always see the same benefit, and may even experience harm, from interventions in younger people, these data are reassuring. Which interventions may be driving these trends is unknown, as the largest declines occurred before the preliminary results of the Randomised Evaluation of COVID-19 Therapy trial and the approval of remdesivir.^{5–7} The

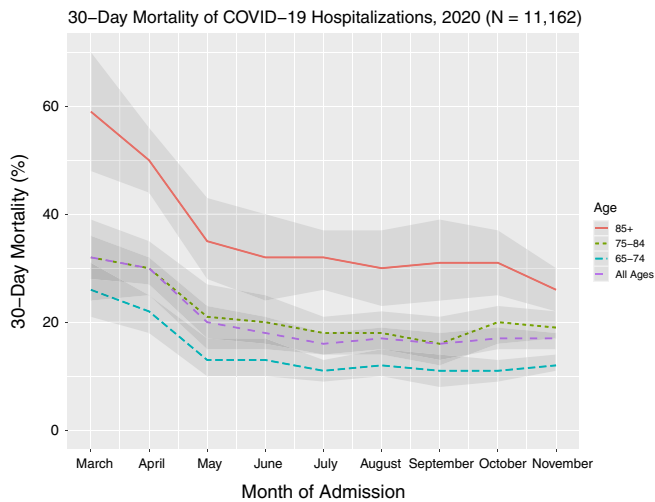


FIGURE 1 Time trend of 30-day mortality proportion by month of admission among veterans admitted to the VAHCS with COVID-19, March 1–November 30, 2020, according to age category. Shaded areas are 95% confidence intervals

then-growing availability of data from China and Europe, which had earlier experience with COVID-19, likely helped guide care, such as avoiding early intubation and prone positioning.⁸ It is possible that improved masking and adherence to physical distancing lowered inoculum and subsequent disease intensity. Residual confounding remains a possible explanation, even with adjustment for comorbidity in particular. Despite declines in 30-day mortality reported, individuals aged 85 and older remain at the highest risk of mortality from COVID-19. Focused attention to improving outcomes by specifically studying interventions for this age group remains an imperative.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to report.

AUTHOR CONTRIBUTIONS

Benjamin Seligman and Ariela R. Orkaby designed the study with input from David R. Gagnon. Brian Charest developed the cohort, and Brian Charest and Benjamin Seligman conducted the analysis. Benjamin Seligman drafted the manuscript. All authors reviewed and revised the manuscript.

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Why Does This Paper Matter?

Although declines in COVID-19 mortality have occurred even among the oldest people hospitalized, reducing age-based disparities in outcomes remains an important task.

SPONSOR'S ROLE

The sponsor had no role in the design, analysis, and reporting of results of this study.

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Post-acute care nursing home deaths in the COVID era: Potential for attribution bias

INTRODUCTION

Nursing home demographics and services have changed in the last few decades as more community residing patients receive short-term post-acute hospital services in nursing facilities typically perceived as caring for functionally dependent long-term care older individuals.¹

During the initial wave of COVID-19 illness in the spring of 2020 in New York State, nursing homes came under scrutiny due to large numbers of deaths and therefore to concerns related to appropriate facility preparedness and infection control practices.² However, deaths in the nursing home may have occurred among community residing patients transferred from hospitals with serious illness requiring hospitalization and subsequent post-acute nursing home based care. Therefore, deaths of these latter patients in the nursing home may add to the impression of poor care and/or lack of appropriate preparedness or infection control practices.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

Data S1 Cohort characteristics and details from results: contains information on cohort construction and characteristics as well as detailed results from statistical test for trend.

Figure S1 Diagram outlining creation of analytic cohort of older adults admitted for COVID-19 in the Veterans Affairs Health Care System.

Table S1. Baseline characteristics of 11,162 veterans aged ≥65 years admitted with COVID-19 to the Veterans Affairs Health Care System, March 1–November 30, 2020.

Table S2. Cochran–Armitage test of trend results for change in 30-day mortality among veterans admitted to the VAHCS with COVID-19, March 1–November 30, 2020, by age category.

We describe excess mortality within nursing homes among patients transferred from our hospital during the COVID-19 pandemic.

METHODS

NYU Langone Hospital—Long Island (formerly known as Winthrop University Hospital) has a robust post-acute care network consisting of six affiliated local skilled nursing facilities.

Between March 1 and May 31, 2020 NYU Langone Hospital—Long Island admitted and transferred 447 patients to any skilled nursing facility (SNF) for post-acute care. Of these 447 patients, 196 were transferred to one of these six affiliated facilities.

We report the number of deaths during this time among the patients transferred to one of the six affiliated facilities. This period of widespread COVID-19 activity was consistent with that reported for New York City.³ This timeframe is compared to the same 3-month periods for 2018 and 2019.