

# COVID-19 Mortality Rate Trends in Countries and US States

Joel Elvery

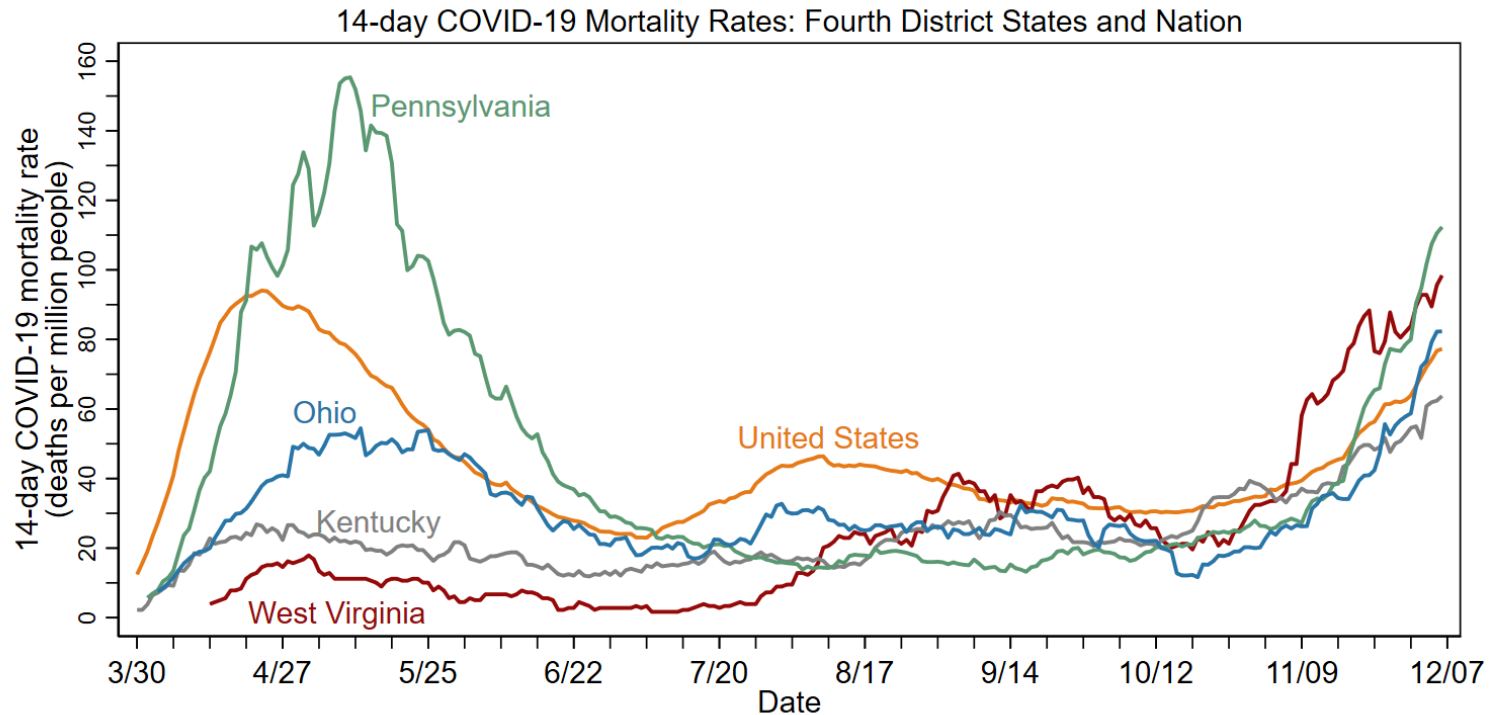
Mark Oleson

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- The charts in this presentation use the same data sources as the charts in two April 2020 District Data Briefs. Please see these reports for additional details.
  - [Getting to Accuracy: Measuring COVID-19 by Mortality Rates and Percentage Changes](#)
  - [A Speeding Rate Starts to Slow: COVID-19 Mortality Rates by State](#)
- Since those reports were completed, additional evidence shows that COVID-19 deaths have been underreported, both in other countries and in the United States. The following charts present the latest data from the Center for Systems Science and Engineering at Johns Hopkins University (CSSE) through December 6, with no attempt to further correct for underreporting.
  - Some large revisions in COVID-19 data have been smoothed. See slide 9 for details.
- The charts have been modified from those in the reports to better convey the current status of the COVID-19 epidemic in the United States.
- Hospitalization rate charts use data from the COVID Tracking Project at *The Atlantic*.
- All dates in this presentation refer to the year 2020.

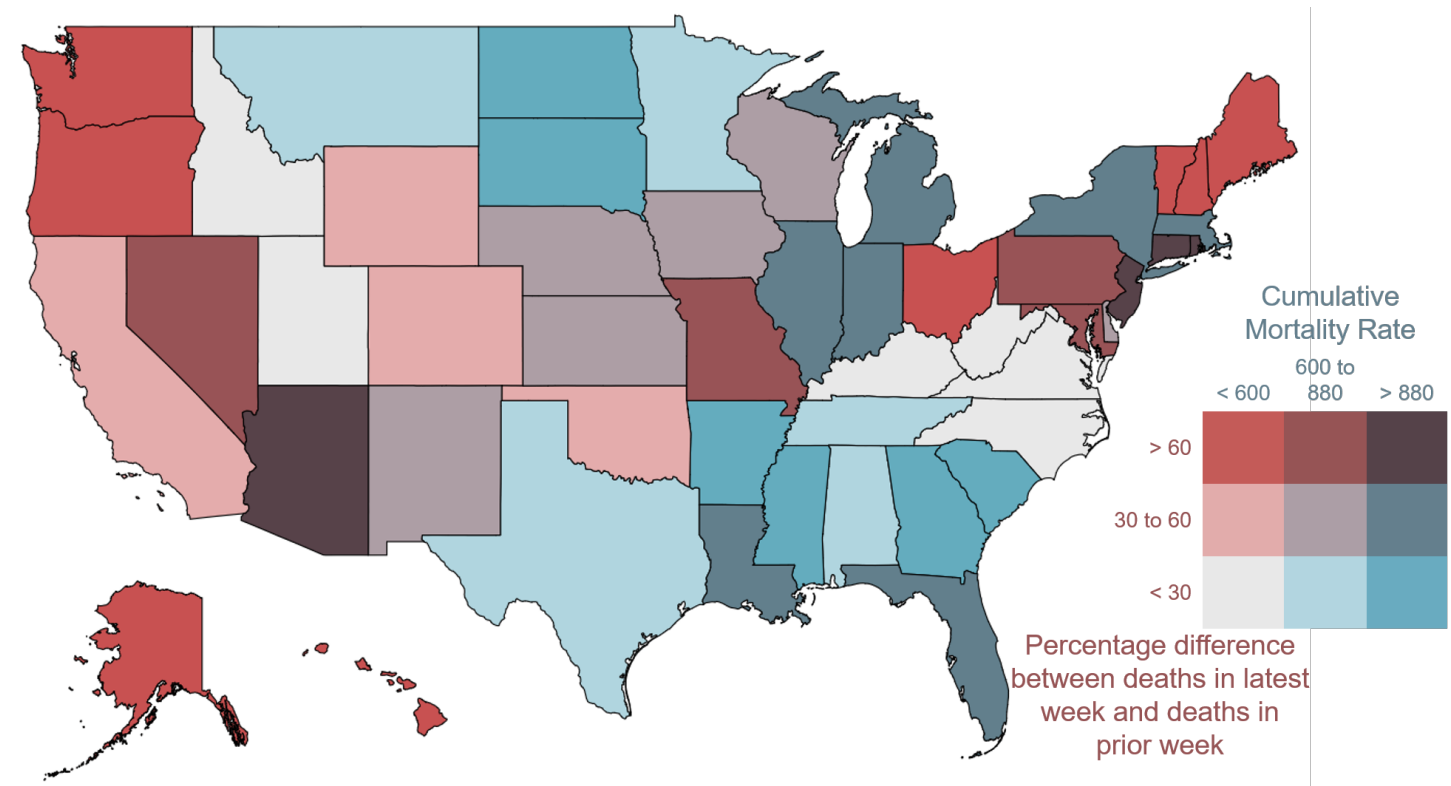
In the two weeks leading up to December 6, the 14-day COVID-19 mortality rate rose in all Fourth District states and in the United States as a whole.



Note: Data through December 6, 2020.

Sources: FRBC calculations, the Center for Systems Science and Engineering at Johns Hopkins University, and Bureau of Economic Analysis.

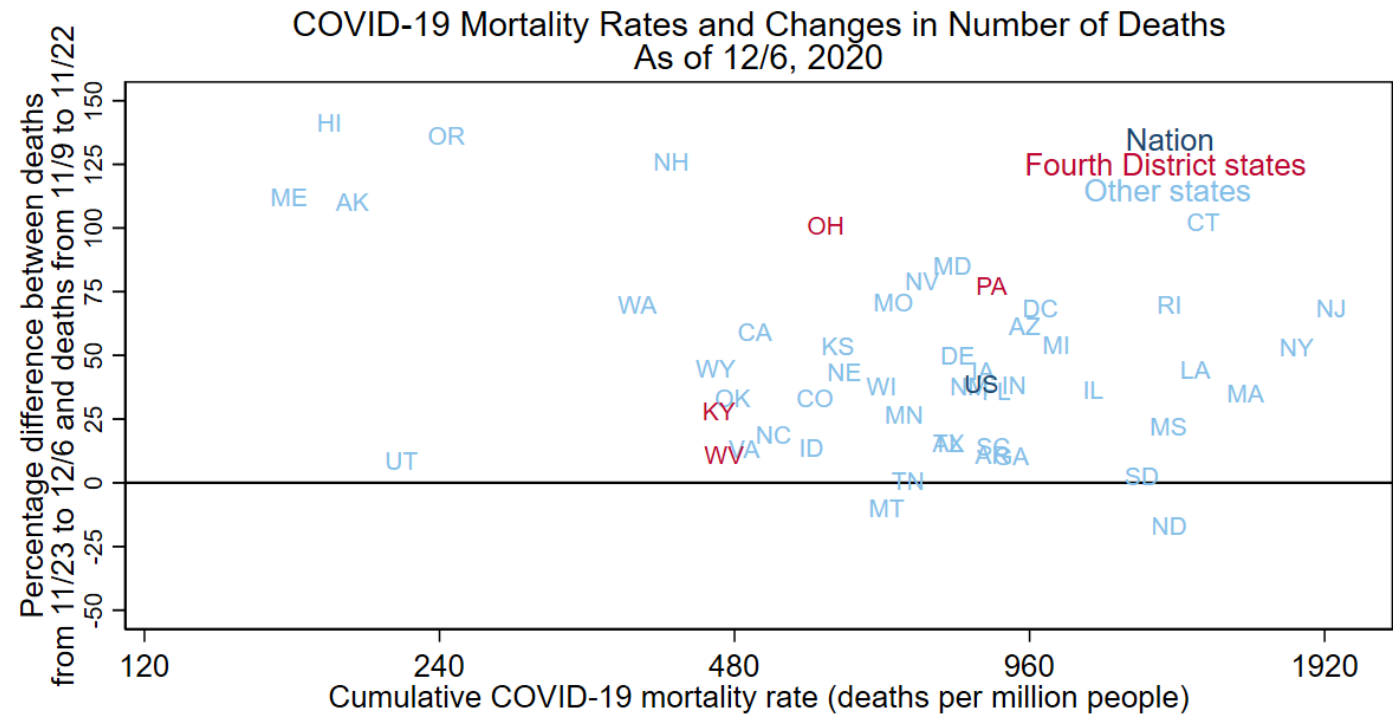
Between November 23 and December 6, the 14-day COVID-19 mortality rate fell in Montana and North Dakota, but it rose in every other state.



Data for December 6, 2020, accessed on December 7, 2020.  
“Latest two weeks” is 11/23 to 12/6, “prior two weeks” is 11/9 to 11/22.  
Sources: FRBC calculations, CSSE, and BEA.

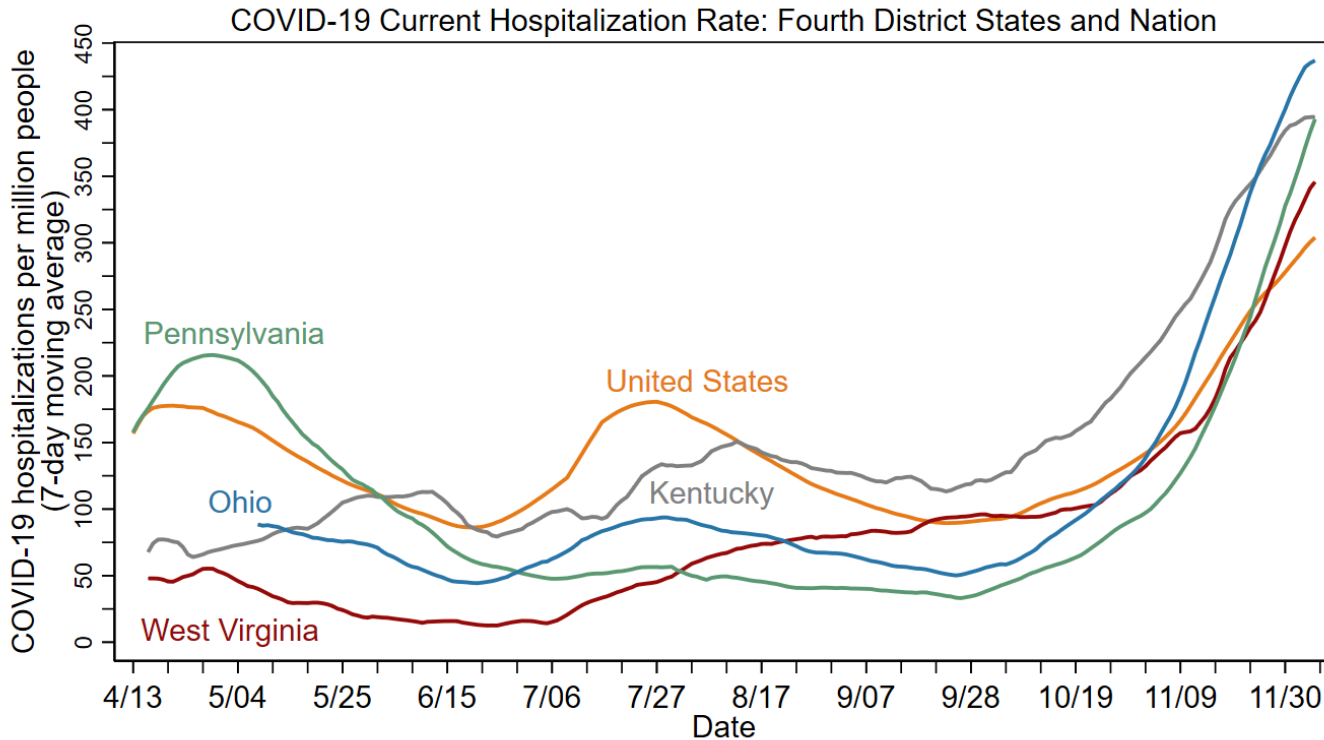
Notes: The District of Columbia is in the bin with mortality rate > 880 and percentage difference > 60 percent. The color bins on this map are changed with each update to better represent the latest data.

This chart gives similar information to the map, but it is more precise and includes the nation as a whole.



Notes: Horizontal axis has log scale.  
VT is excluded as the state's two-week deaths increased by more than 150 percent.  
Sources: FRBC calculations, the Center for Systems Science and Engineering at Johns Hopkins University, and Bureau of Economic Analysis.

COVID-19 hospitalizations tend to presage COVID-19 mortalities. The continued rise in hospitalization rates suggests that mortality rates will rise in Fourth District states and the United States in the weeks ahead.

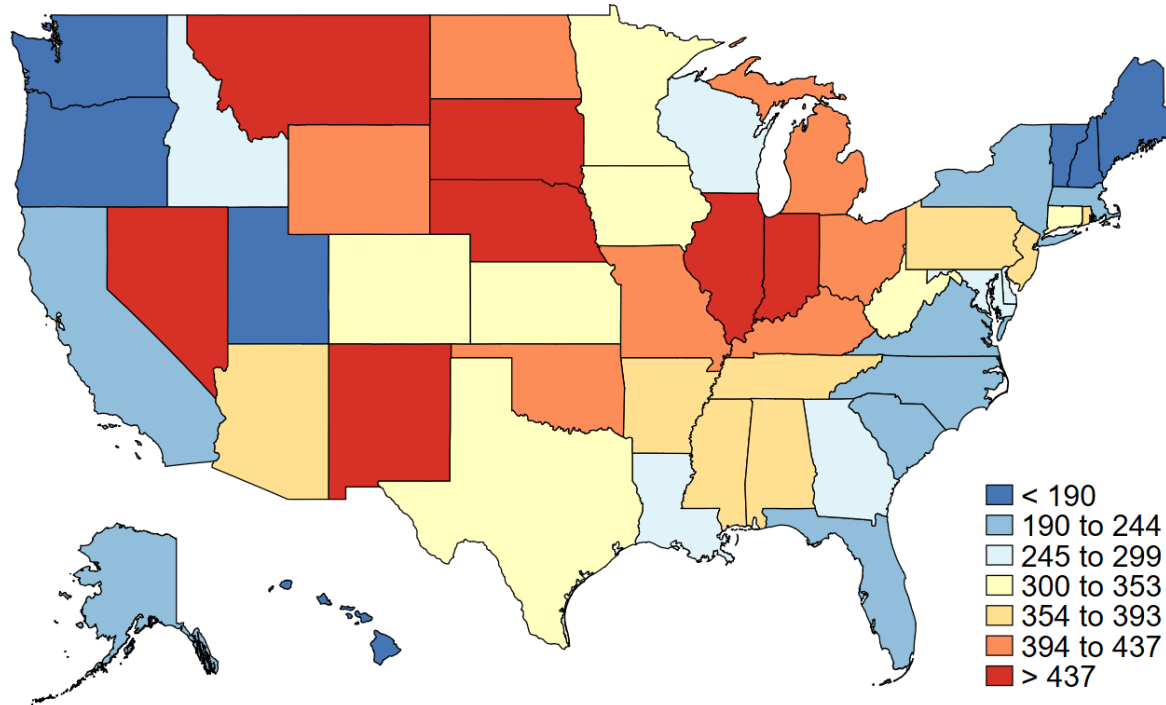


Note: Data through December 6, 2020.

Sources: FRBC calculations, the COVID Tracking Project at *The Atlantic*, and BEA.

In the week leading up to December 6, hospitalization rates were highest in the Midwest and Plains states and lowest along the East and West coasts.

COVID-19 Hospitalizations per Million People,  
7-day moving average as of December 6, 2020.

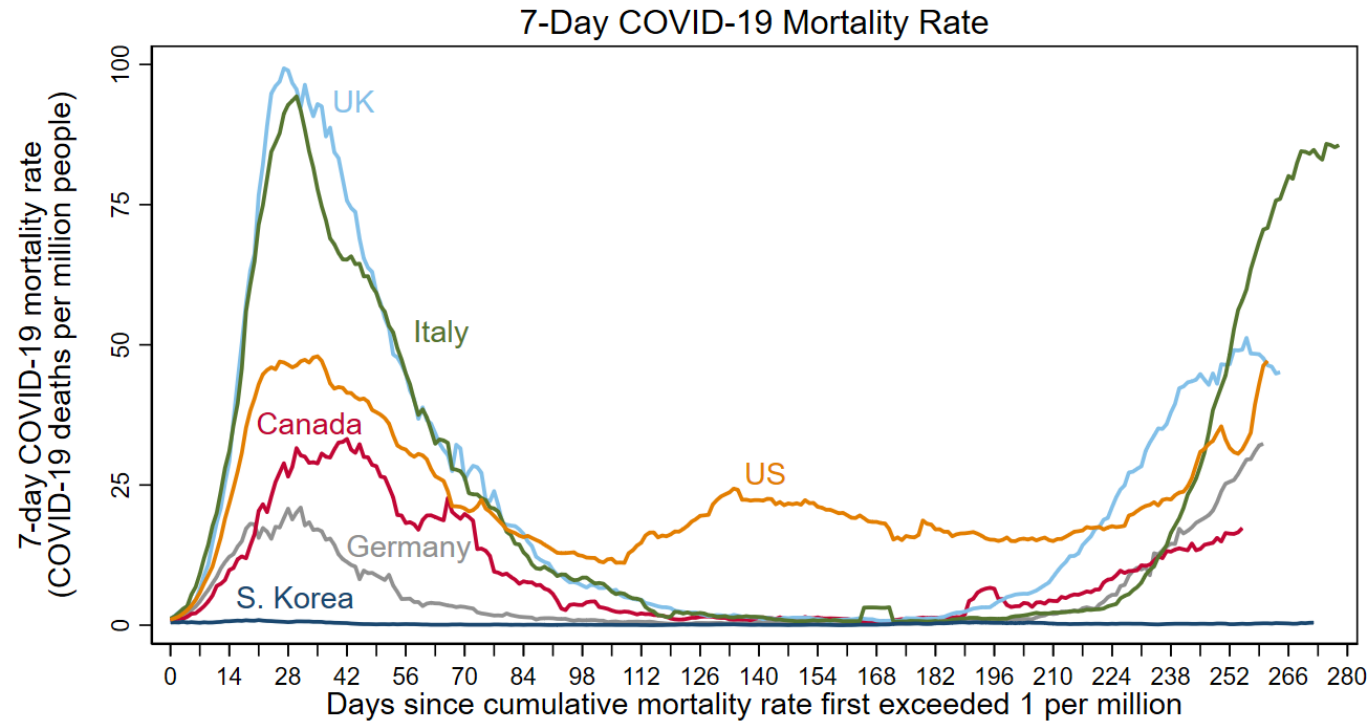


Notes: The District of Columbia is in the bin with a hospitalization rate between 245 and 299. The color bins on this map are changed with each update to better represent the latest data.

Data for December 6, 2020, accessed on December 7, 2020.

Sources: FRBC calculations, the COVID Tracking Project at *The Atlantic*, and BEA.

The 7-day COVID-19 mortality rate in the United States rose in the past week. The US 7-day mortality rate is above that of Germany and that of the UK.

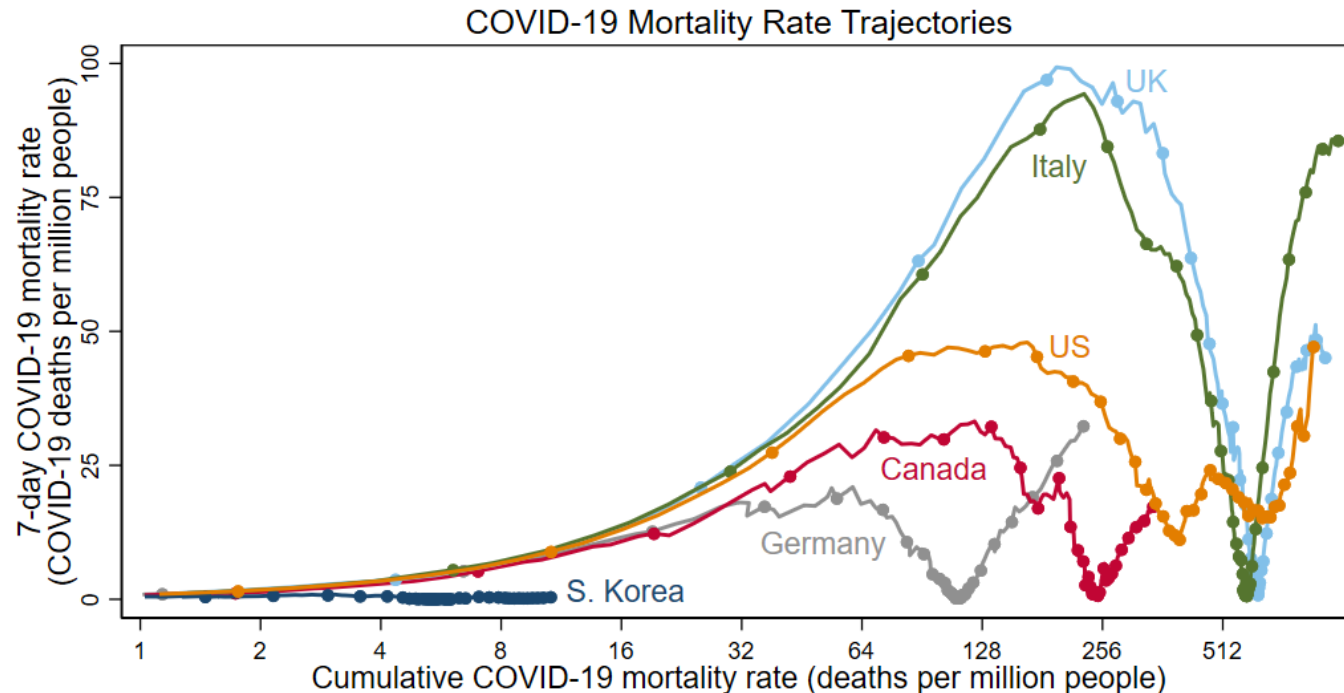


Notes: 3/22/2020 was first day US rate > 1. Data through 12/6/2020.

Sources: FRBC calculations, the Center for Systems Science and Engineering at Johns Hopkins University, and the World Bank.



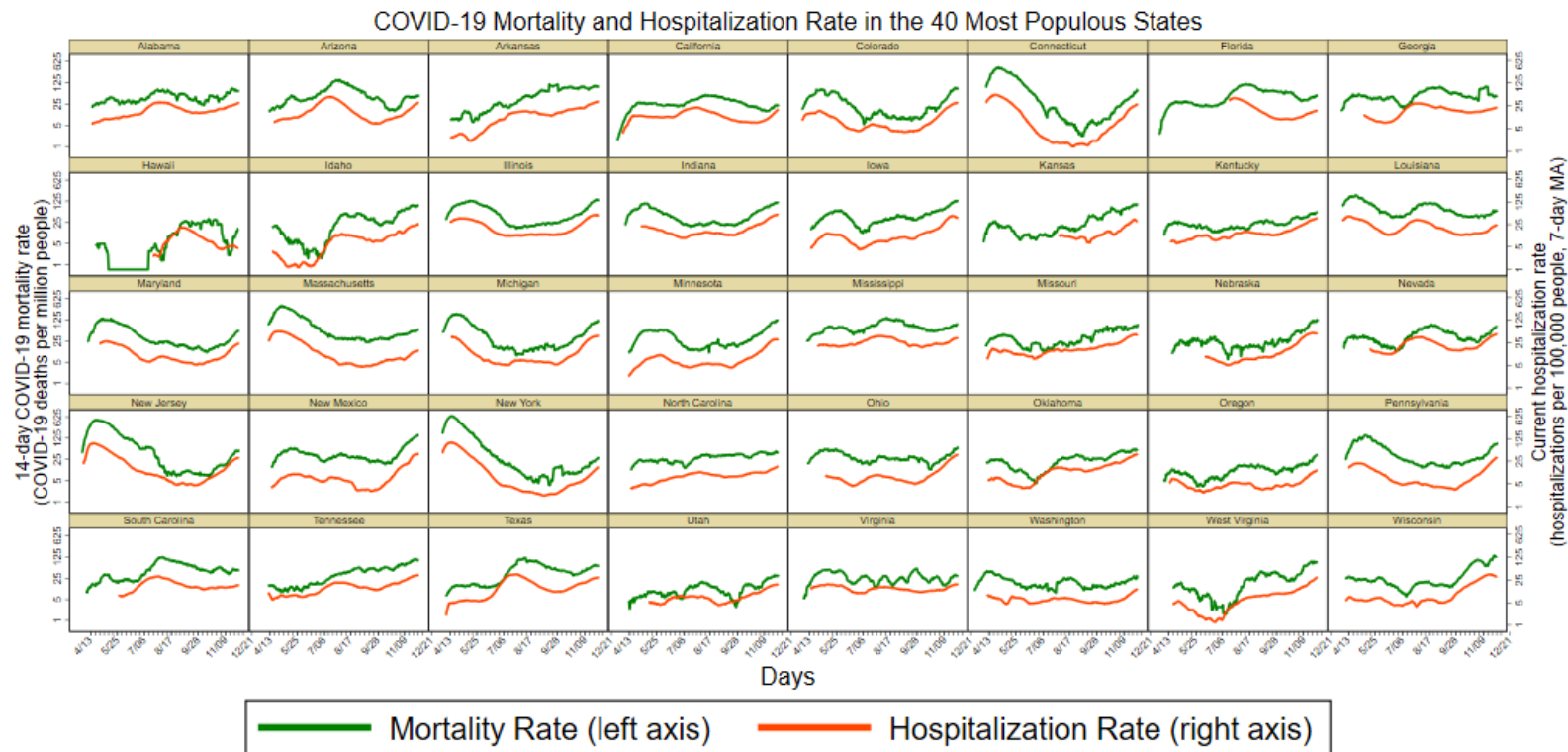
As of December 6, the cumulative COVID-19 mortality rate of the United States is 863 deaths per million people. This is more than double the mortality rate of Canada but below that of Italy and that of the UK.



Notes: Horizontal axis has log scale. Excluding days when mortality rate < 1. Dots on Sundays to show time. Data through December 6, 2020.

Sources: FRBC calculations, the Center for Systems Science and Engineering at Johns Hopkins University, and the World Bank.

This chart shows COVID-19 mortality and hospitalization rates for the 40 most populous US states.



Notes: Data from 1/22-12/6/2020. Both vertical axes have log scales.

Sources: FRBC calculations, the Center for Systems Science and Engineering at Johns Hopkins University, BEA, and the COVID Tracking Project at *The Atlantic*.

- Some significant revisions to the reported number of COVID-19 deaths cause large single-day jumps.
- We smooth some of these jumps by multiplying daily changes for a period of time by a scaling factor so that the adjusted series meets the post-revision series.
- We have used this approach for the following revisions and periods:
  - Spain revised deaths downward on May 25; data are adjusted from 3/3 to 5/24.
  - New Jersey revised deaths downward on June 25; data are adjusted from 3/10 to 6/24.
  - Illinois revised deaths upward on July 7; Illinois and United States are adjusted from 3/23 to 7/6.
  - New Jersey revised deaths downward on August 26; data are adjusted from 3/18 to 8/25.
- Other data cleaning
  - Ohio's reported cumulative deaths jumped up on August 29 and reversed on August 30. We set Ohio's cumulative deaths on August 29 to the midpoint of deaths on August 28 and 30 and incorporated this change into the US total for August 29.