

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

Joel Elvery

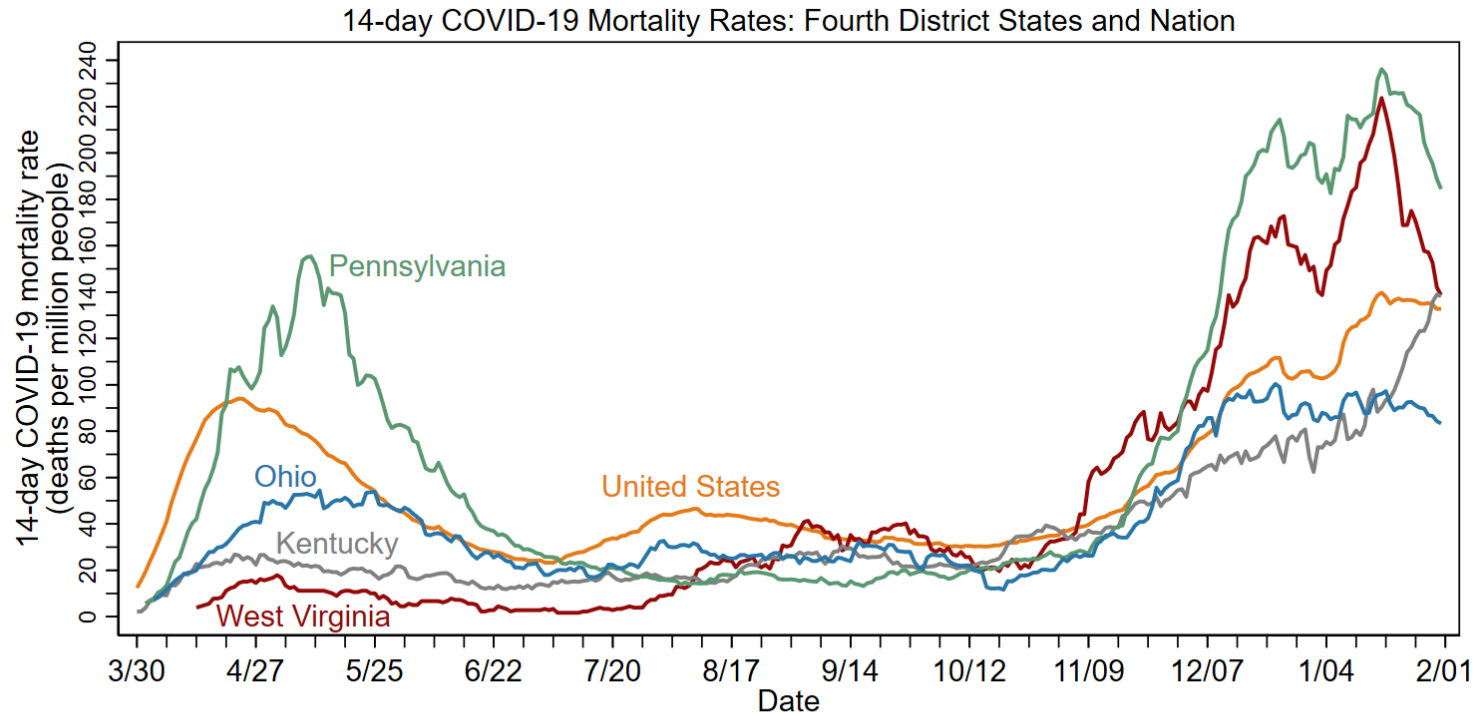
Mark Oleson

Updated February 1, 2021

FEDERAL RESERVE BANK *of* CLEVELAND  
*Cleveland | Pittsburgh | Cincinnati*

- 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 January 31, with no attempt to further correct for underreporting.
  - Some large revisions in COVID-19 data have been smoothed. See the appendix for details.
- The design of some 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 data come from the COVID Tracking Project at *The Atlantic*.

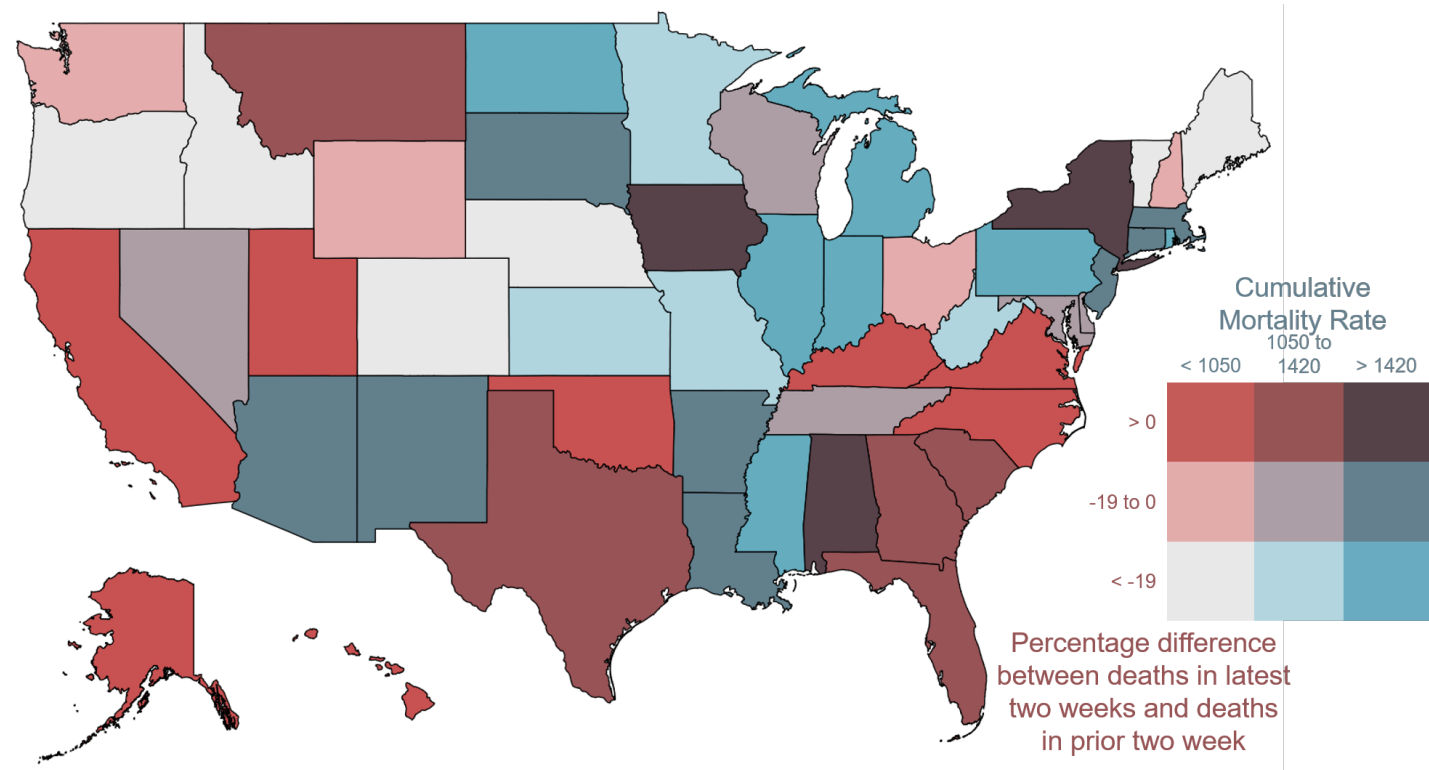
In the two weeks leading up to January 31, the 14-day COVID-19 mortality rate fell in Ohio, West Virginia, Pennsylvania, and the United States as a whole, but it rose sharply in Kentucky.



Note: Data through January 31, 2021.

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

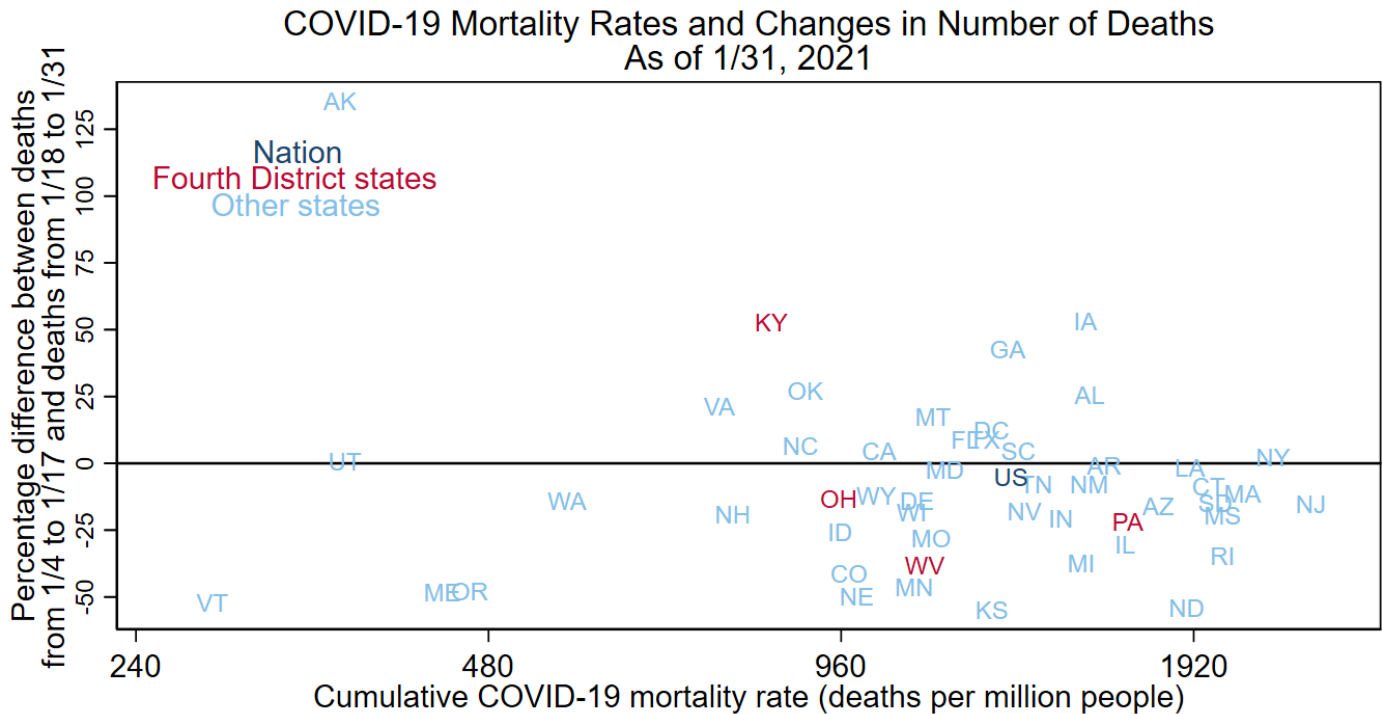
Between January 18 and January 31, the 14-day COVID-19 mortality rate continued to rise California, New York, Texas, and in much of the Southeast.



Data for January 31, 2021, accessed on February 1, 2021.  
“Latest two weeks” is 1/18/21 to 1/31/21, “prior two weeks” is 1/4/20 to 1/17/21.  
Sources: FRBC calculations, CSSE, and BEA.

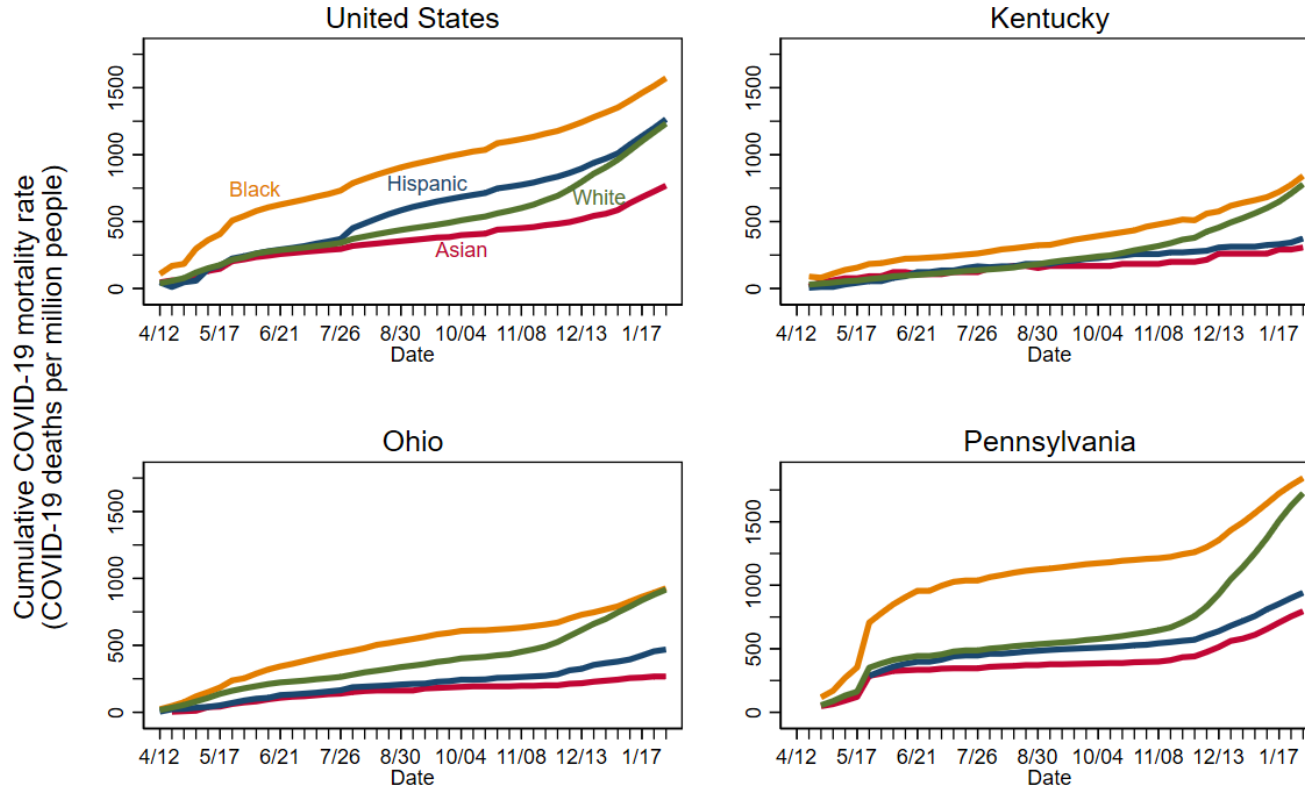
Note: The District of Columbia is in the bin with the mortality rate from 1050 to 1420 and percentage difference > 0. The color bins on this map are changed with each update to better represent the latest data.

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



In Fourth District states and in the United States as a whole, on January 31, the cumulative COVID-19 mortality rate of Blacks was higher than the rates of Asians, Hispanics, and Whites.

COVID-19 Cumulative Mortality Rate by Race

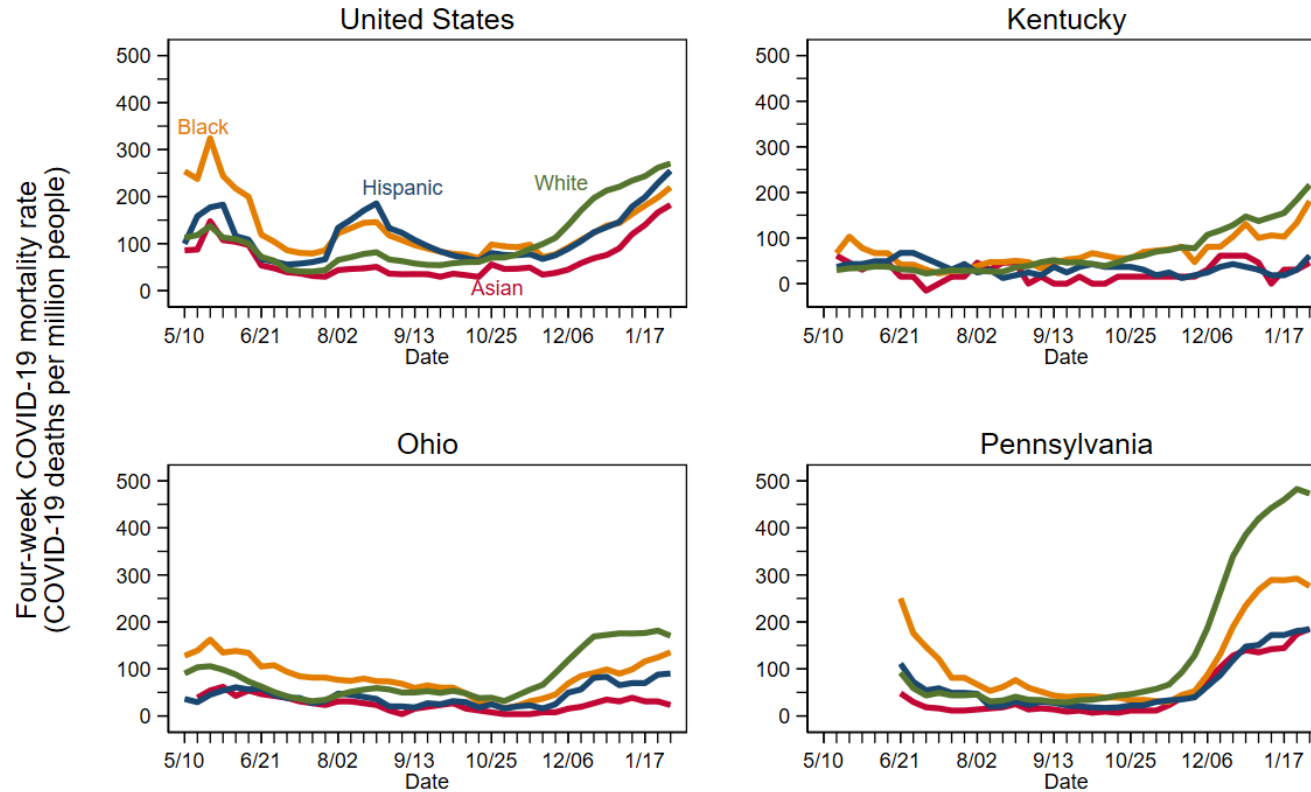


Notes: WV is excluded because race is missing in the data for a relatively high share of WV's COVID-19 deaths.  
Data from 4/12/2020 to 1/31/2021.

Sources: FRBC calculations, Census Bureau's 2019 ACS 5-Year estimates, and the COVID Tracking Project at *The Atlantic*.

In recent weeks, the 4-week mortality rate of Whites has been greater than those of Asians, Blacks, and Hispanics.

Four-Week COVID-19 Mortality Rate by Race

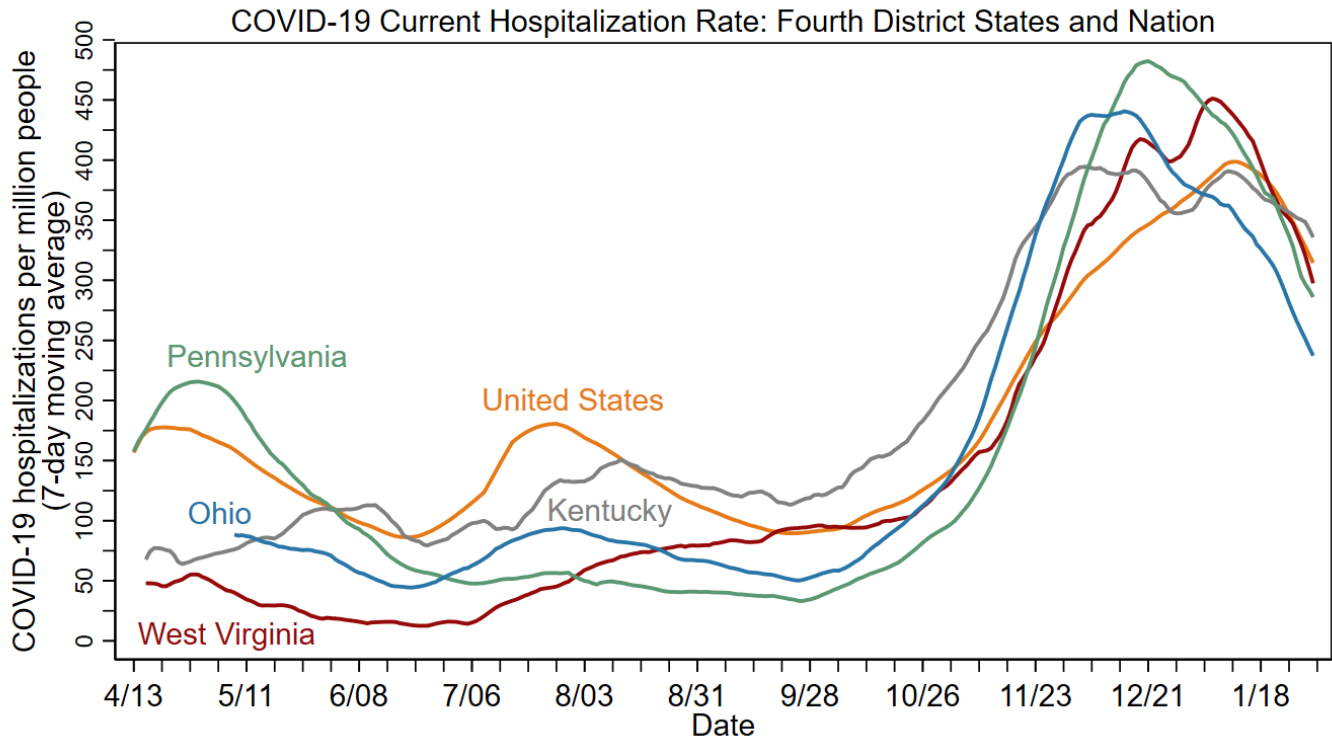


Notes: WV is excluded because race is missing in the data for a relatively high share of WV's COVID-19 deaths.

Data from 5/10/2020 to 1/31/2021.

Sources: FRBC calculations, Census Bureau's 2019 ACS 5-Year estimates, and the COVID Tracking Project at *The Atlantic*.

The trends in COVID-19 hospitalizations suggest that in the weeks ahead mortality rates will fall in all Fourth District states and in the United States as a whole.



Note: Data through January 31, 2021.  
Sources: FRBC calculations, the COVID Tracking Project at *The Atlantic*, and BEA.





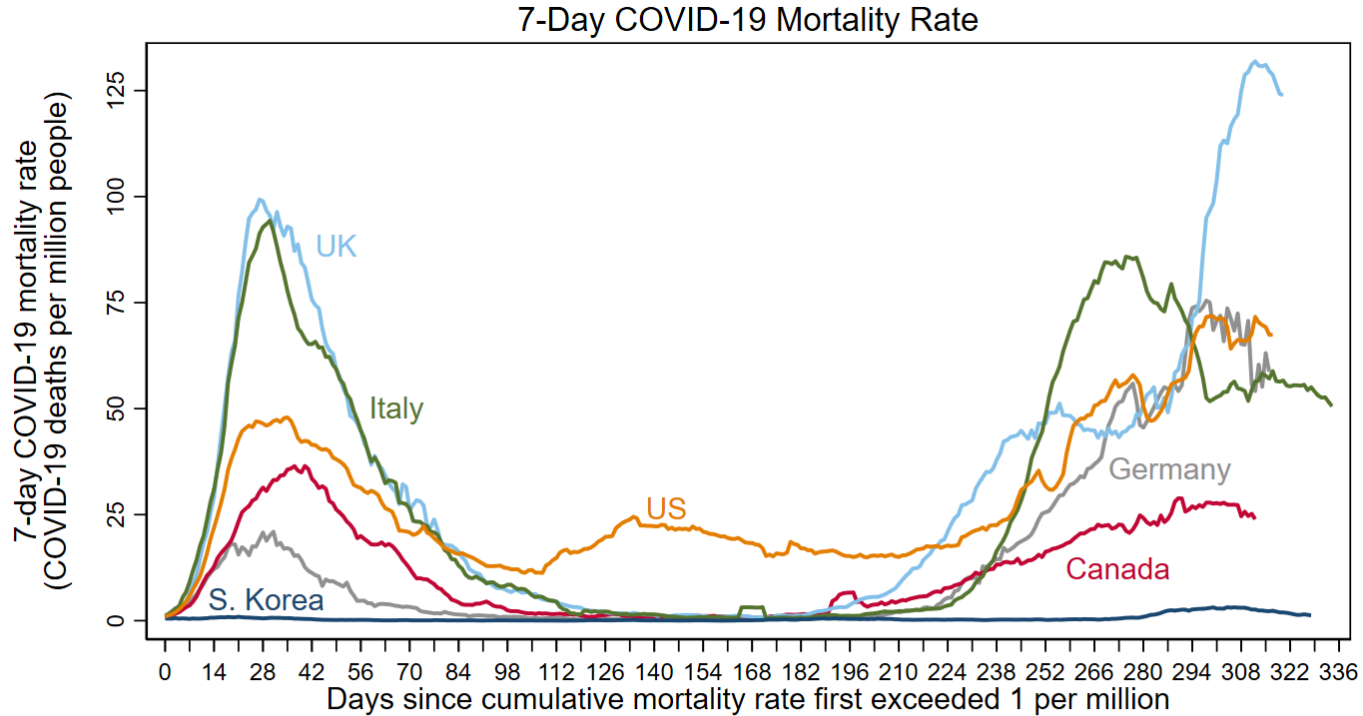
# COVID-19 statistics for Fourth District states and the nation as of January 31, 2021.

COVID-19 Statistic	Kentucky	Ohio	Pennsylvania	West Virginia	United States
<b>Levels</b>					
Average daily deaths in past 2 weeks	44	70	169	18	3,121
Cumulative deaths	3,745	11,175	21,617	2,024	441,324
Average daily hospitalizations in the past week	1,501	2,775	3,663	532	103,460
<b>Rates (per million residents)</b>					
14-day mortality rate	138	83	184	139	133
Cumulative mortality rate	838	955	1,688	1,132	1,342
Average daily hospitalization rate in the past week	336	237	286	298	315
<b>Four-week mortality rate by race</b>					
Asian	46	23	186	--	182
Black	181	136	276	157	220
Hispanic	61	90	184	--	255
White	216	170	473	278	270
<b>Cumulative mortality rate by race</b>					
Asian	307	267	795	--	769
Black	841	927	1,844	463	1,572
Hispanic	374	469	941	--	1,265
White	779	917	1,725	828	1,233

Notes: West Virginia is missing data for a relatively high share of COVID-19 deaths and only reports COVID-19 deaths by race for Blacks and Whites.

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

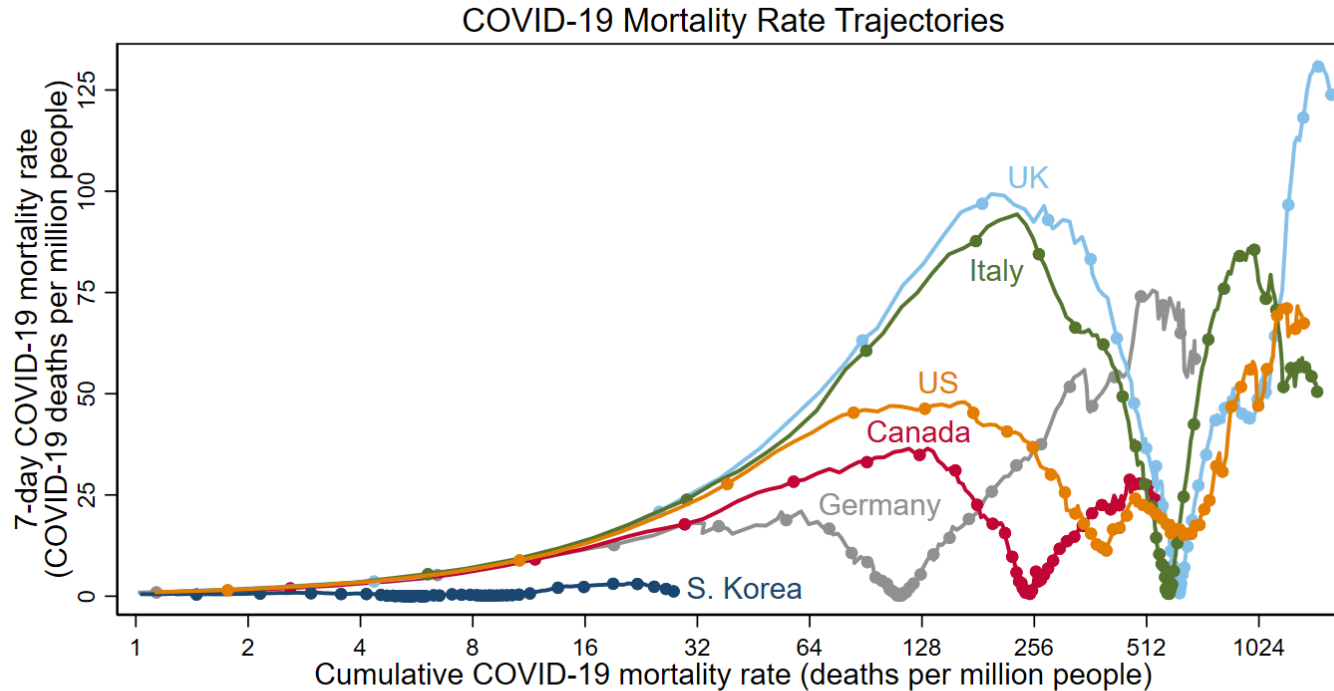
The 7-day COVID-19 mortality rate in the United States rose in the past week. The US 7-day mortality rate is comparable to that of Germany, below that of the UK, and above that of Italy.



Notes: 3/22/2020 was first day US rate > 1. Data through 1/31/2021.

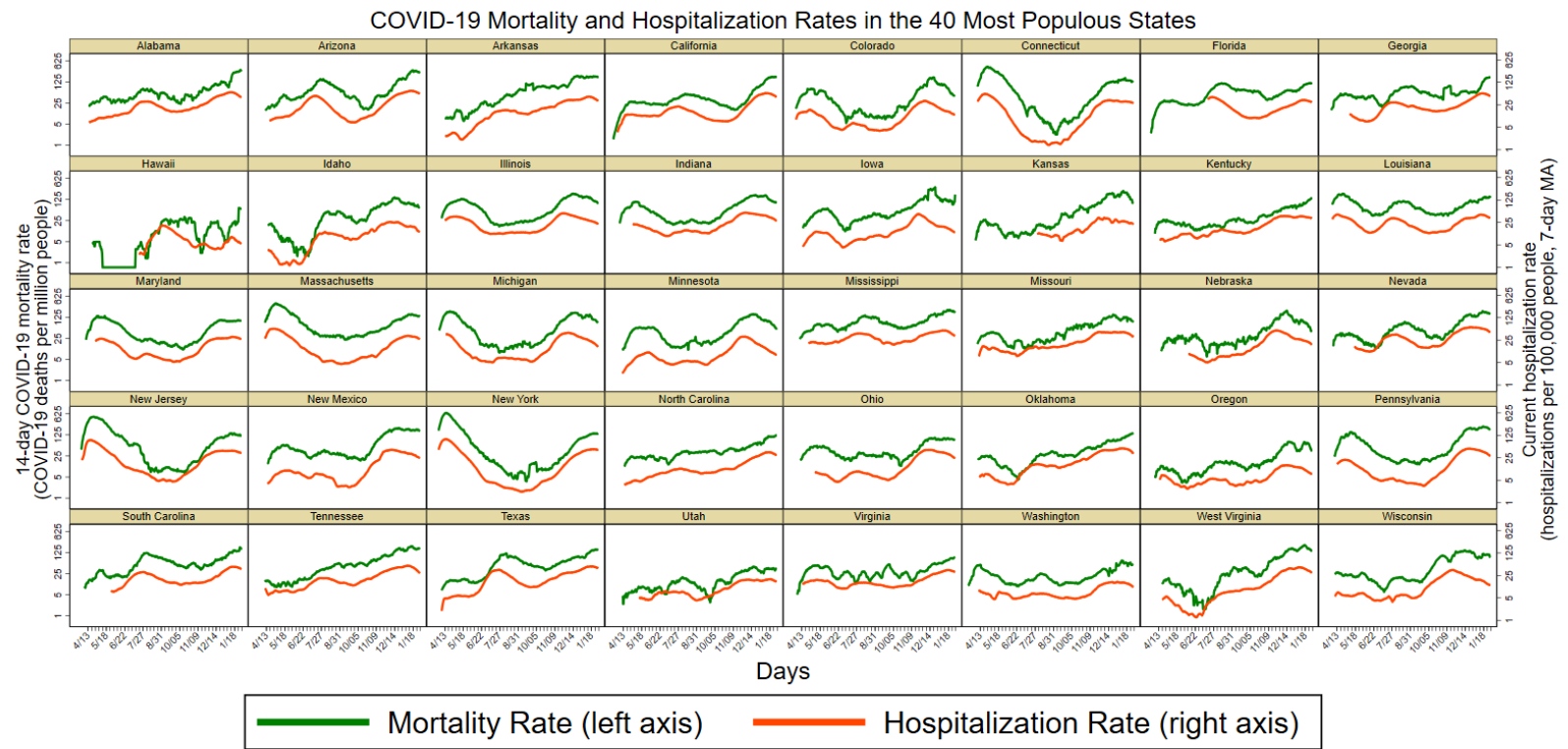
Sources: FRBC calculations, the Center for Systems Science and Engineering at Johns Hopkins University, and the World Bank.

As of January 31, the cumulative COVID-19 mortality rate of the United States is 1,349 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 January 31, 2021.  
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 1/22-1/31/2021. 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*.

## Appendix: Adjustments for data revisions

- 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 in 2020:
  - US revised deaths up on October 21 for all race categories; data adjusted from 6/6 to 10/18.
  - 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 the 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 in 2020
  - 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.

- Other data cleaning in 2020 (continued)
  - Ohio's reported cumulative deaths for Hispanic citizens jumped up on August 5 and reversed on August 9. We set Ohio's cumulative deaths on August 5 to the average between August 2 and August 9, given data are only available every Sunday and Wednesday.
- Data cleaning in 2021
  - West Virginia's reported cumulative deaths for Black citizens fell on January 3 and January 6 and reversed on January 10. We set West Virginia's cumulative deaths on January 3 and January 6 to the average between December 30 and January 10, excluding January 3 and January 6.