

COVID-19 Mortality Rate Trends in Countries and US States

Joel Elvery

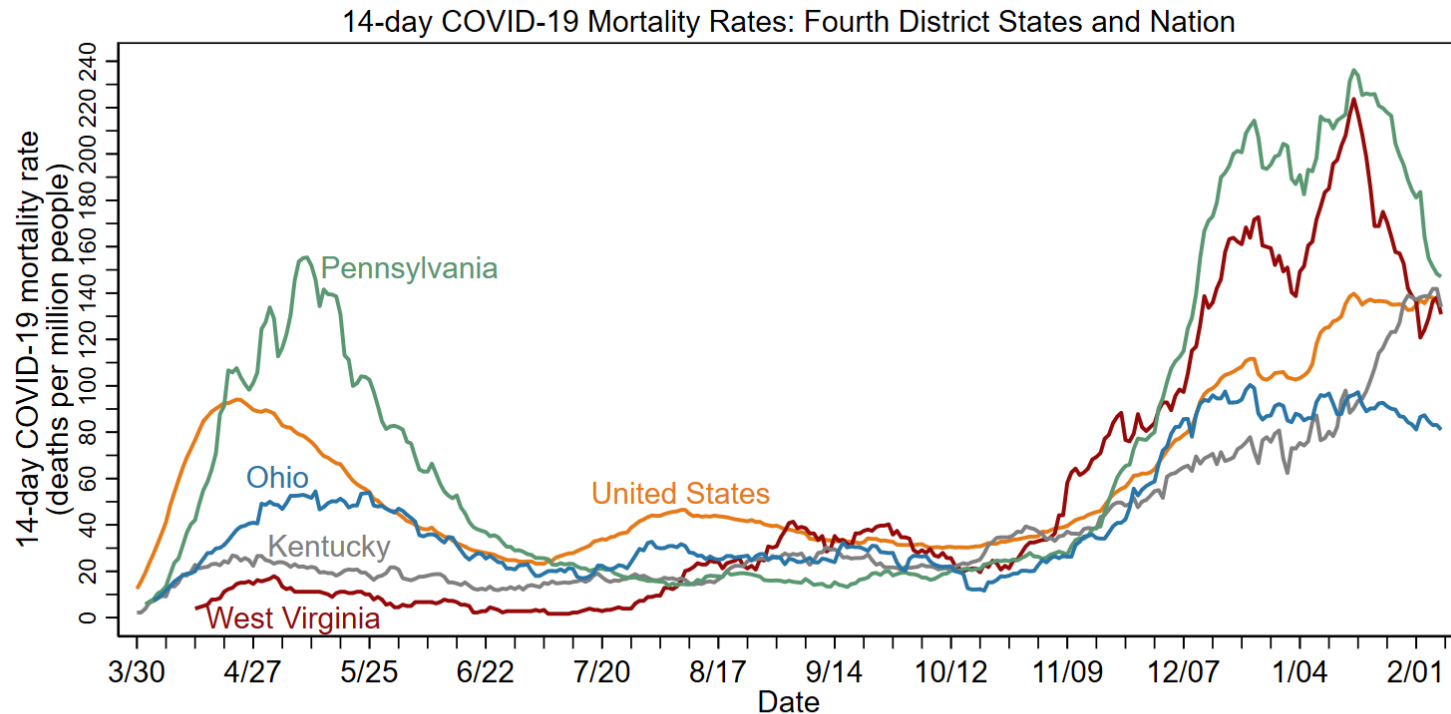
Mark Oleson

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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 February 7, 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*.

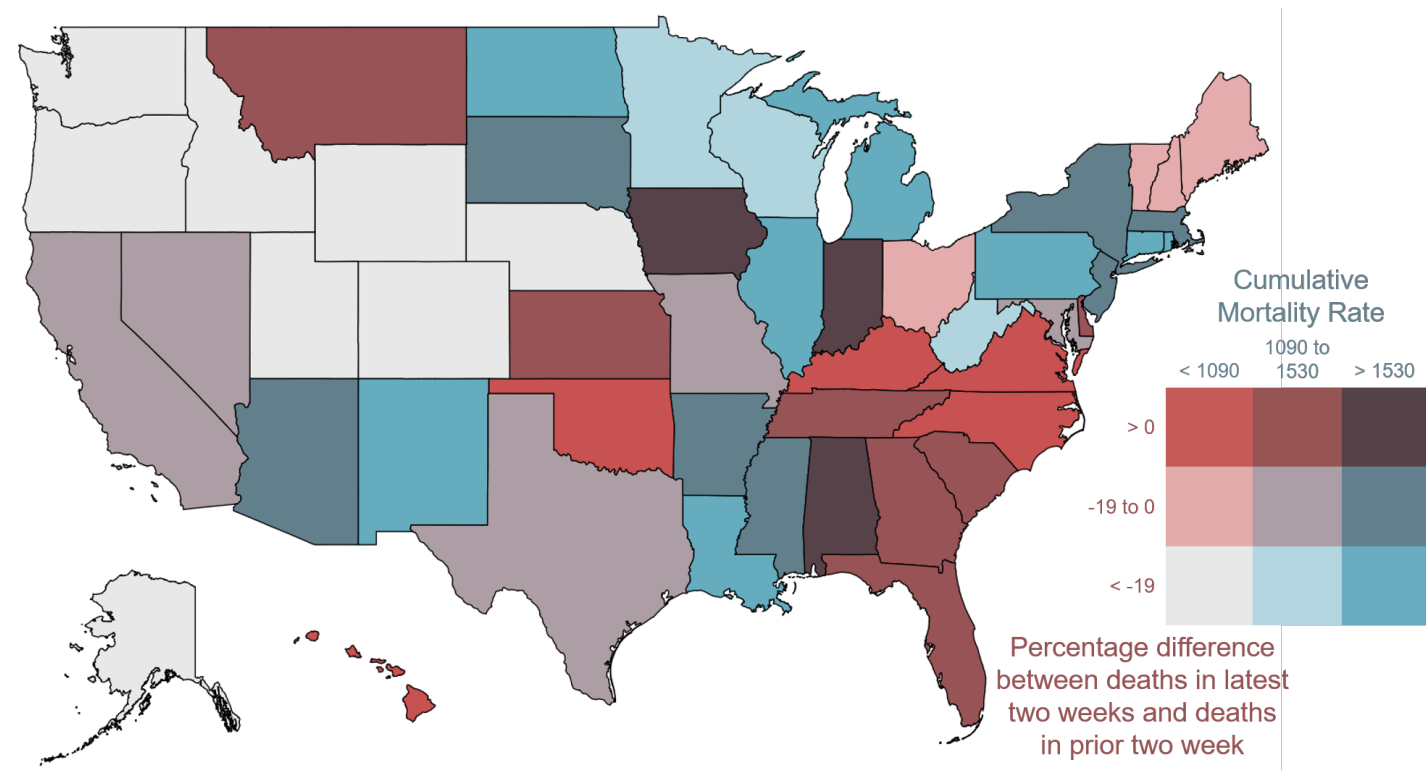
In the two weeks leading up to February 7, the 14-day COVID-19 mortality rate rose in Kentucky and fell in Ohio, Pennsylvania, West Virginia, and (to a lesser degree) the United States as a whole.



Note: Data through February 7, 2021.

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

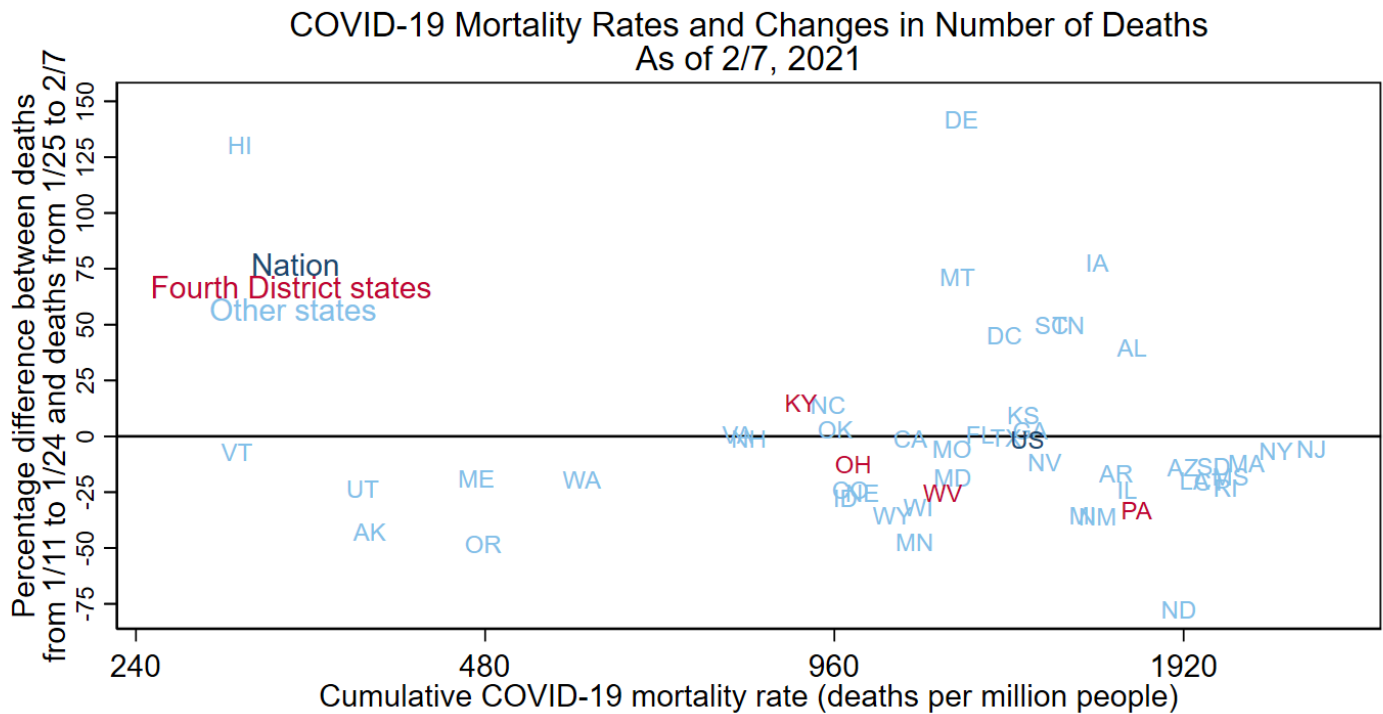
Between January 25 and February 7, the 14-day COVID-19 mortality rate rose in much of the Southeast. For the second week in a row, 14-day mortality rates have fallen in more than half of all states.



Data for February 7, 2021, accessed on February 8, 2021.
“Latest two weeks” is 1/25/21 to 2/7/21, “prior two weeks” is 1/11/20 to 1/24/21.
Sources: FRBC calculations, CSSE, and BEA.

Note: The District of Columbia is in the bin with the mortality rate from 1,090 to 1,530 and percentage difference > 0. The color bins on this map are changed with each update to better represent the latest data.

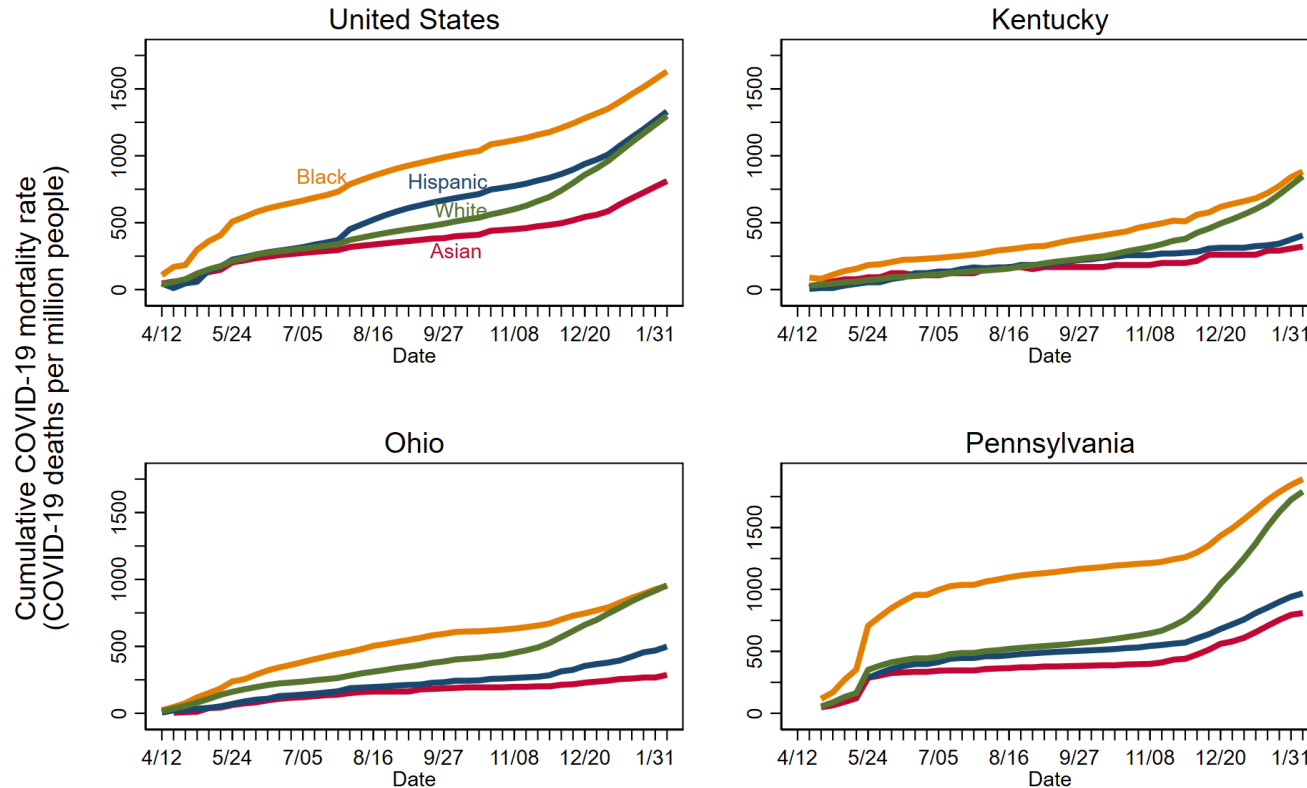
This chart gives similar information to the map, but it is more precise and includes the nation as a whole.



Notes: Horizontal axis has log scale.
Indiana 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.

In Fourth District states and in the United States as a whole, on February 7 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



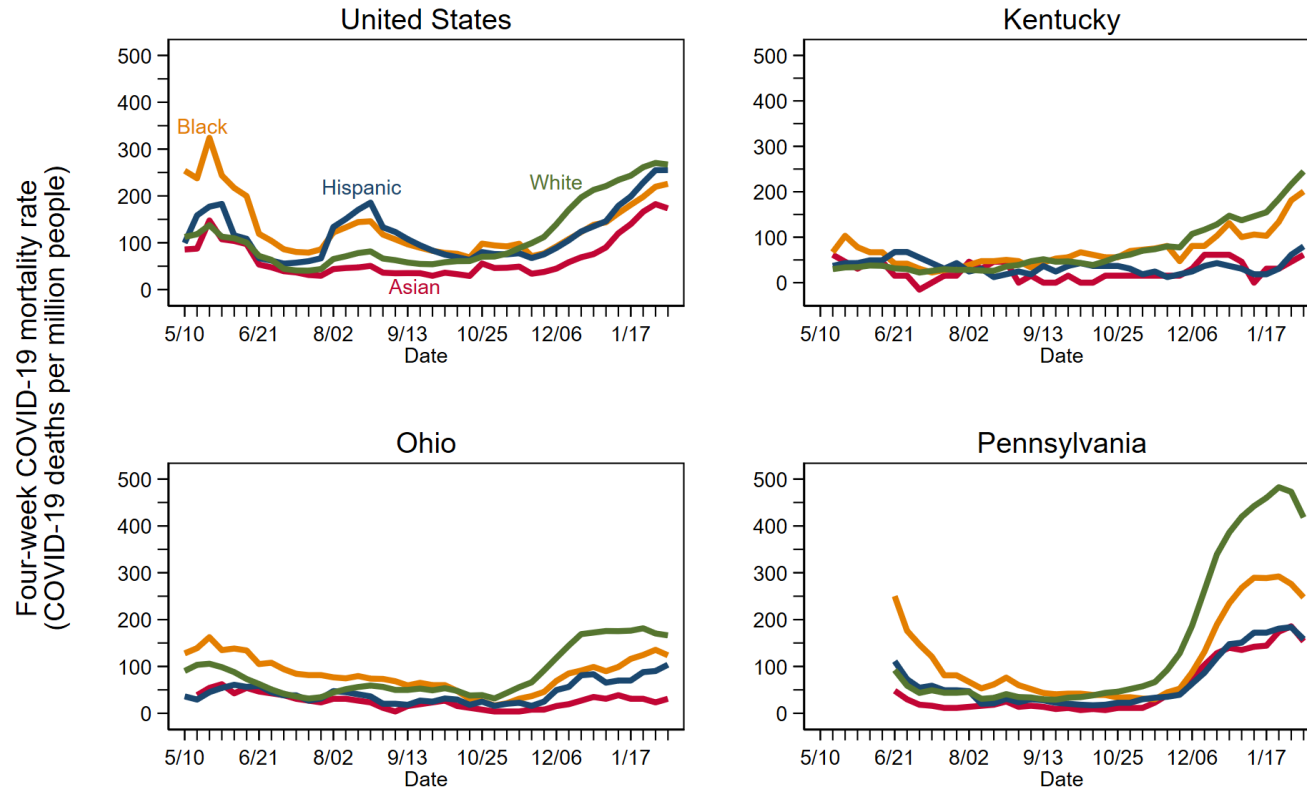
Notes: WV is excluded because race is missing in the data for a relatively high share of WV's COVID-19 deaths.

Data from 4/12/2020 to 2/7/2021.

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 the rates of Asians, Blacks, and Hispanics.

Four-Week COVID-19 Mortality Rate by Race

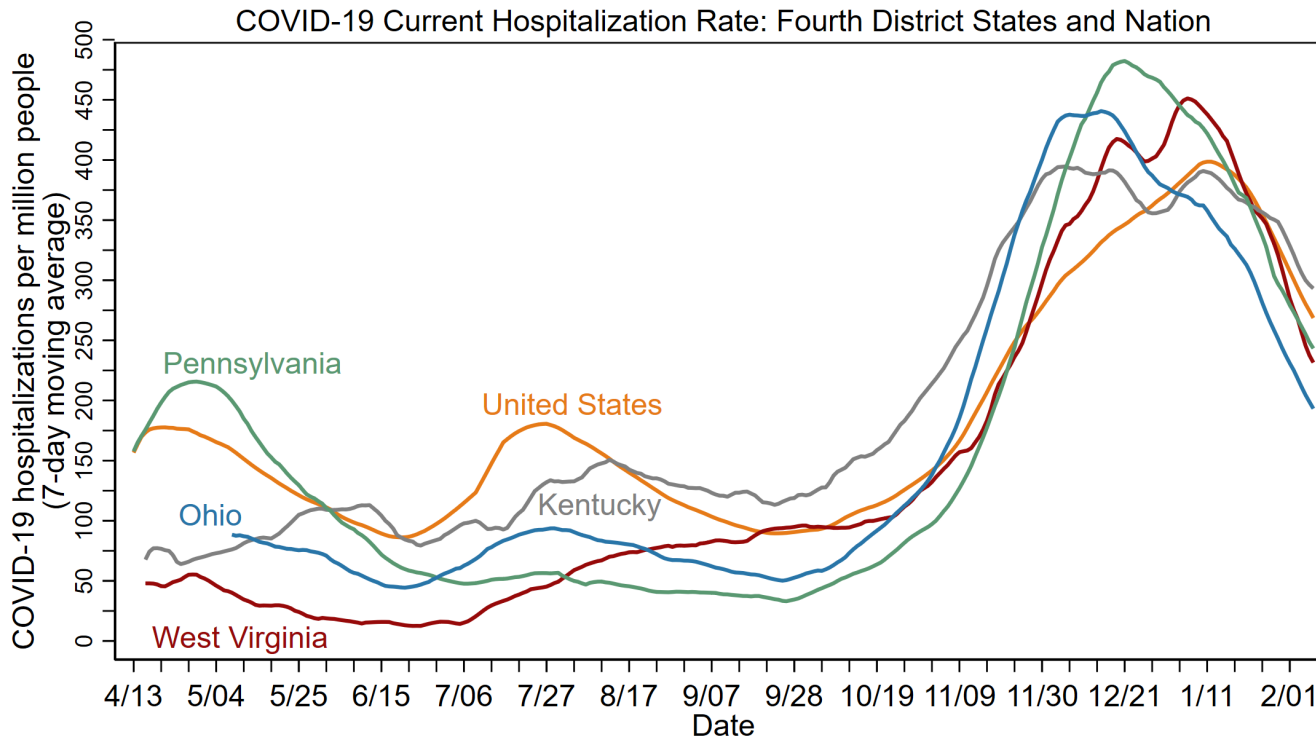


Notes: WV is excluded because race is missing in the data for a relatively high share of WV's COVID-19 deaths.

Data from 5/10/2020 to 2/7/2021.

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

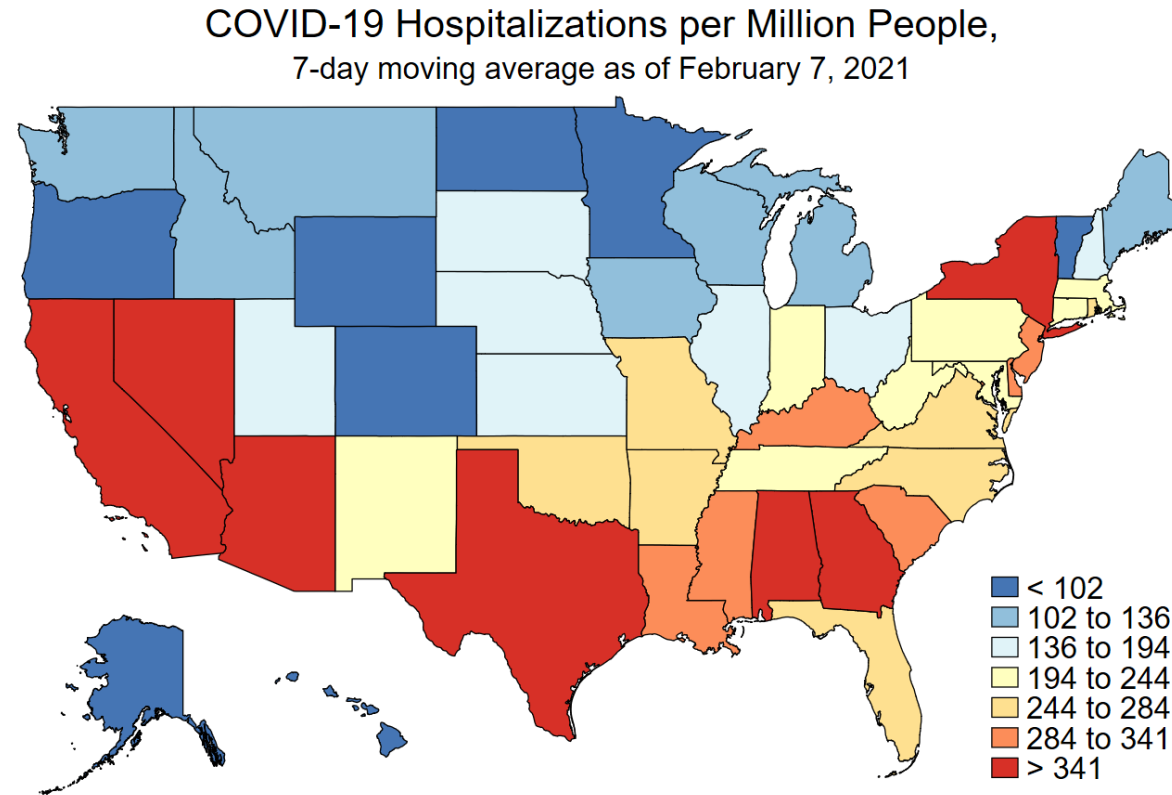
The trends in COVID-19 hospitalizations suggest that in the weeks ahead, mortality rates will fall in all Fourth District states and in the United States as a whole.



Note: Data through February 7, 2021.

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

In the week leading up to February 7, hospitalization rates were highest in the Southwest and Southeast and lowest in the Northwest and the Great Plains.



Data for February 7, 2021, accessed on February 8, 2021.

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

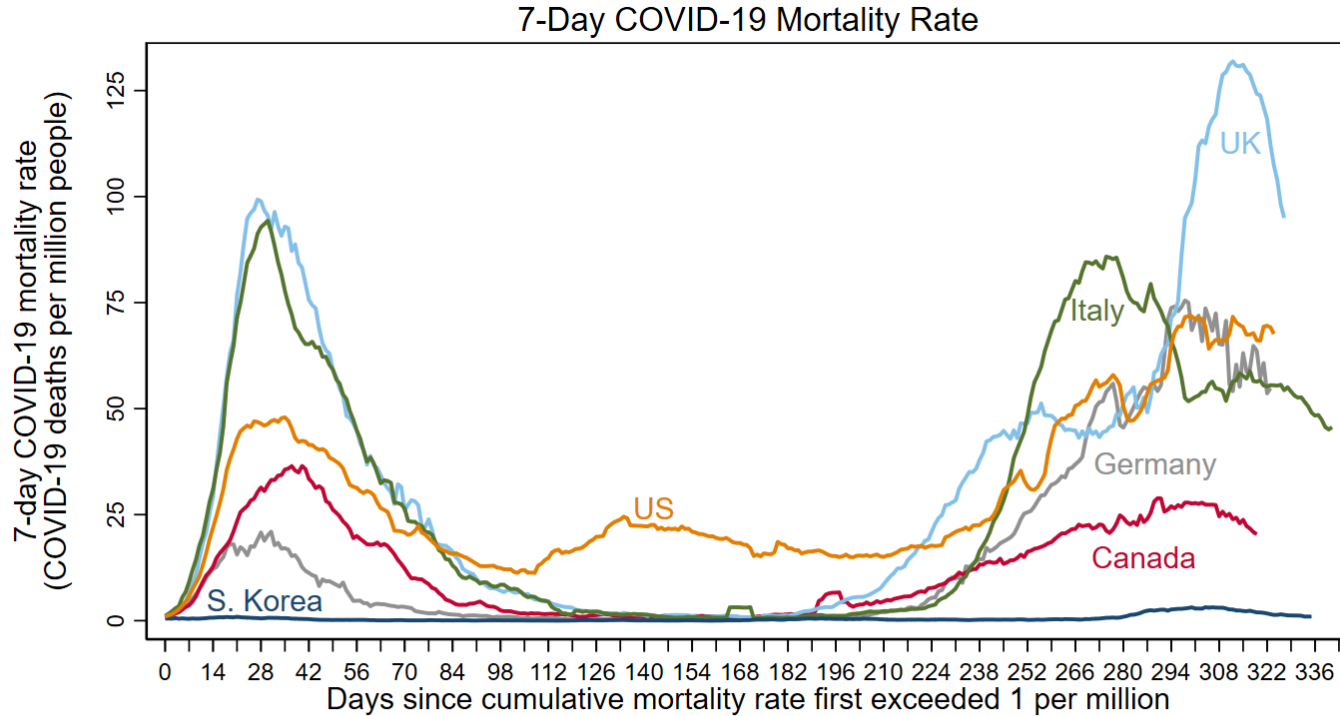
Note: The District of Columbia is in the bin with a hospitalization rate > 341. The color bins on this map are changed with each update to better represent the latest data.

COVID-19 statistics for Fourth District states and the nation as of February 7, 2021.

COVID-19 Statistic	Kentucky	Ohio	Pennsylvania	West Virginia	United States
Levels					
Average daily deaths in past 2 weeks	43	68	135	17	3,157
Cumulative deaths	4,020	11,659	22,416	2,129	463,445
Average daily hospitalizations in the past week	1,311	2,260	3,116	414	88,367
Rates (per million residents)					
14-day mortality rate	134	81	147	131	135
Cumulative mortality rate	899	997	1,750	1,191	1,417
Average daily hospitalization rate in the past week	293	193	243	232	269
Four-week mortality rate by race					
Asian	61	31	154	--	174
Black	201	124	247	194	226
Hispanic	80	104	158	--	255
White	245	166	418	261	267
Cumulative mortality rate by race					
Asian	322	287	809	--	812
Black	883	951	1,891	508	1,631
Hispanic	405	498	969	--	1,331
White	847	956	1,791	887	1,299

Notes: West Virginia's data are missing race for a relatively high share of COVID-19 deaths, and the state reports COVID-19 deaths by race for only Blacks and Whites.
 Sources: FRBC calculations, CSSE at Johns Hopkins University, the COVID Tracking Project at *The Atlantic*, and BEA.

The rapid increases in weekly mortality rates in Germany and the UK in recent months are largely due to new variants of the coronavirus. These variants have just begun to spread in the United States.

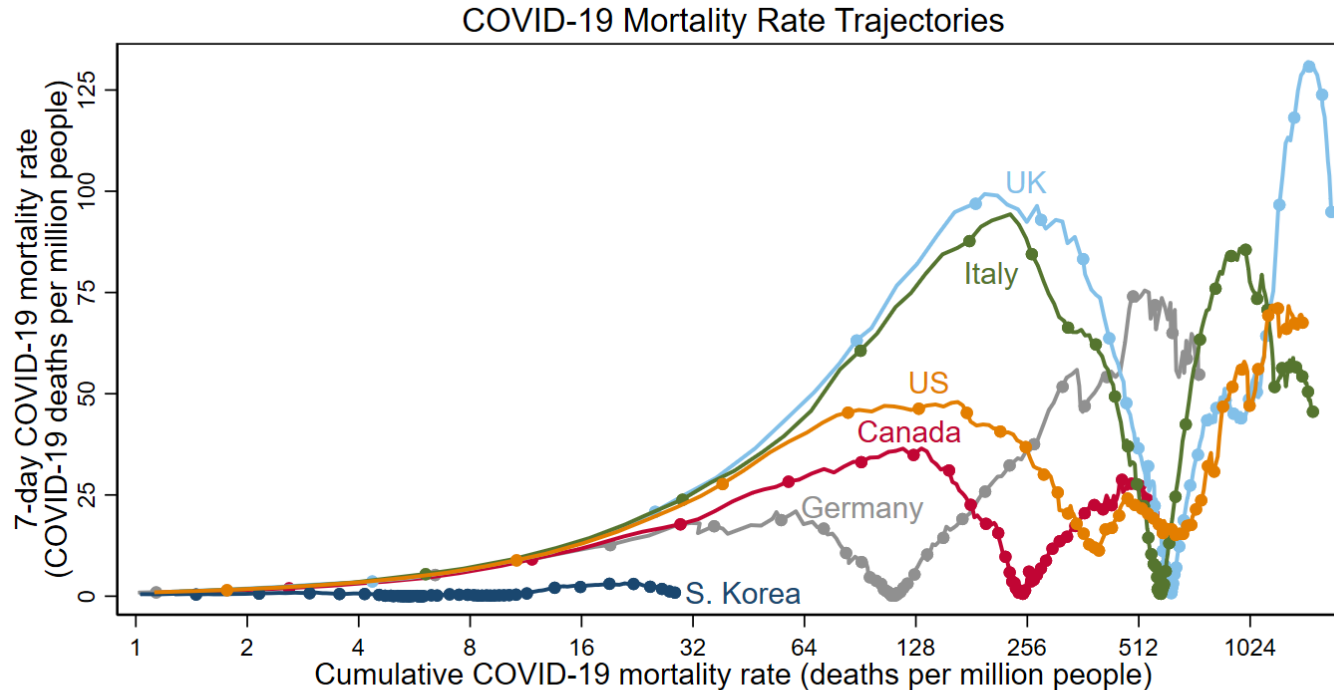


Notes: 3/22/2020 was first day US rate > 1. Data through 2/7/2021.

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

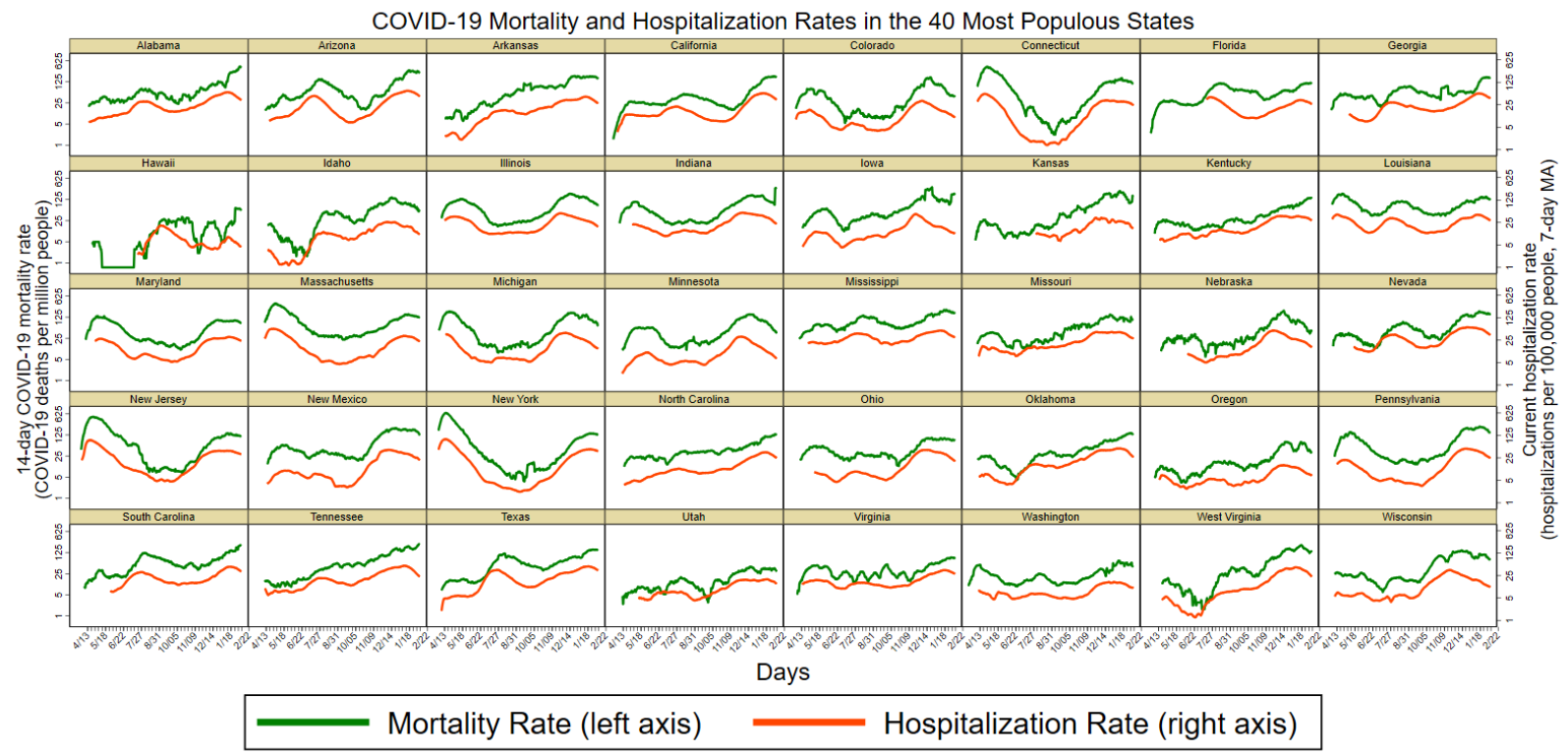
Note: For more information on the new coronavirus variants, please see [this report](#) from the Centers for Disease Control and Prevention.

As of February 7, the cumulative COVID-19 mortality rate of the United States is 1,417 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 February 7, 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 4/13/2020-2/7/2021. 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.

Appendix: Adjustments for data revisions (continued)

- 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.