

COVID-19 Mortality Rate Trends in Countries and US States

Joel Elvery

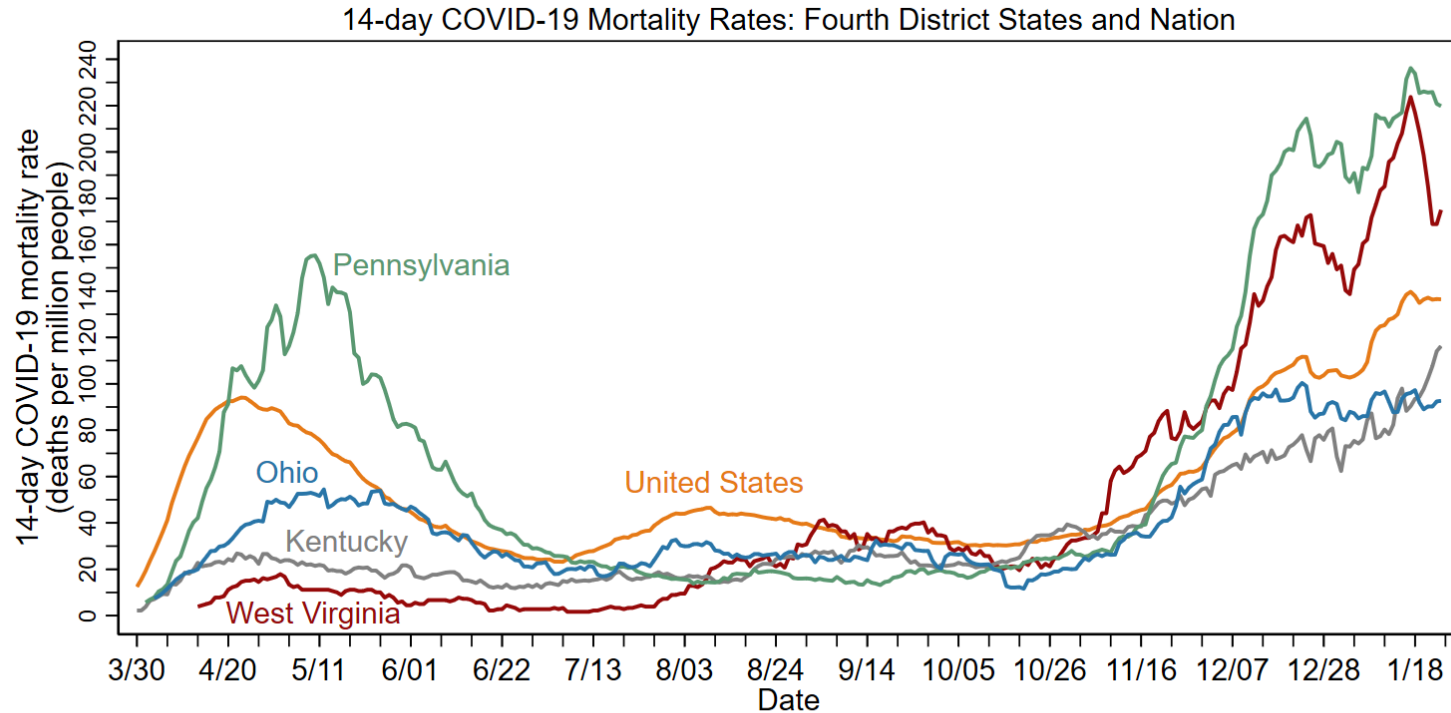
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- The charts in this presentation use the same data sources as the charts in two April 2020 District Data Briefs. Please see these reports for additional details.
 - [Getting to Accuracy: Measuring COVID-19 by Mortality Rates and Percentage Changes](#)
 - [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 January 24, 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*.

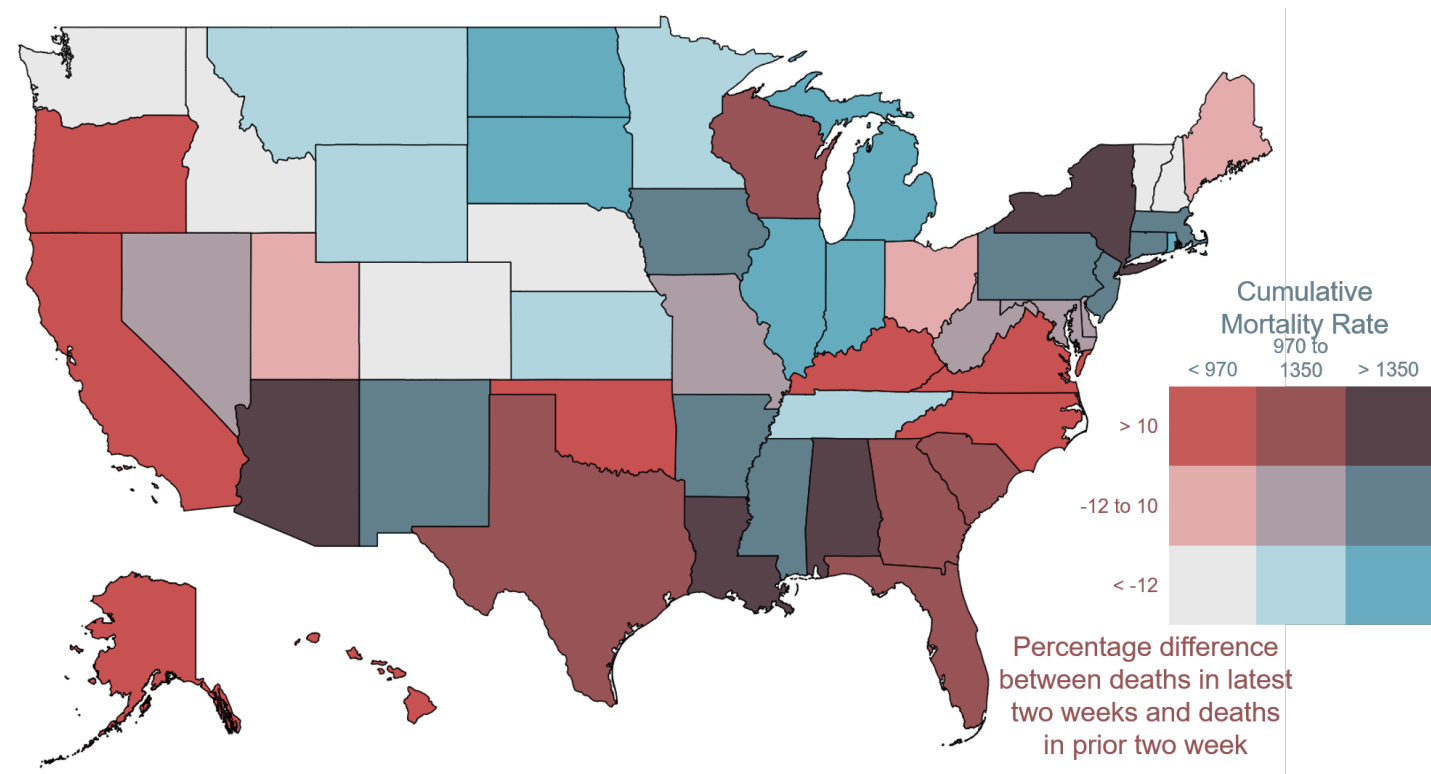
In the two weeks leading up to January 24, the 14-day COVID-19 mortality rate fell in Ohio and West Virginia but rose in Pennsylvania, Kentucky, and the United States as a whole.



Note: Data through January 24, 2021.

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

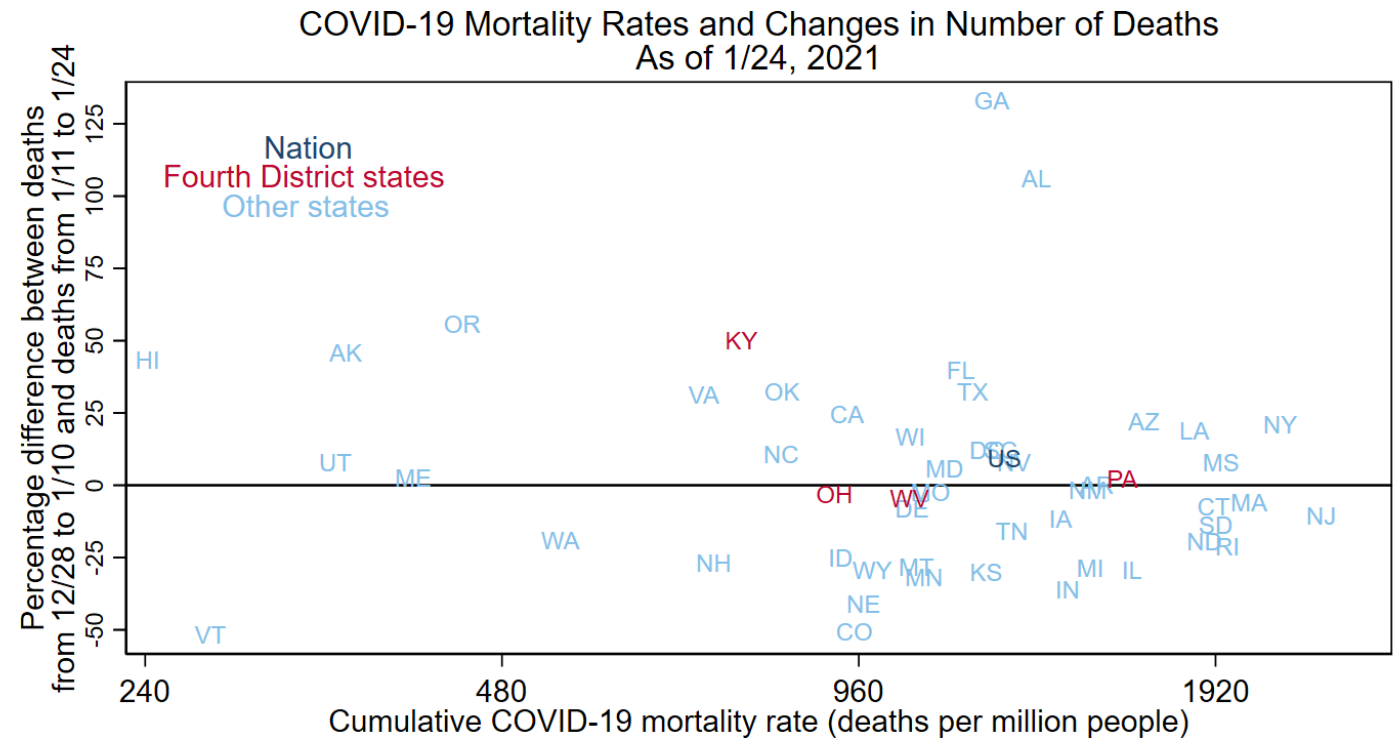
Between January 11 and January 24, the 14-day COVID-19 mortality rate continued to rise the most along much of the West Coast, in the South, and in New York and Wisconsin.



Data for January 24, 2021, accessed on January 25, 2021.
“Latest two weeks” is 1/11/21 to 1/24/21, “prior two weeks” is 12/28/20 to 1/10/21.
Sources: FRBC calculations, CSSE, and BEA.

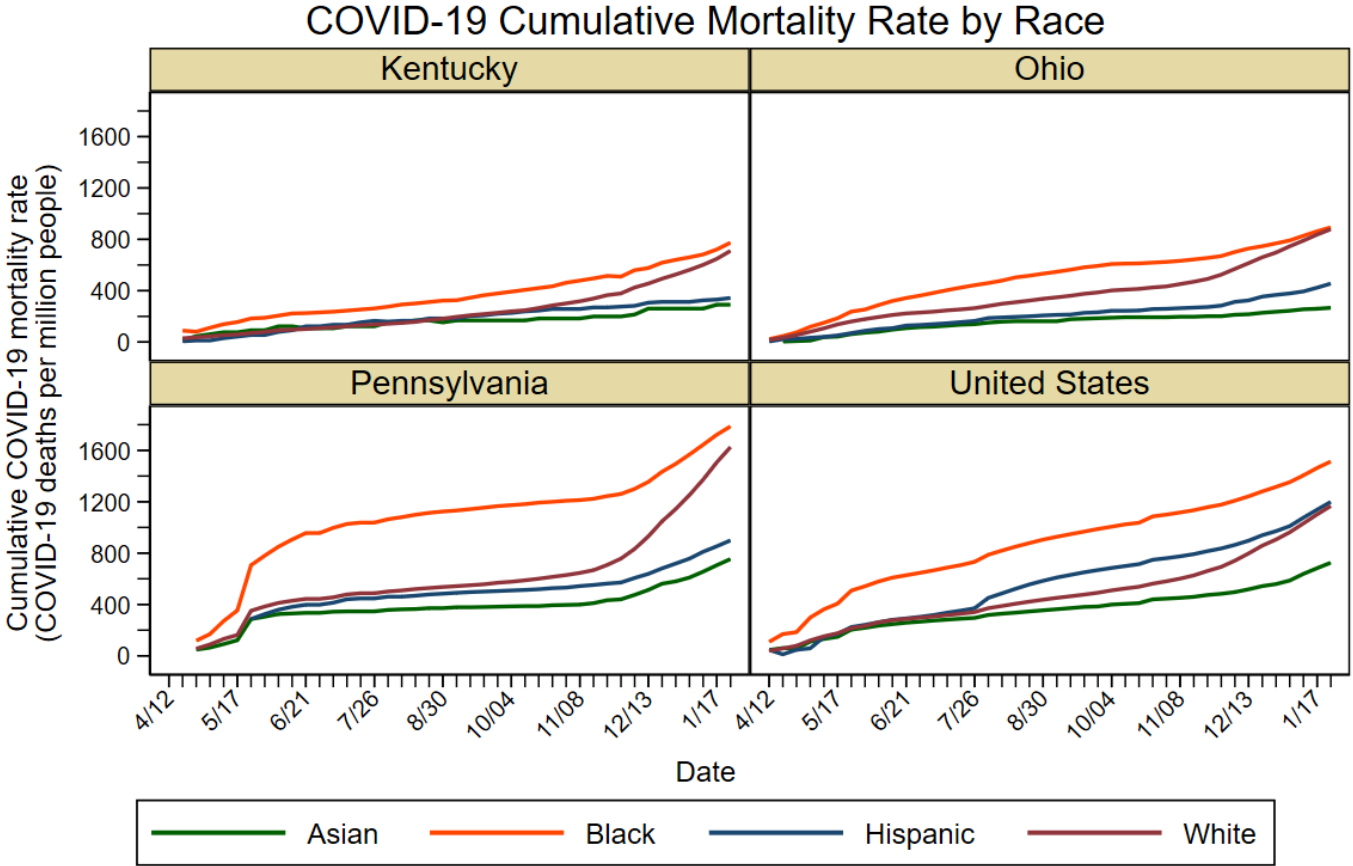
Note: The District of Columbia is in the bin with the mortality rate from 970 to 1350 and percentage difference > 10. The color bins on this map are changed with each update to better represent the latest data.

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.
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 January 24 the cumulative COVID-19 mortality rate of Blacks is higher than the rates of Asians, Hispanics, and Whites.

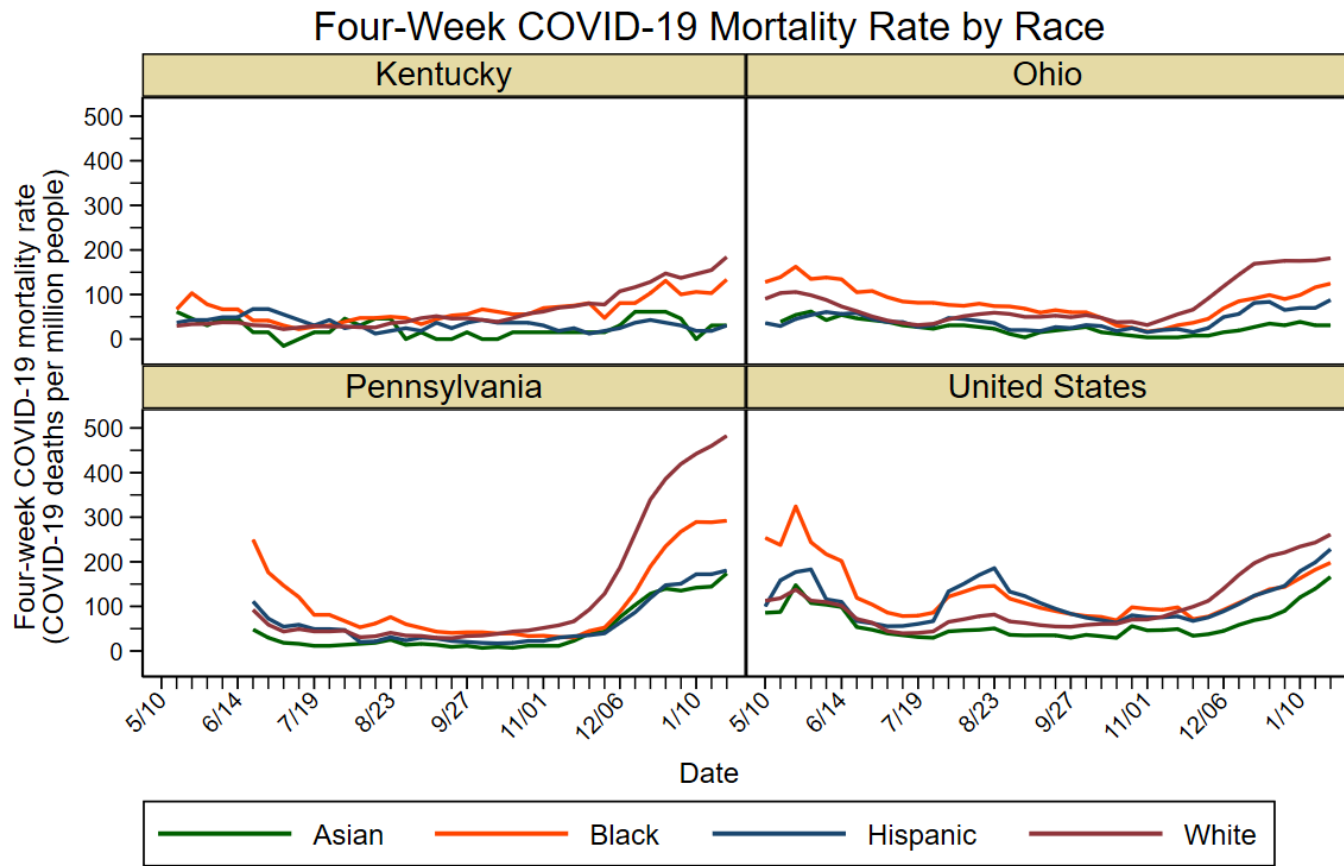


Notes: WV is excluded because race is missing in the data for a relatively high share of WV's COVID-19 deaths.

Data from 4/12/2020 to 1/24/2021.

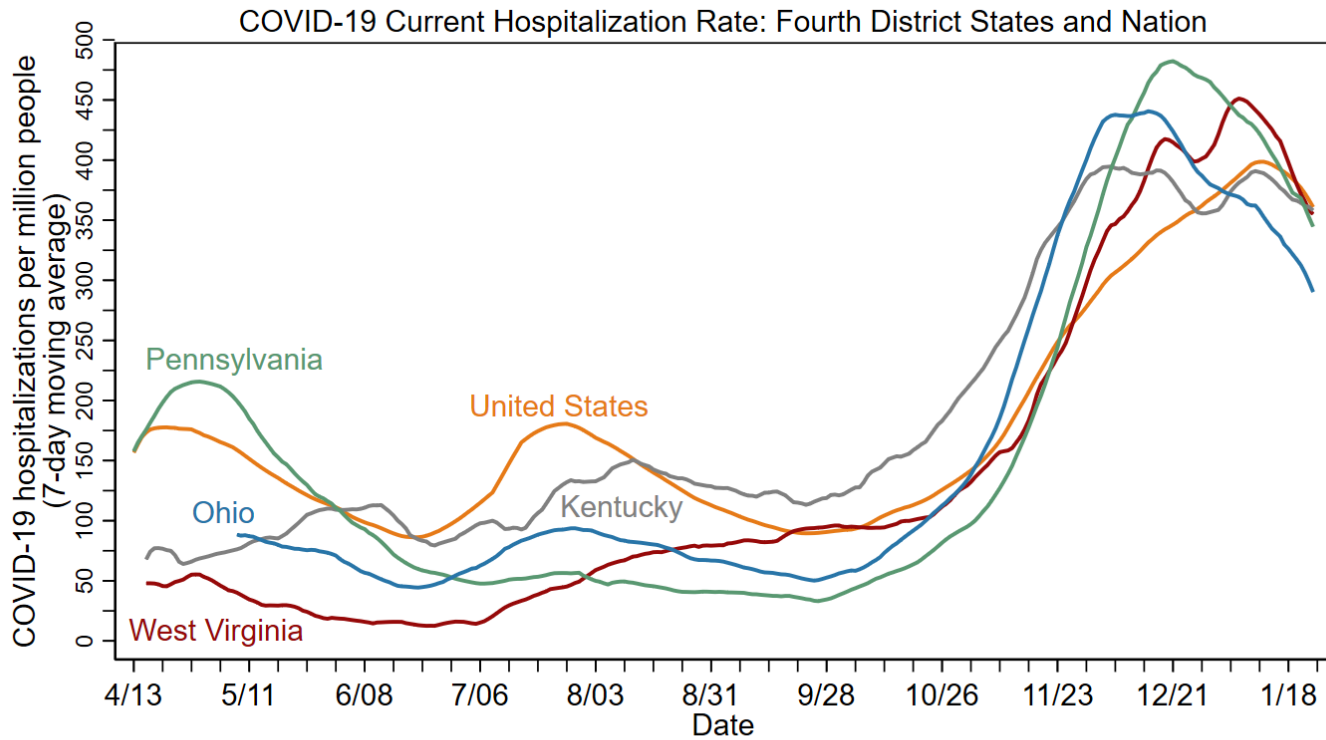
Sources: FRBC calculations, Census Bureau's 2019 ACS 5-Year estimates, and the COVID Tracking Project at *The Atlantic*.

In recent weeks, the 14-day mortality rate of Whites has been greater than those of Asians, Blacks, and Hispanics.



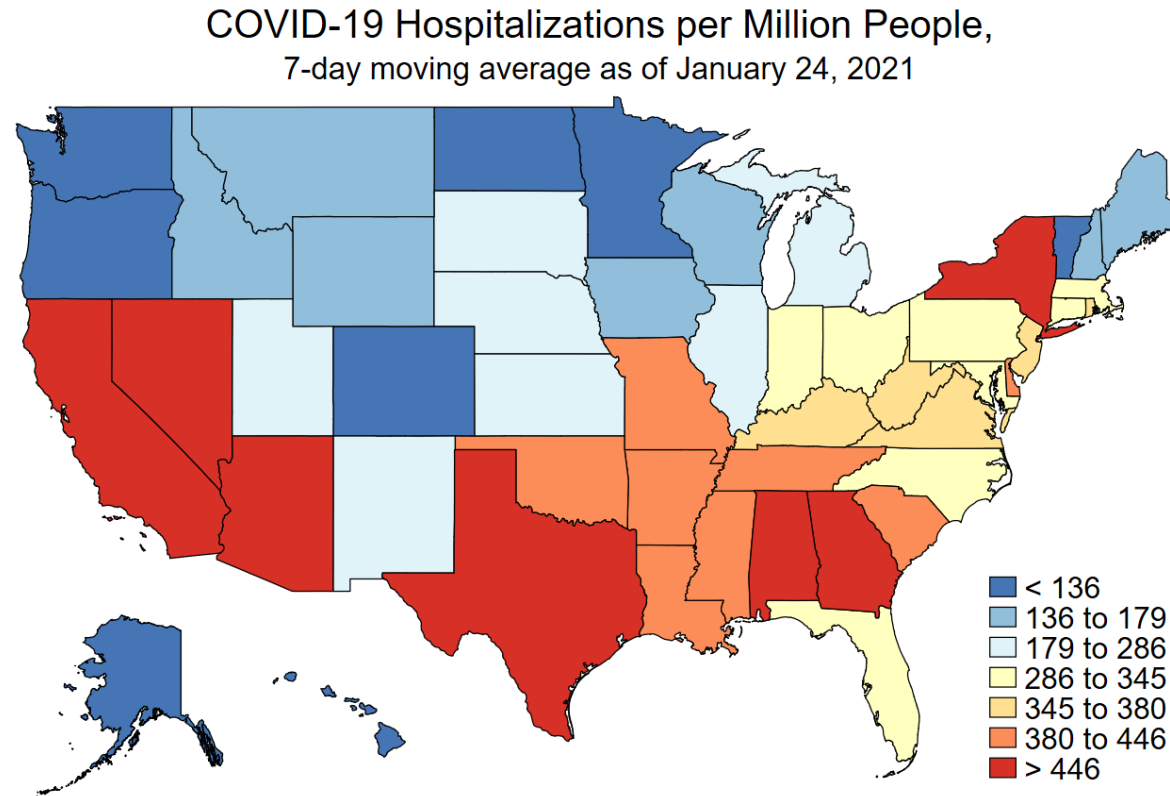
Notes: WV is excluded because race is missing in the data for a relatively high share of WV's COVID-19 deaths.
Data from 5/10/2020 to 1/24/2021.
Sources: FRBC calculations, Census Bureau's 2019 ACS 5-Year estimates, and the COVID Tracking Project at *The Atlantic*.

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



Note: Data through January 24, 2021.
Sources: FRBC calculations, the COVID Tracking Project at *The Atlantic*, and BEA.

In the week leading up to January 24, hospitalization rates were highest in the Southwest and Southeast states and lowest in the Northwest and the Great Plains states.



Data for January 24, 2021, accessed on January 25, 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 between 380 and 446. The color bins on this map are changed with each update to better represent the latest data.

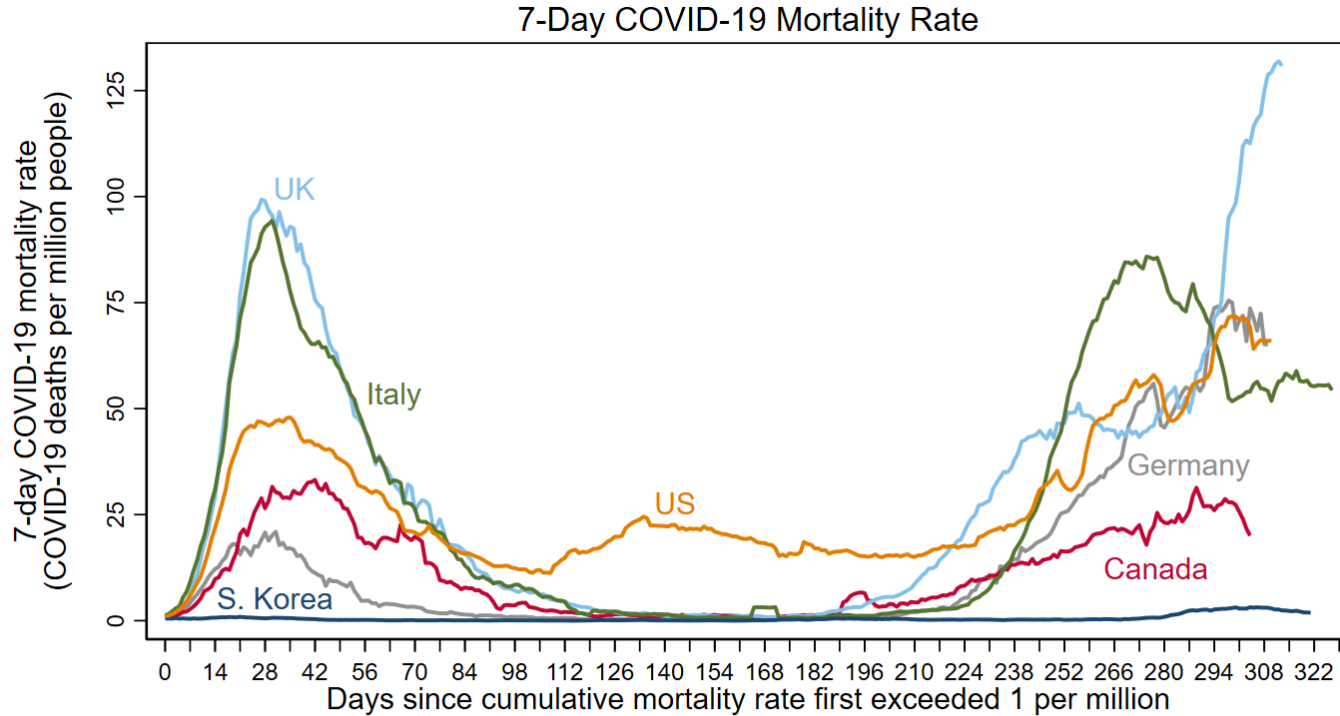
COVID-19 statistics for Fourth District states and the nation as of January 24, 2021.

COVID-19 Statistic	Kentucky	Ohio	Pennsylvania	West Virginia	United States
Levels					
Average daily deaths in past 2 weeks	37	77	201	22	3,206
Cumulative deaths	3,421	10,711	20,532	1,895	419,214
Average daily hospitalizations in the past week	1,601	3,394	4,413	635	118,688
Rates (per million residents)					
14-day mortality rate	116	93	220	175	137
Cumulative mortality rate	765	916	1,603	1,060	1,281
Average daily hospitalization rate in the past week	358	290	345	355	361
Four-week mortality rate by race					
Asian	31	31	174	--	166
Black	134	124	292	134	198
Hispanic	31	88	181	--	228
White	184	182	483	257	261
Cumulative mortality rate by race					
Asian	291	276	754	--	725
Black	775	893	1,787	433	1,514
Hispanic	344	456	899	--	1,199
White	711	879	1,626	764	1,167

Notes: WV is missing data for a relatively high share of COVID-19 deaths. WV 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.

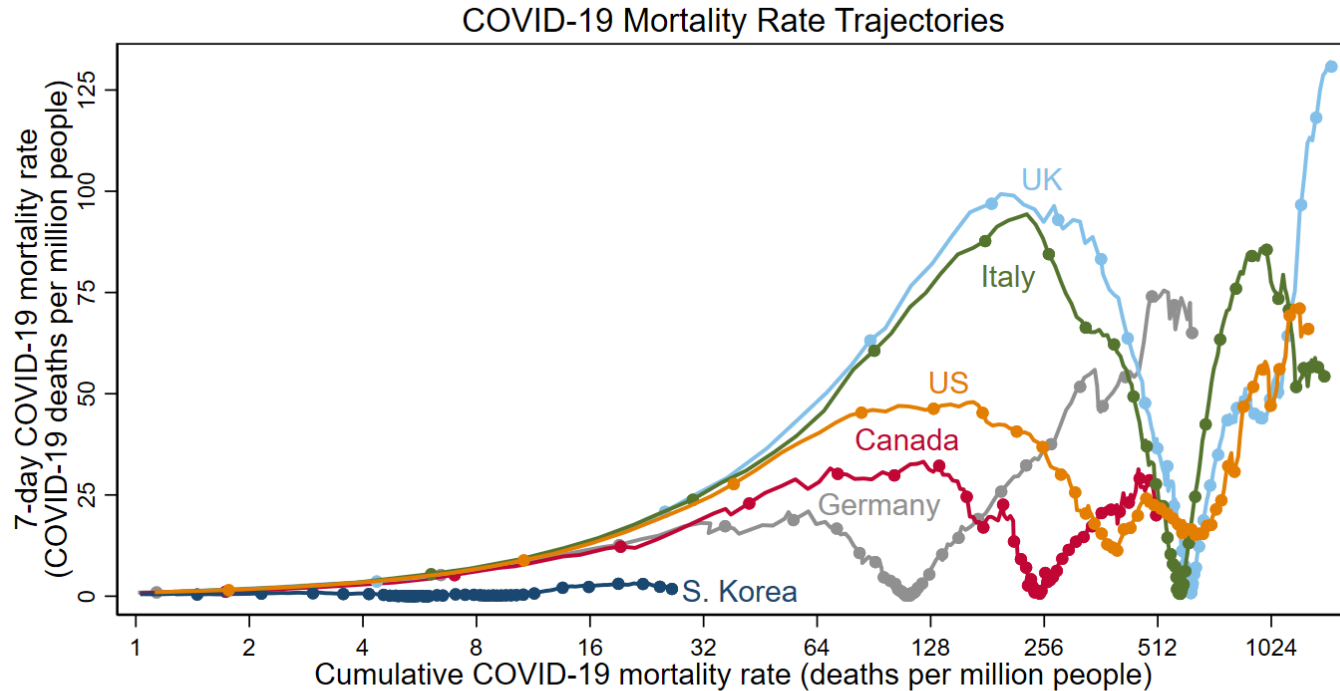
The 7-day COVID-19 mortality rate in the United States rose in the past week. The US 7-day mortality rate is comparable to that of Germany, below that of the UK, and above that of Italy.



Notes: 3/22/2020 was first day US rate > 1. Data through 1/24/2021.

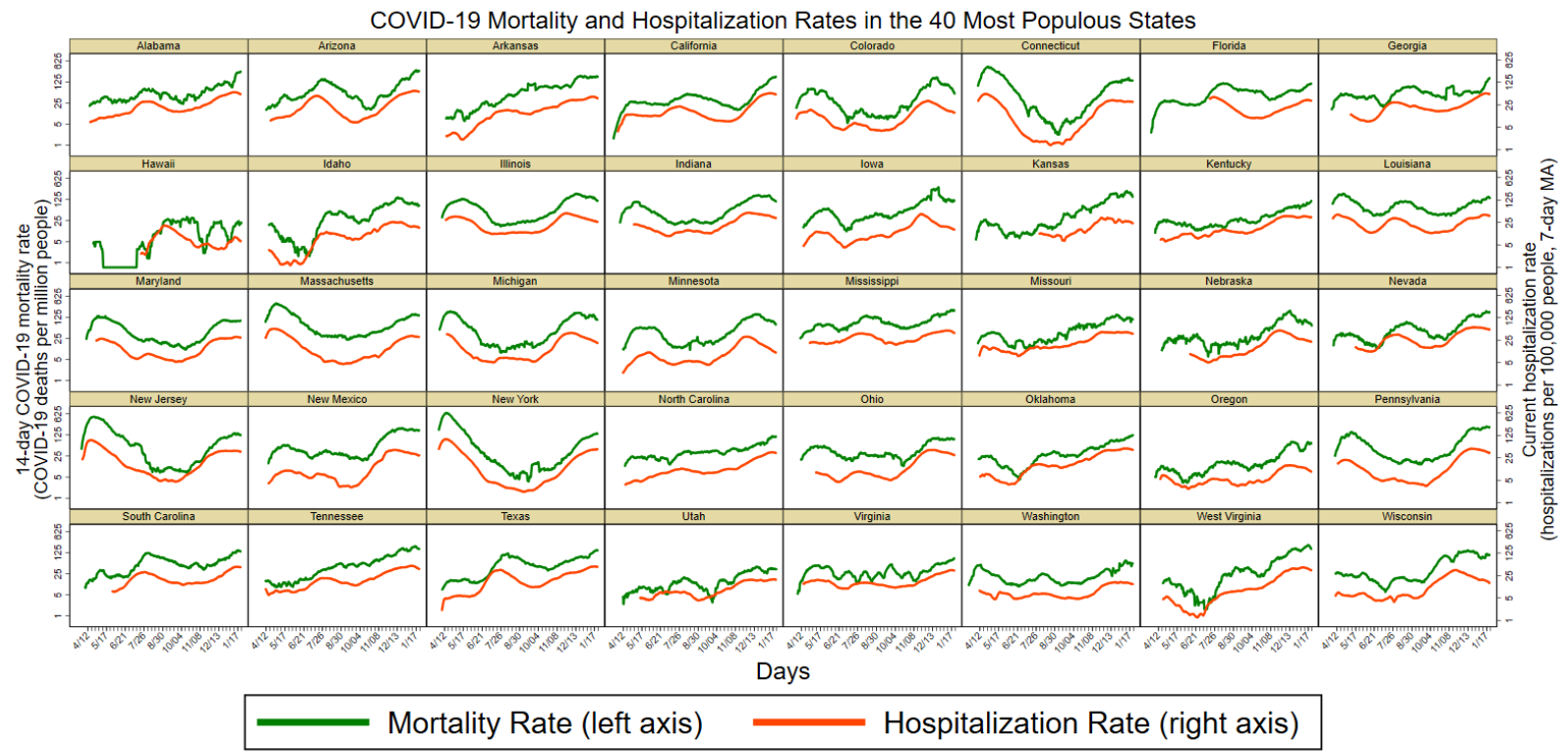
Sources: FRBC calculations, the Center for Systems Science and Engineering at Johns Hopkins University, and the World Bank.

As of January 24, the cumulative COVID-19 mortality rate of the United States is 1,281 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 24, 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 1/22-1/24/2021. 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.