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COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

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Measure	Desired Change	Yesterday in the U.S.
No. of Tests	Increase	Up 5.1% (Cumulative)
Test-Positivity Rate	Decline	Down to 16.7% (v. 17.0%)
No. of Cases	Plateau	Up 3.3% (active cases up 2.8%)
% of Deaths Per Case	Decline	Steady at 5.8%
No. of Deaths / 1M Population	Plateau	Up to 198.7
Recoveries : Deaths	Increase (>1:1)	Up slightly to 2.46

We continue to track the 29 countries with the most cases, plus South Korea. These 30 countries represent 91.1% of all cases in the world.

Highlights from Friday include:

- Two special items for your review today: First, we have updated the charts showing state-by-state readiness for relaxing restrictions on businesses and individuals. We compare where each state is as of yesterday then, show where they stood an April 26 ad April 15. A great deal of positive movement is in evidence.
- Second, we analyzed why states in the Northeast were hit so much harder by the virus than the rest of the country. A cursory review of age and health demographics did not yield a satisfactory explanation. Population density, however, coupled with the timing of the peak flu season, seems to explain a significant portion of the observed differences in virus cases and deaths per capita. States with the highest population density generally were hit the hardest – particularly if their peak flu visits occurred in March. States with high population density but, an earlier flu season, seemed to be spared to a significant degree.
- Just more than 320,000 tests were reported on Friday – the third highest daily total since the start of the virus spread. The test-positive rate for these tests was only 10.6%, bringing the cumulative rate down to 16.7%. Ideally, the test-positive rate would stabilize at a single-digit run rate.
- New York and Utah appear to be testing a peak in active cases: New York's active cases were highest on April 26; Utah's on April 29. In neither case, however, does the time-series trend confirm that these were peaks would be permanent.
- Five states– Illinois, Indiana, Iowa, Maryland and Nebraska - and the District of Columbia, are of concern due to high new high infection rates that have yet to peak.
- New infection rates are increasing in several countries - Brazil, Chile, India, Mexico, Pakistan, Peru, Russia and Saudi Arabia. Note the number of these are in Central and South America. Singapore, Ecuador and the United States have the highest new daily infection rates during the past 7 days.
- Several European countries have experienced the highest cases and deaths per capita, including Belgium, France and Ireland, Italy and Spain.

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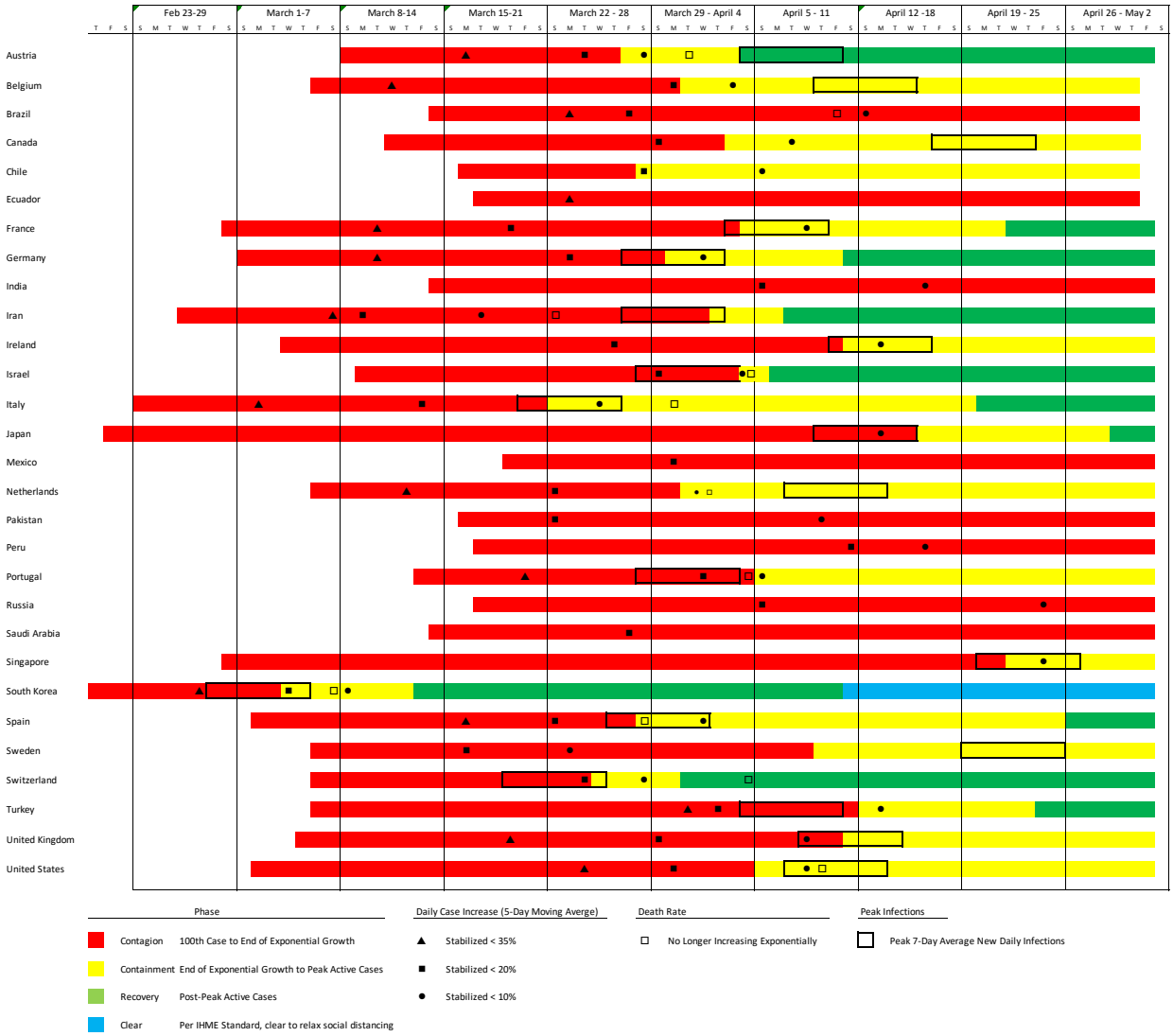
Virus Progression: Hardest Hit Countries

Japan Breaks from Exponential Case Growth; Spain Moves Beyond Peak Active Cases

Eight countries as still experiencing exponential case growth – Brazil, Ecuador, India, Mexico, Pakistan, Peru, Russia and Saudi Arabia. Note that, except for Russia, these countries are in the bottom ½ of the tracked countries in terms of total cases. The exponential growth in these countries suggests that the virus is beginning to spread now in Asia and South America.

The graphic illustrates in color when the country first recorded 100 total cases (start of the "contagion" phase); when growth stopped following an exponential pattern (start of the "containment" phase); and, when peak total cases were recorded (start of the "recovery" phase). It uses symbols to indicate when average daily case growth rates fell (and were sustained) below certain benchmarks, as well as when deaths stopped growing exponentially.



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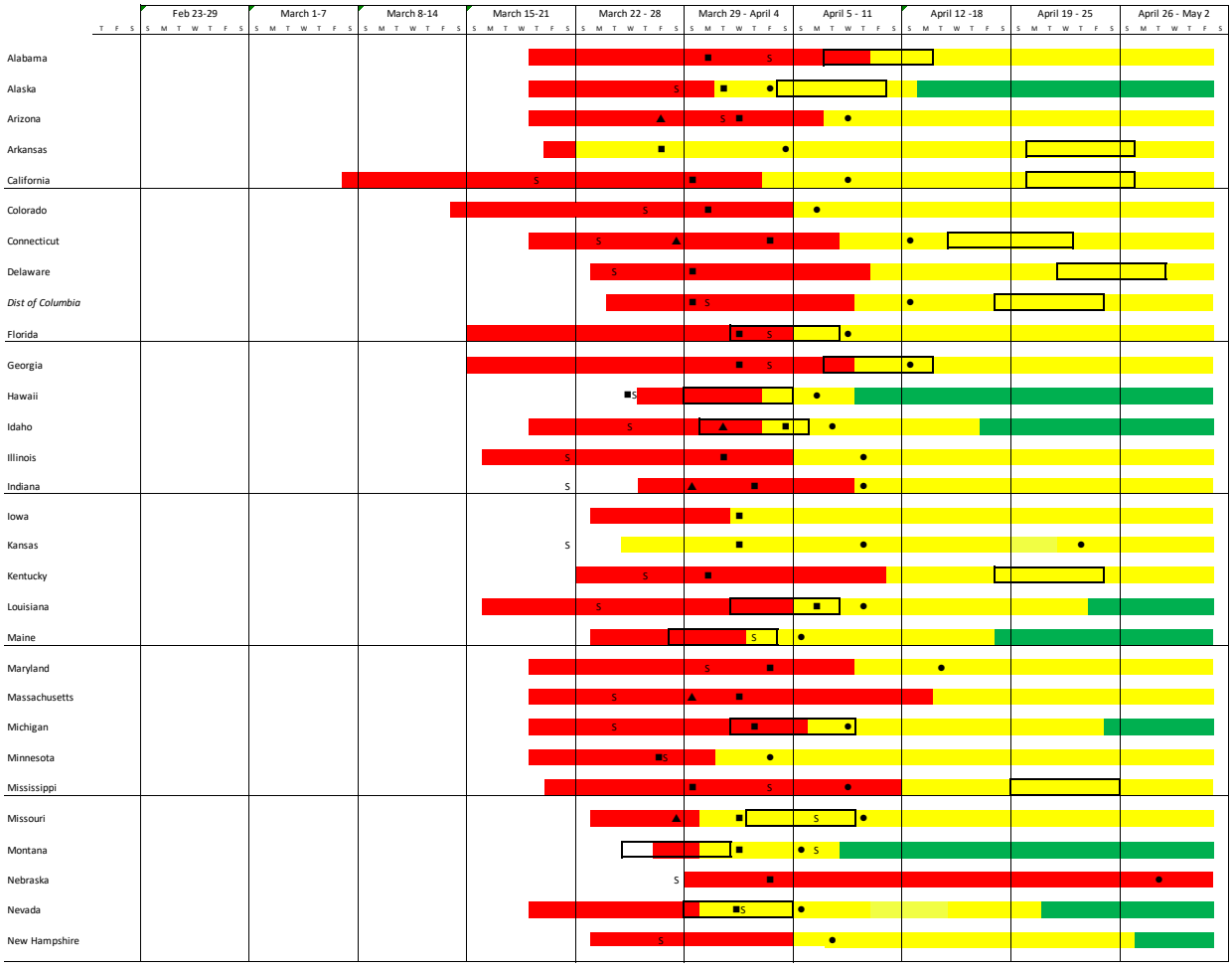
Virus Progression: US States, District of Columbia and New York City

The Majority of U.S. States Are in Containment and Well on Their Way Toward Recovery

We now show sixteen states – Alaska, Hawaii, Idaho, Louisiana, Maine, Michigan, Montana, Nevada, New Hampshire, Oklahoma, Oregon, South Carolina, South Dakota, Texas, Wisconsin and Wyoming - that are past their peak in active cases.

New York and Utah are showing indication that a peak in active cases may be on the horizon.

A state is not shaded green until active cases appear to have peaked.



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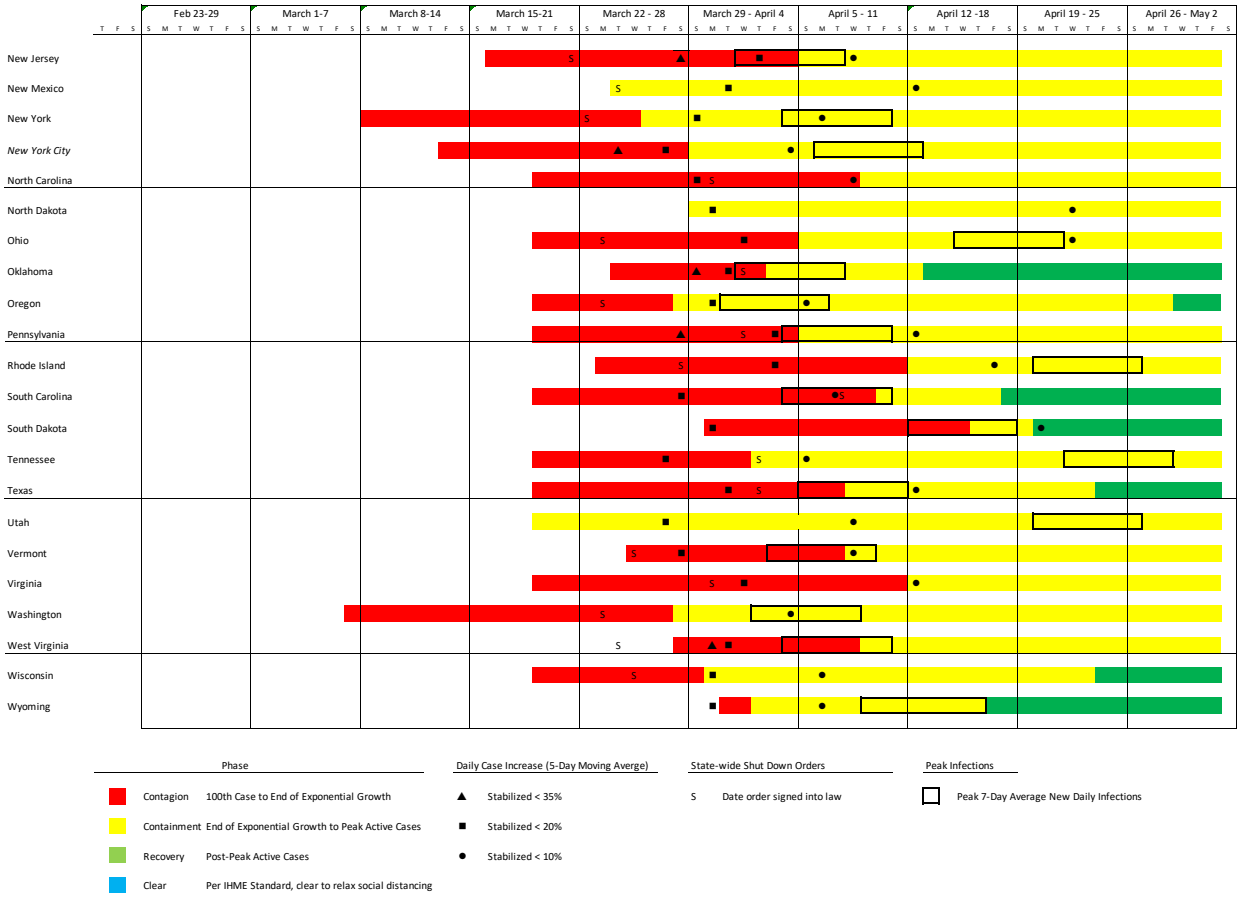

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Country-By-Country Statistics and Rankings

The U.S. Leads the World in Cases and Deaths; Is Now 2rd in New Daily Infections per Capita and 6th in Cases per Capita; But, is 10th in Deaths Per Capita and 14th in Deaths Per Case

This table provided statistics and ranking of each of the countries we are tracking.

As of May 1

Country	Total Cases	Rank	Cases per 1M Population	Rank	Deaths	Rank	Death Rate	Rank	Deaths per 1 Million Population	Rank	5-day Moving Average Case Growth Rate	Rank	Tests per 1M Population	Rank	New Daily Infections Per 1M Population (5-Day M.A.)	Rank
USA	1,131,030	(1)	3,417	(6)	65,753	(1)	5.8%	(14)	198.6	(10)	2.8%	(14)	20,241	(13)	88.8	(2)
Austria	15,531	(28)	1,725	(15)	589	(23)	3.8%	(19)	65.4	(15)	0.4%	(28)	29,321	(8)	7.3	(25)
Belgium	49,032	(13)	4,231	(2)	7,703	(6)	15.7%	(1)	664.6	(1)	1.2%	(19)	21,847	(12)	58.4	(7)
Brazil	92,109	(10)	433	(24)	6,410	(8)	7.0%	(9)	30.2	(19)	7.9%	(2)	1,597	(25)	26.3	(18)
Canada	55,061	(12)	1,459	(17)	3,391	(12)	6.2%	(11)	89.8	(12)	3.3%	(10)	22,050	(11)	42.3	(10)
Chile	17,008	(26)	890	(21)	234	(27)	1.4%	(27)	12.2	(22)	5.8%	(8)	9,910	(21)	35.1	(13)
China	82,874	(11)	58	(29)	4,633	(11)	5.6%	(15)	3.2	(27)	0.0%	(30)	0	(30)	0.0	(30)
Ecuador	26,336	(18)	1,493	(16)	1,063	(20)	4.0%	(17)	60.3	(16)	2.8%	(13)	4,078	(24)	29.3	(16)
France	167,346	(5)	2,564	(9)	24,594	(5)	14.7%	(3)	376.8	(5)	0.6%	(26)	16,856	(14)	16.5	(21)
Germany	164,077	(6)	1,958	(13)	6,736	(7)	4.1%	(16)	80.4	(13)	0.8%	(25)	30,400	(7)	15.5	(22)
India	37,257	(16)	27	(30)	939	(22)	2.5%	(23)	0.7	(30)	6.0%	(7)	654	(28)	1.3	(28)
Iran	95,646	(9)	1,139	(20)	6,091	(9)	6.4%	(10)	72.5	(14)	1.1%	(21)	5,656	(23)	12.7	(23)
Ireland	20,883	(22)	4,229	(3)	1,265	(17)	6.1%	(12)	256.2	(8)	1.7%	(16)	31,179	(6)	78.1	(4)
Israel	16,101	(27)	1,860	(14)	225	(28)	1.4%	(26)	26.0	(20)	0.8%	(24)	42,108	(1)	17.2	(19)
Italy	207,428	(3)	3,431	(5)	28,236	(2)	13.6%	(4)	467.0	(3)	1.0%	(23)	33,962	(3)	34.1	(14)
Japan	14,305	(29)	113	(27)	455	(24)	3.2%	(20)	3.6	(26)	1.4%	(18)	1,377	(26)	1.8	(27)
Mexico	19,244	(23)	149	(26)	1,859	(15)	9.7%	(8)	14.4	(21)	7.4%	(3)	635	(29)	8.4	(24)
Netherlands	39,791	(15)	2,322	(11)	4,893	(10)	12.3%	(6)	285.6	(6)	1.0%	(22)	13,184	(16)	27.1	(17)
Pakistan	18,092	(24)	82	(28)	417	(25)	2.3%	(24)	1.9	(29)	7.4%	(4)	825	(27)	4.0	(26)
Peru	40,459	(14)	1,227	(19)	1,124	(19)	2.8%	(21)	34.1	(18)	9.1%	(1)	10,388	(20)	81.5	(3)
Portugal	25,351	(19)	2,486	(10)	1,007	(21)	4.0%	(18)	98.8	(11)	1.2%	(20)	40,205	(2)	35.8	(12)
Russia	114,431	(8)	763	(22)	1,169	(18)	1.0%	(28)	7.8	(23)	7.2%	(5)	25,354	(9)	43.6	(9)
Saudi Arabia	24,097	(20)	692	(23)	169	(29)	0.7%	(29)	4.9	(24)	6.3%	(6)	9,392	(22)	36.9	(11)
Singapore	17,701	(25)	3,026	(7)	16	(30)	0.1%	(30)	2.7	(28)	5.8%	(9)	24,600	(10)	137.4	(1)
South Korea	10,774	(30)	210	(25)	248	(26)	2.3%	(25)	4.8	(25)	0.1%	(29)	12,153	(18)	0.2	(29)
Spain	242,988	(2)	5,197	(1)	24,824	(4)	10.2%	(7)	530.9	(2)	1.4%	(17)	32,699	(4)	71.0	(6)
Sweden	21,520	(21)	2,131	(12)	2,653	(14)	12.3%	(5)	262.7	(7)	2.9%	(12)	11,833	(19)	55.9	(8)
Switzerland	29,705	(17)	3,469	(4)	1,754	(16)	5.9%	(13)	204.8	(9)	0.4%	(27)	31,371	(5)	17.1	(20)
Turkey	122,392	(7)	1,451	(18)	3,258	(13)	2.7%	(22)	38.6	(17)	2.1%	(15)	12,747	(17)	29.6	(15)
UK	177,454	(4)	2,614	(8)	27,510	(3)	15.5%	(2)	405.2	(4)	3.0%	(11)	15,082	(15)	71.5	(5)

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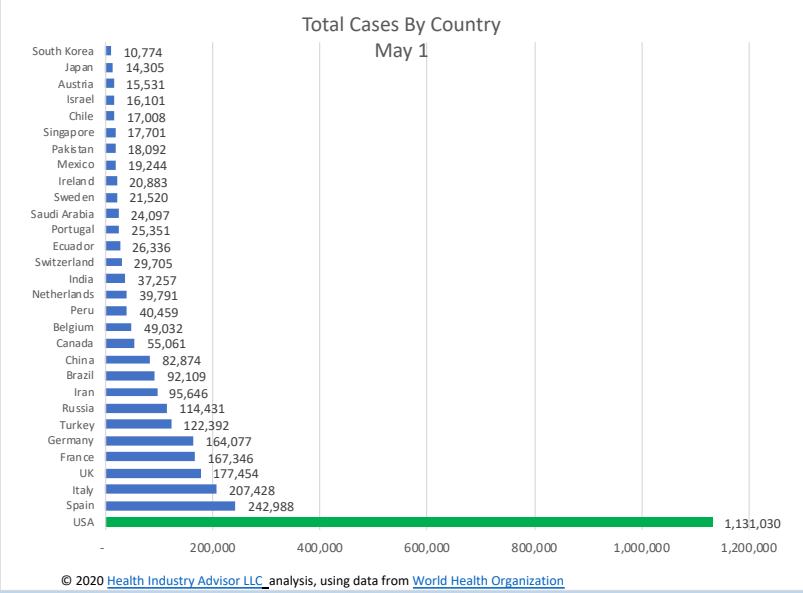
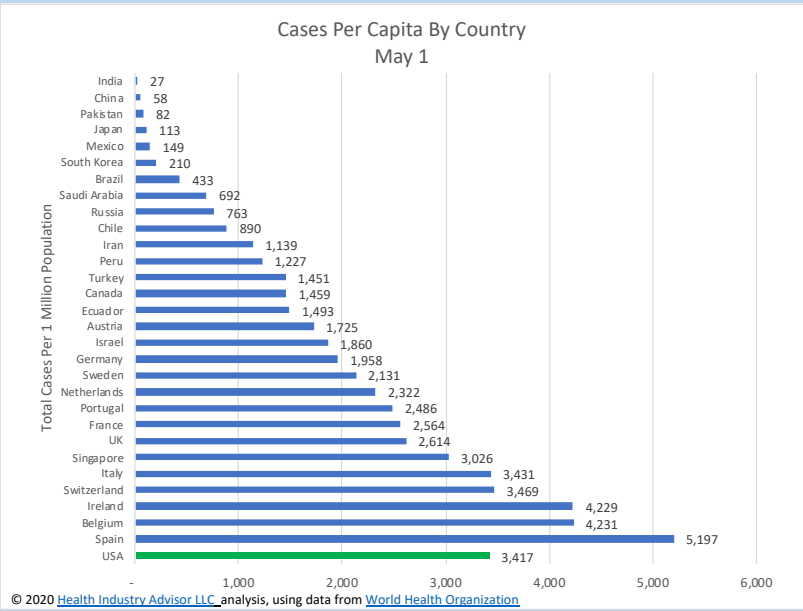
Country-By-Country: Cases and Cases per Capita

Three European Countries Are Reporting the Most Cases per Capita

Spain, Belgium and Ireland each have more cases per capita than the U.S. Of these, only Spain has passed a peak in Active Cases. The U.S has the most cases; however, it is 6th in cases per capita.





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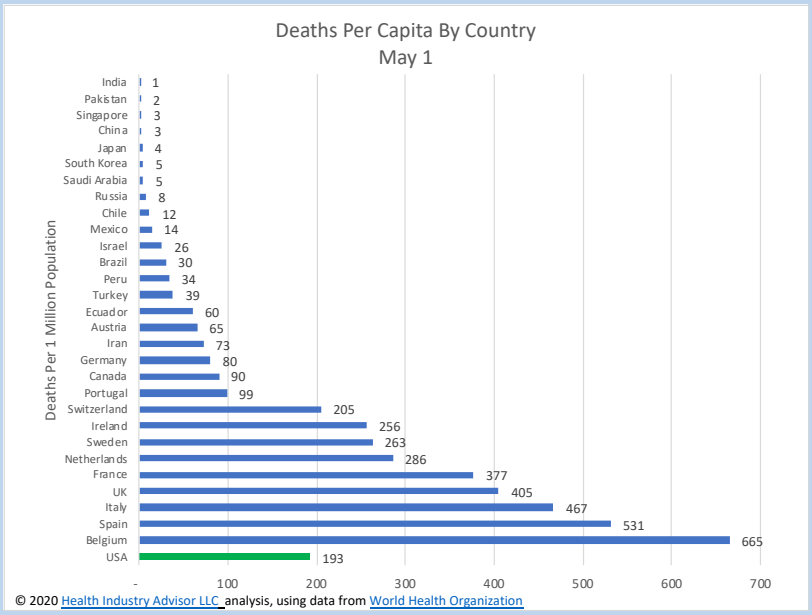
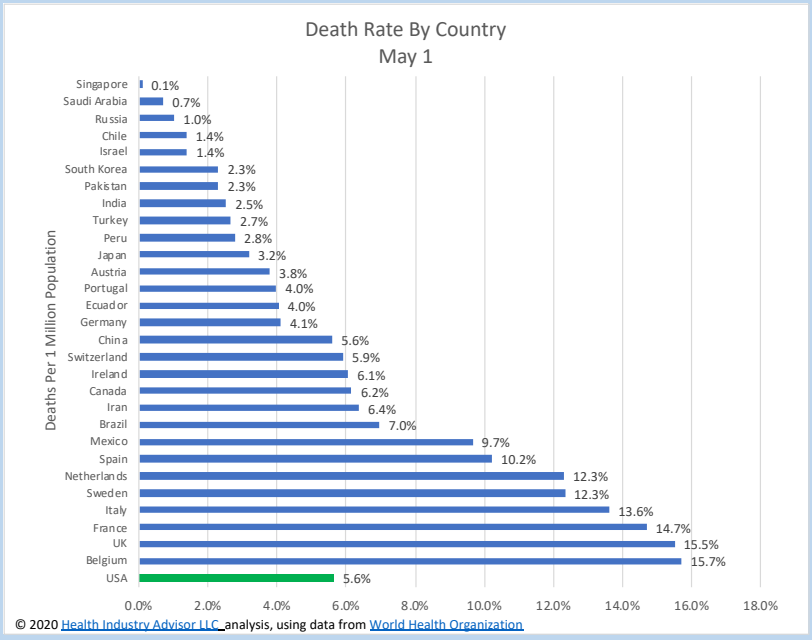
Country-By-Country: Death Rate Per Capita and Per Case Rate

European Countries Are Reporting the Highest Rates of Death Form the Virus

Belgium, United Kingdom, France, Italy. Are at the top of the lists for both deaths per capita and deaths per case. The United States is 10th in deaths per capita and 14th in deaths per case.





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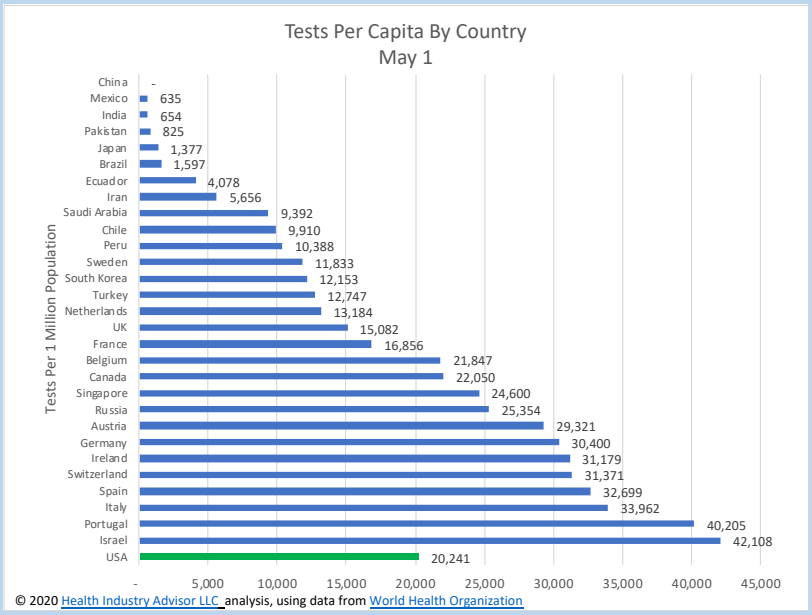
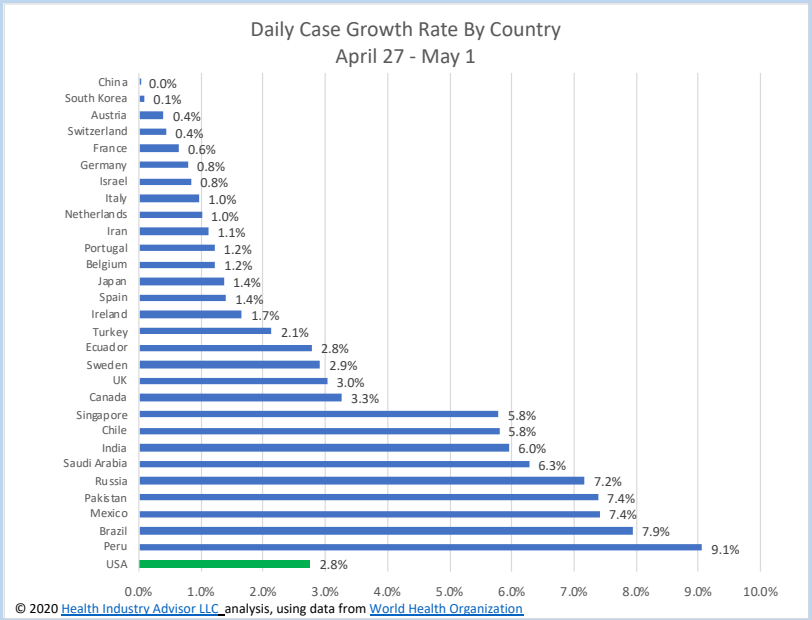
Country-By-Country: Tests Per Capita and Case Growth Rates

European Countries Are Setting the Pace on Testing; Growth in Cases is Fastest in Central and South America, Middle East

Israel and Portugal have set the pace in testing per capita. Peru and Brazil are seeing the greatest % increase in cases. The United States is 13th on both measures.





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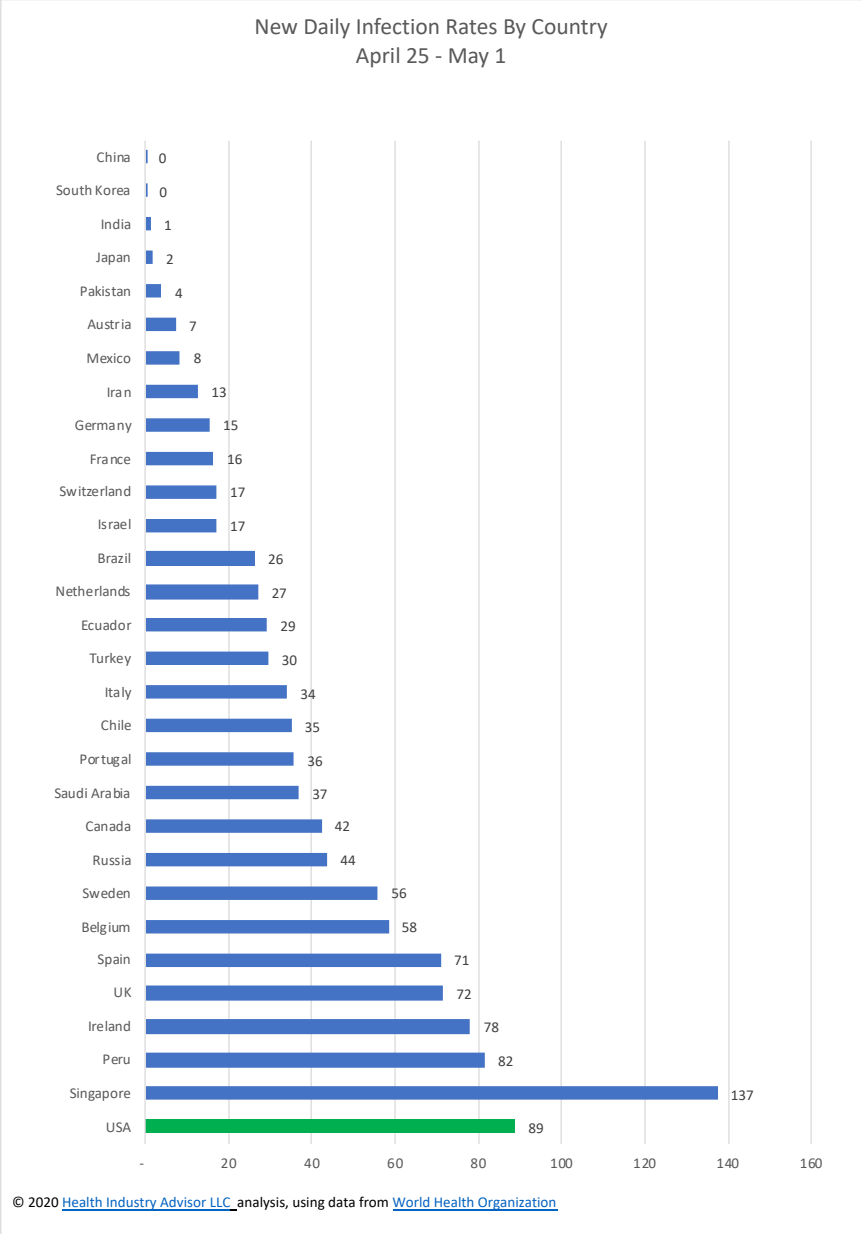
Country-By-Country: New Daily Infection Rates

Daily Infection Rates Are Falling Across Europe; Falling Yet Still High in the United States

Singapore has the highest rate of new infections per capita during the past 7 days, the rate is falling slowly in the United States but, now ranks 2nd among the countries with the most cases.



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State-By State Statistics and Rankings

New York Continues to Experience the Most Cases, Cases Per Capita and Deaths; New Jersey Now Has the Highest New Infection Rate

This table provided statistics and ranking of each of the 50 states and the District of Columbia.

As of May 1

State	Total Cases	Rank	Cases per 1M Population	Rank	Deaths	Rank	Death Rate	Rank	Deaths per 1 Million Population	Rank	5-day Moving Average Case Growth Rate	Rank	Tests per 1M Population	Rank	New Daily Cases Per 1M Population (5-Day M.A.)	Rank
Alabama	7,294	(26)	1,487.6	(30)	289	(24)	4.0%	(29)	58.9	(26)	2.6%	(34)	19,406	(24)	36.9	(35)
Alaska	364	(51)	497.6	(49)	9	(50)	2.5%	(43)	12.3	(49)	1.3%	(48)	27,521	(12)	4.9	(49)
Arizona	7,962	(23)	1,093.9	(39)	330	(22)	4.1%	(24)	45.3	(35)	4.1%	(16)	10,779	(51)	37.6	(33)
Arkansas	3,321	(39)	1,100.5	(38)	64	(40)	1.9%	(46)	21.2	(46)	2.0%	(41)	16,821	(29)	24.2	(41)
California	51,775	(5)	1,310.4	(33)	2,111	(8)	4.1%	(27)	53.4	(32)	3.5%	(22)	16,731	(30)	39.6	(30)
Colorado	15,768	(17)	2,738.1	(15)	820	(17)	5.2%	(14)	142.4	(14)	3.2%	(24)	13,606	(41)	87.1	(15)
Connecticut	28,764	(10)	8,067.8	(5)	2,339	(7)	8.1%	(2)	656.0	(3)	2.6%	(33)	27,993	(10)	194.1	(7)
Delaware	4,918	(31)	5,050.5	(8)	159	(34)	3.2%	(37)	163.3	(13)	4.0%	(17)	23,786	(17)	216.5	(6)
District Of Columbia	4,658	(35)	6,600.1	(6)	231	(30)	5.0%	(17)	327.3	(7)	3.9%	(18)	30,877	(8)	228.7	(5)
Florida	34,728	(8)	1,616.9	(26)	1,314	(10)	3.8%	(32)	61.2	(24)	2.0%	(44)	19,636	(23)	27.9	(40)
Georgia	27,496	(12)	2,589.7	(16)	1,166	(13)	4.2%	(23)	109.8	(15)	3.2%	(26)	16,350	(31)	67.3	(22)
Hawaii	619	(48)	437.2	(50)	16	(49)	2.6%	(42)	11.3	(51)	0.4%	(50)	22,807	(18)	1.8	(50)
Idaho	2,035	(43)	1,135.6	(37)	63	(41)	3.1%	(39)	35.2	(39)	1.4%	(45)	17,381	(28)	13.2	(46)
Illinois	56,055	(4)	4,423.6	(9)	2,457	(6)	4.4%	(22)	193.9	(11)	5.0%	(8)	22,204	(19)	184.9	(8)
Indiana	18,630	(15)	2,767.3	(14)	1,175	(12)	6.3%	(6)	174.5	(12)	4.4%	(10)	15,012	(36)	105.0	(13)
Iowa	7,884	(24)	2,498.8	(18)	170	(33)	2.2%	(44)	53.9	(31)	7.6%	(3)	14,555	(37)	155.7	(11)
Kansas	4,536	(36)	1,557.0	(28)	138	(35)	3.0%	(40)	47.4	(34)	7.4%	(4)	11,357	(50)	77.5	(20)
Kentucky	4,879	(32)	1,092.1	(40)	248	(29)	5.1%	(15)	55.5	(30)	3.7%	(20)	12,983	(45)	35.2	(36)
Louisiana	28,711	(11)	6,176.0	(7)	1,970	(9)	6.9%	(4)	423.8	(5)	1.4%	(46)	36,077	(6)	79.0	(18)
Maine	1,123	(45)	835.4	(46)	55	(42)	4.9%	(18)	40.9	(36)	2.0%	(42)	15,487	(35)	16.8	(44)
Maryland	23,472	(13)	3,882.4	(11)	1,192	(11)	5.1%	(16)	197.2	(10)	4.8%	(9)	20,152	(20)	162.0	(10)
Massachusetts	64,311	(3)	9,254.0	(3)	3,716	(4)	5.8%	(9)	534.7	(4)	3.2%	(27)	42,405	(3)	274.3	(4)
Michigan	42,356	(7)	4,241.2	(10)	3,866	(3)	9.1%	(1)	387.1	(6)	2.3%	(38)	19,648	(22)	81.8	(17)
Minnesota	5,730	(29)	1,016.0	(43)	371	(20)	6.5%	(5)	65.8	(22)	9.7%	(2)	13,538	(42)	64.5	(25)
Mississippi	7,212	(27)	2,423.3	(19)	281	(25)	3.9%	(30)	94.4	(17)	4.1%	(15)	23,939	(16)	85.3	(16)
Missouri	8,018	(22)	1,306.4	(34)	358	(21)	4.5%	(21)	58.3	(27)	2.7%	(31)	13,490	(43)	30.8	(39)
Montana	453	(50)	423.8	(51)	16	(49)	3.5%	(34)	15.0	(47)	0.2%	(51)	13,634	(40)	1.2	(51)
Nebraska	4,838	(33)	2,501.0	(17)	73	(39)	1.5%	(48)	37.7	(38)	9.8%	(1)	15,517	(34)	178.5	(9)
Nevada	5,227	(30)	1,697.0	(24)	254	(28)	4.9%	(19)	82.5	(19)	2.6%	(35)	18,470	(25)	38.4	(31)
New Hampshire	2,310	(42)	1,698.9	(23)	81	(38)	3.5%	(35)	59.6	(25)	4.4%	(11)	18,122	(26)	62.0	(26)
New Jersey	121,190	(2)	13,644.2	(2)	7,538	(2)	6.2%	(7)	848.7	(2)	2.1%	(40)	28,734	(9)	305.5	(1)
New Mexico	3,513	(38)	1,675.4	(25)	131	(36)	3.7%	(33)	62.5	(23)	5.2%	(6)	33,988	(7)	67.6	(21)
New York	315,222	(1)	16,203.8	(1)	24,069	(1)	7.6%	(3)	1,237.3	(1)	1.4%	(47)	47,274	(2)	277.4	(3)
North Carolina	11,071	(20)	1,055.6	(41)	419	(19)	3.8%	(31)	40.0	(37)	4.2%	(13)	13,178	(44)	38.4	(32)
North Dakota	1,107	(46)	1,452.6	(31)	23	(46)	2.1%	(45)	30.2	(40)	5.0%	(7)	39,251	(4)	67.3	(23)
Ohio	18,743	(14)	1,603.5	(27)	1,002	(14)	5.3%	(12)	85.7	(18)	3.3%	(23)	12,069	(48)	43.7	(29)
Oklahoma	3,748	(37)	947.2	(45)	230	(31)	6.1%	(8)	58.1	(28)	2.9%	(29)	16,220	(32)	22.6	(43)
Oregon	2,579	(40)	611.5	(48)	104	(37)	4.0%	(28)	24.7	(44)	2.2%	(39)	14,252	(38)	13.6	(45)
Pennsylvania	49,642	(6)	3,877.7	(12)	2,651	(5)	5.3%	(13)	207.1	(9)	3.1%	(28)	17,782	(27)	105.9	(12)
Rhode Island	8,962	(21)	8,459.8	(4)	279	(26)	3.1%	(38)	263.4	(8)	3.8%	(19)	63,077	(1)	305.2	(2)
South Carolina	6,258	(28)	1,215.4	(36)	256	(27)	4.1%	(25)	49.7	(33)	2.7%	(32)	11,981	(49)	33.0	(38)
South Dakota	2,525	(41)	2,854.2	(13)	21	(47)	0.8%	(51)	23.7	(45)	2.7%	(30)	20,089	(21)	78.3	(19)
Tennessee	11,891	(19)	1,740.2	(22)	204	(32)	1.7%	(47)	29.9	(41)	4.2%	(14)	27,985	(11)	66.2	(24)
Texas	29,893	(9)	1,030.9	(42)	849	(15)	2.8%	(41)	29.3	(42)	3.7%	(21)	12,615	(46)	33.1	(37)
Utah	4,828	(34)	1,505.9	(29)	46	(45)	1.0%	(50)	14.3	(48)	3.2%	(25)	36,961	(5)	46.6	(28)
Vermont	879	(47)	1,408.7	(32)	50	(43)	5.7%	(10)	80.1	(20)	0.6%	(49)	25,974	(14)	11.9	(47)
Virginia	16,901	(16)	1,980.1	(21)	581	(18)	3.4%	(36)	68.1	(21)	5.4%	(5)	12,557	(47)	88.8	(14)
Washington	15,161	(18)	1,991.0	(20)	832	(16)	5.5%	(11)	109.3	(16)	2.3%	(37)	26,593	(13)	37.2	(34)
West Virginia	1,151	(44)	644.0	(47)	47	(44)	4.1%	(26)	26.3	(43)	2.0%	(43)	25,730	(15)	11.3	(48)
Wisconsin	7,314	(25)	1,256.2	(35)	327	(23)	4.5%	(20)	56.2	(29)	4.4%	(12)	13,824	(39)	48.0	(27)
Wyoming	566	(49)	978.0	(44)	7	(51)	1.2%	(49)	12.1	(50)	2.4%	(36)	15,994	(33)	23.0	(42)
United States	1,131,030		3,417.0		65,753		5.8%		198.6		2.8%		20,241		88.8	

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COVID-19 Dashboard

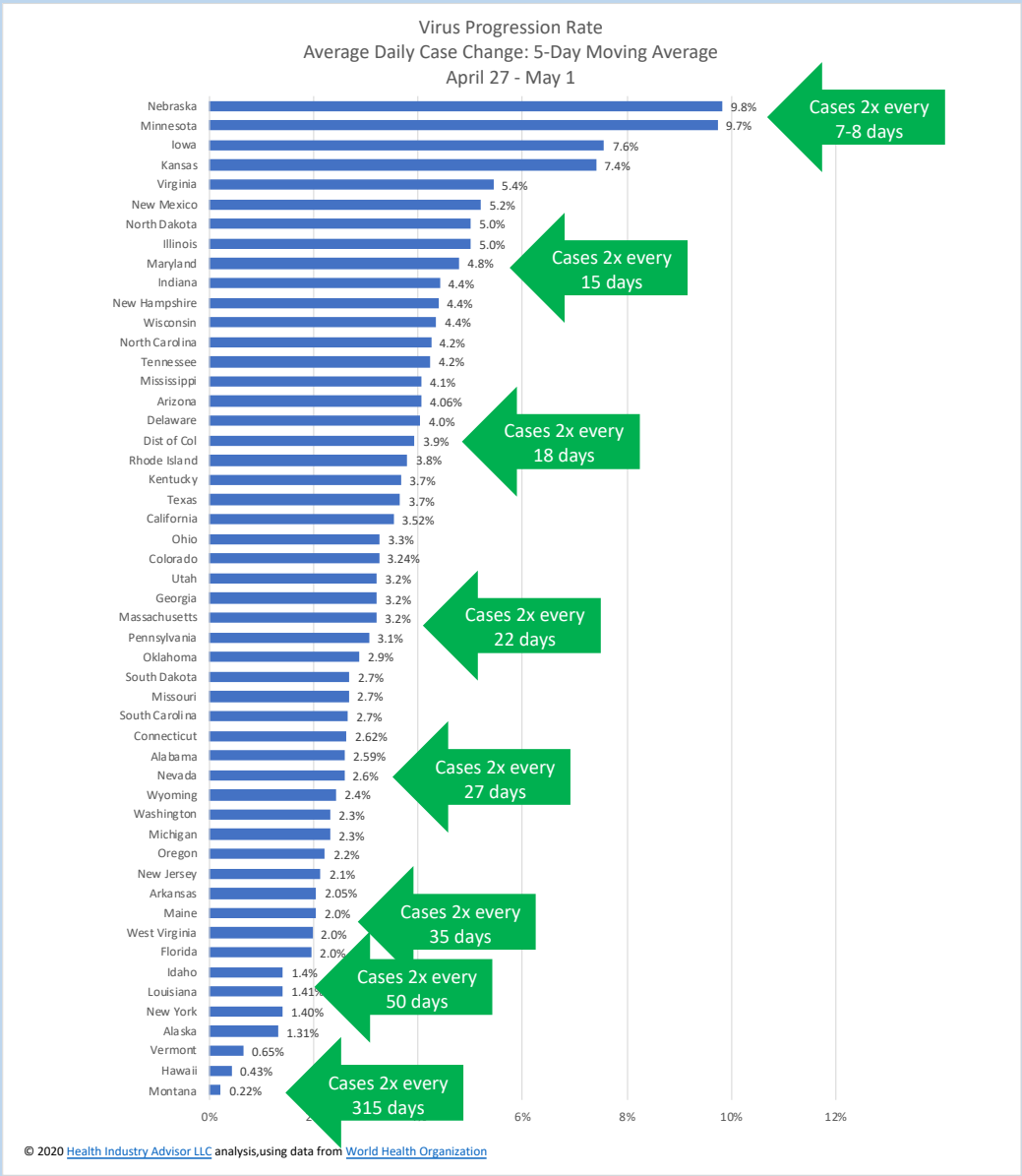
"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

Daily Case Growth Rates by State

Case Growth Rates Continue to Fall Dramatically Across the U.S.

The case growth rate is so low in Montana that it would now take 315 days for cases to double; in Hawaii, 162 days; in Vermont, 107; and in Alaska, 53 days. In Louisiana and New York – two of the hardest-hit states – it would take 48 and 50 days, respectively. For the U.S overall, it would take about 25 days.



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COVID-19 Dashboard

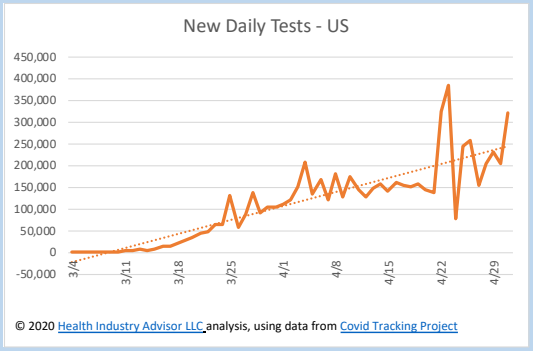
"Strategic Guidance in an Era of Unprecedented Change"

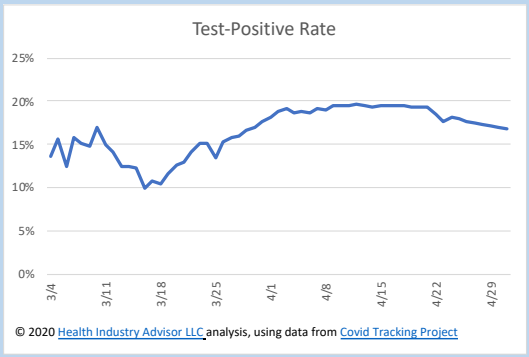
Issue #42: May 2

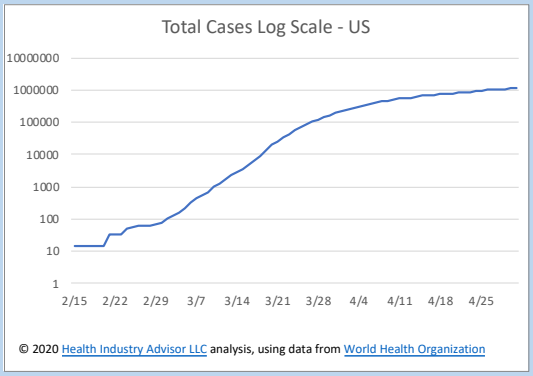
Cases and Death Rates in the U.S.

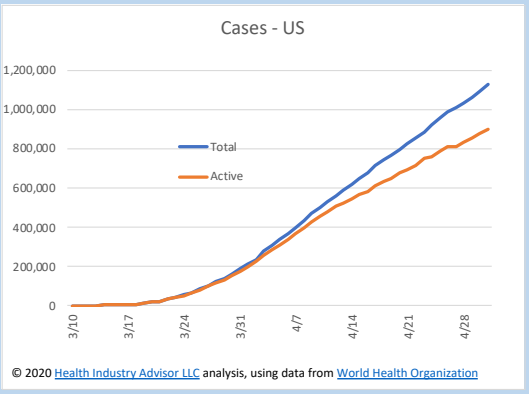
Testing Volume Continues on an Upward Trend, Improving Our Visibility to the Virus; Test-Positive Rates have Declined and New Infection Rates Appear to be Starting Downward

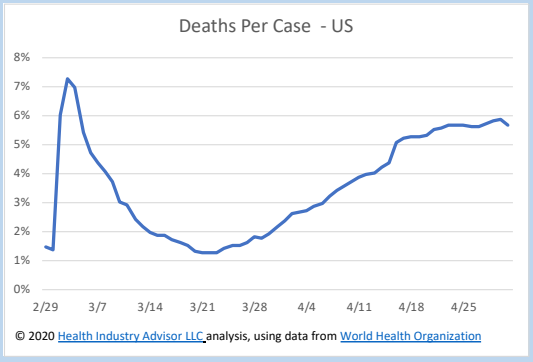
Altough testing volumes are "lumpy" - several states only report positive tests on many days; others report in batches – the trend over the past week is clearly toward increased testing. With increased testing, test-positive rates have declined. This suggests that we are moving beyond simply testing the more severe cases, and getting closer to an idea of true infection rates.

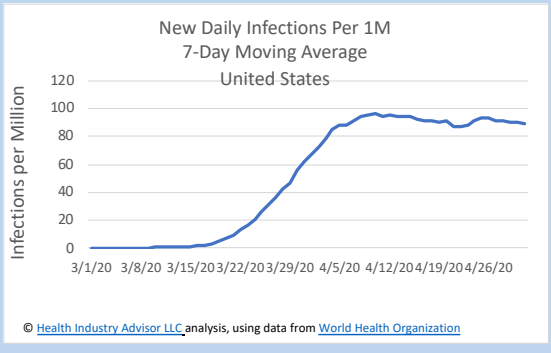












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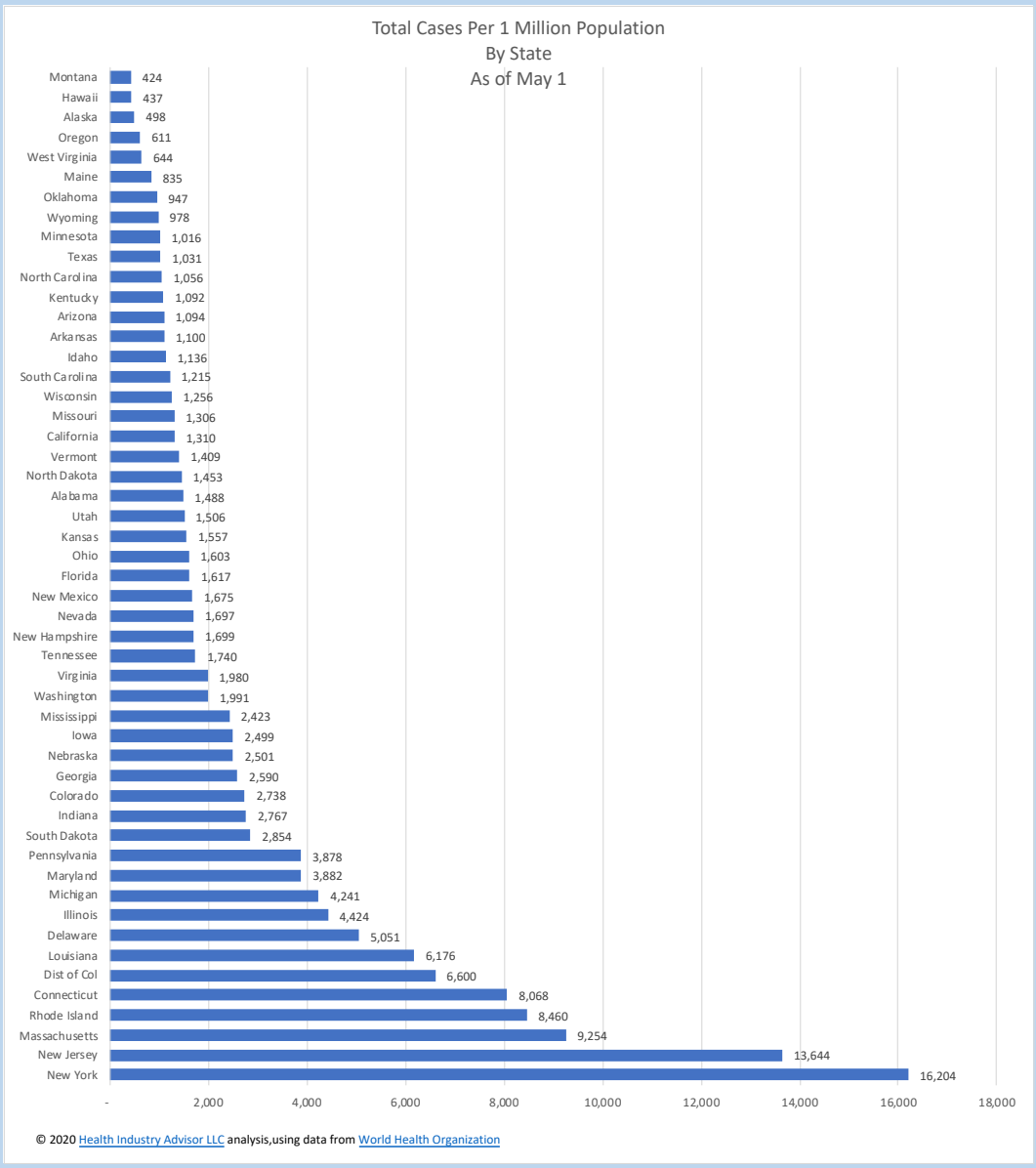
COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

Cases Per Capita

States in the Northeast Lead the Nation in Total Cases Per Capita



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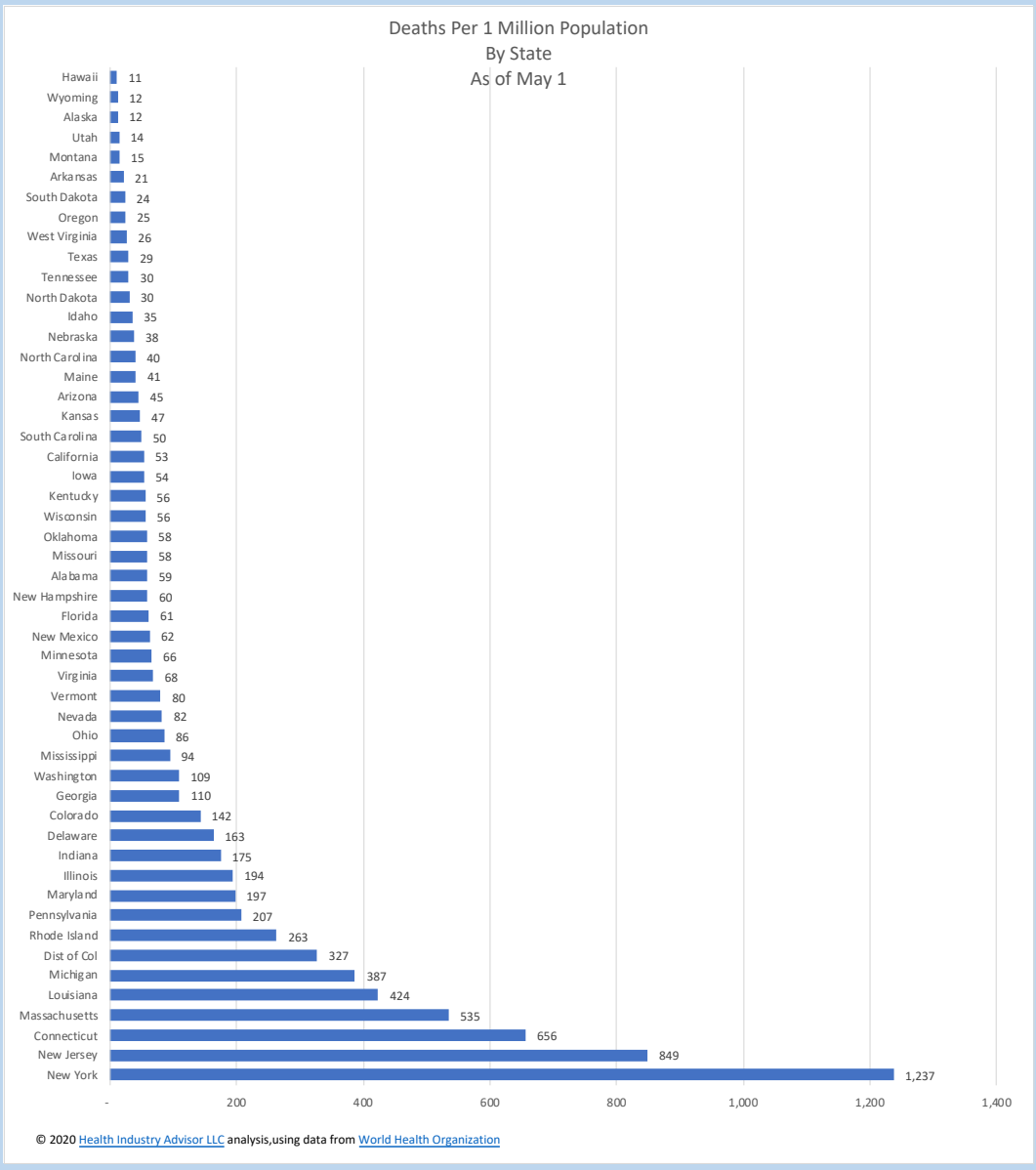
Deaths Per Case

Deaths Per Case Follow a Similar State-By-State Pattern as Cases Per Capita



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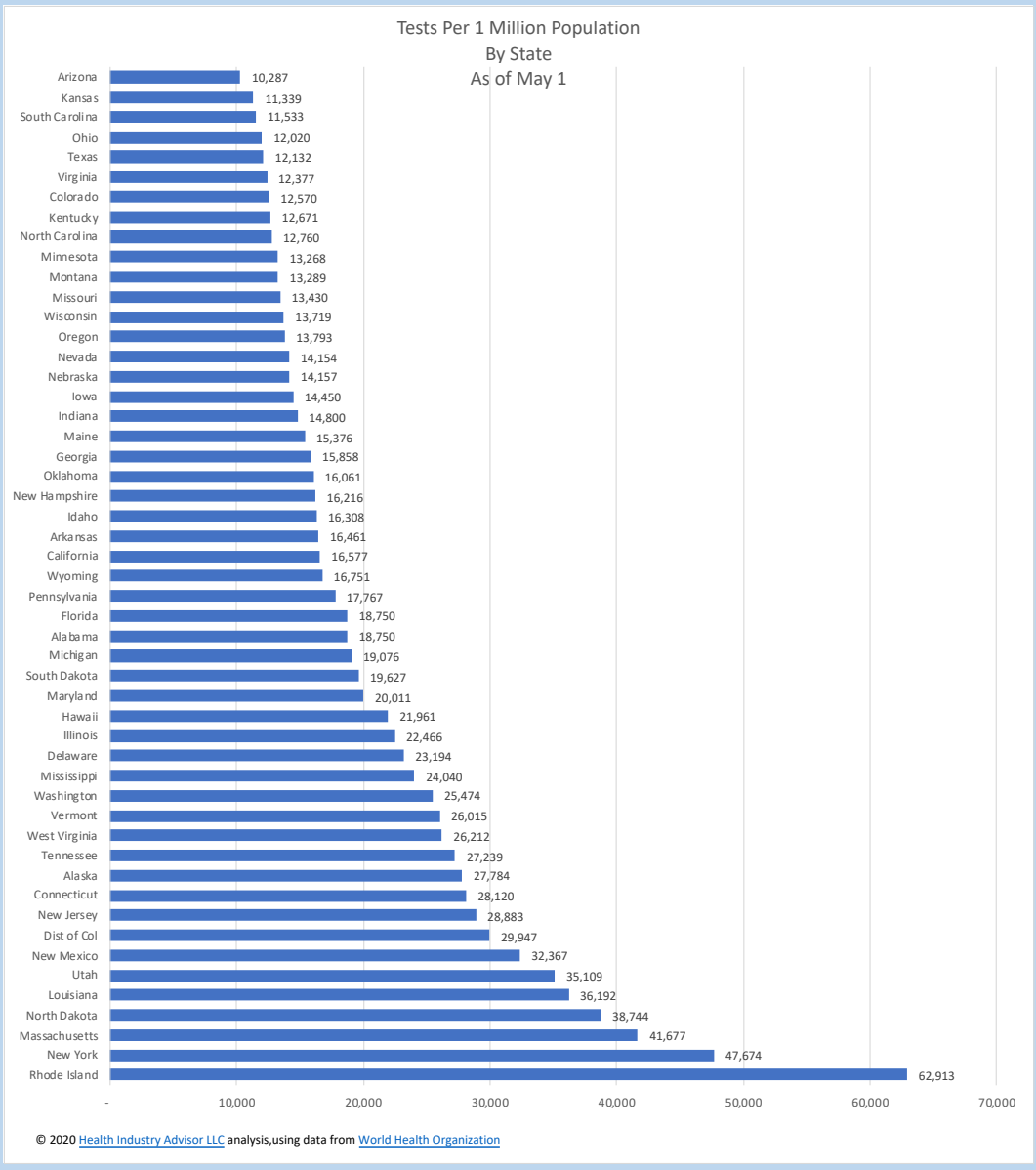
COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

Tests Per Capita

Testing Rates Vary Widely Across the Country – Often Not in Line with Infection Rates



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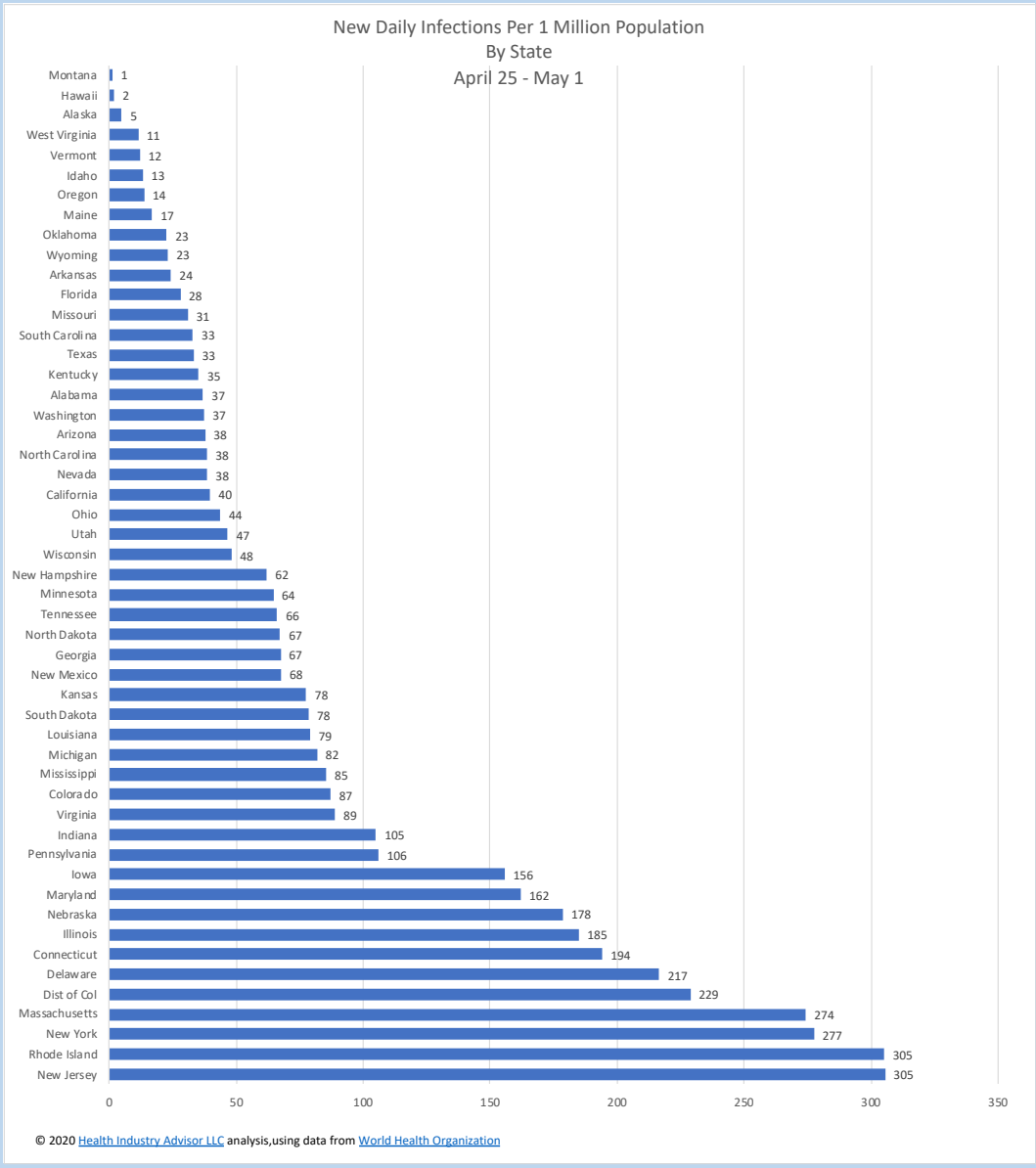
COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

New Daily Infection Rates

New Daily Infection Rates Continue to be Highest in the Northeast States, While Rates Several Midwest States are Increasing



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COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

State-By-State Readiness for Relaxing Restrictions
Progress is Being Made!

Passage of several days can make quite a bit of a difference, as we observe how "ready" each state is for relaxing the restrictions imposed to slow the virus spread.

Last week, we introduced a scorecard to provide a snapshot of this readiness. we have incorporated the following measures into to a readiness scorecard, (along with the rationale for the scoring within each measure):

- Tests/Capita – indicates testing robustness; grading quintiles based on comparison to the top 5, top 1/3, top 1/2 and top 2/3 among the countries we track, then all others
    - Direction – whether test volume increased/stayed level, or decreased least week v. prior week
- Test-Positive Rate – indicates whether testing is identifying sufficient numbers of non-infected persons; grading based on: comparison to best reported in the world (South Korea, Australia, New Zealand), next group of countries (Canada, Germany, Denmark), then, next 3 levels set to differentiate among states
    - Direction – whether test positive rate increased/stayed level, or decreased least week v. prior week
- New Infections / 1 Million – indicates how quickly the virus is spreading; grading based on: rate proposed by IHME for ending social distancing, top ten, top 20, top 25 among the countries we track, then all others
    - Direction – whether new infection per capita rate increased/stayed level, or decreased least week v. prior week
- Influenza-Like Illness – Using CDC-reported data, indicates whether the state's visits for influenza the past week were above or below CDC baseline for the state's region
    - Direction – whether the % visits for influenza the last 3 weeks increased or decreased the past 3 weeks v. the prior 3 weeks
- Hospital Resources – using IHME projections, whether the state is pre- or post- peak projected hospital resource needs due to the virus; and the 5 of peak resources projected to be needed today. Grading based on current need at <45% of peak, 45-60%, 60-75%, 75-85%, and all others.

The scorecard, as of May 1 is presented on the next page., then for April 26 and April 15 on the following pages.

Note the positive movement, especially in the testing volume and hospital resources categories! In the test-positive and new daily infection categories, the majority of the states are making positive strides; af ew states, however, are seeing higher test-positive rates and/or increases in new infection.

These scorecards are for informational purposes only. The measures and grading used are not based on any scientific standard and should not be considered a substitute for public health considerations or other clinical or economic judgement. States may elect to move faster or slower than the scorecard might otherwise indicate.

Health Industry Advisor, llc

COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

State-By-State Relative "Readiness" For Relaxing Restrictions (DRAFT)
As of: 5/1/2020

This table compares each state, based on measures similar to the gating criteria included in the federal government's *Opening Up America Plan*. This chart is for informational purposes only, and should not be construed as as a substitute for public health considerations, clinical judgement or as a recommendation for taking any specific action.

State	Tests / Capita		Test-Positive Rate		New Infections / 1 Million		Influenza-Like Illness		Hospital Resources
	#	Direction	#	Direction	#	Direction	Baseline	Direction	
Alabama		✓		✓		✓	✓	✓	
Alaska		✓		✓		✓	✓	✓	
Arizona		✓		✗		✗	✓	✓	
Arkansas		✓		✗		✗	✓	✓	
California		✓		✓		✗	✓	✓	
Colorado		✓		✗		✗	✓	✓	
Connecticut		✓		✗		✗	✗	✓	
Delaware		✓		✗		✗	✓	✓	
District Of Columbia		✓		✗		✗	✗	✓	
Florida		✓		✓		✓	!	!	
Georgia		✓		✓		✓	✓	✓	
Hawaii		✓		✓		✓	✓	✓	
Idaho		✓		✓		✓	✗	✗	
Illinois		✓		✓		✗	✗	✓	
Indiana		✓		✓		✗	✓	✓	
Iowa		✓		✗		✗	✓	✓	
Kansas		✓		✗		✗	✗	✓	
Kentucky		✓		✗		✗	✓	✓	
Louisiana		✓		✓		✓	✗	✓	
Maine		✓		✓		✓	✓	✓	
Maryland		✓		✗		✗	✗	✓	
Massachusetts		✓		✗		✗	✗	✓	
Michigan		✓		✓		✓	✓	✓	
Minnesota		✓		✗		✗	✗	✓	
Mississippi		✓		✓		✗	✓	✓	
Missouri		✓		✗		✓	✓	✓	
Montana		✓		✓		✓	✓	✓	
Nebraska		✓		✗		✗	✓	✓	
Nevada		✓		✗		✓	✓	✓	
New Hampshire		✓		✗		✗	✓	✓	
New Jersey		✓		✗		✗	✓	✗	
New Mexico		✓		✗		✗	✓	✓	
New York		✓		✓		✓	✓	✓	
North Carolina		✓		✗		✗	✓	✓	
North Dakota		✓		✗		✗	✓	✓	
Ohio		✓		✗		✗	✓	✓	
Oklahoma		✓		✓		✓	✓	✓	
Oregon		✓		✓		✓	✗	✓	
Pennsylvania		✓		✗		✓	✓	✓	
Rhode Island		✓		✗		✗	✓	✗	
South Carolina		✓		✗		✓	✓	✓	
South Dakota		✓		✗		✓	✓	✓	
Tennessee		✓		✓		✗	✓	✓	
Texas		✓		✓		✗	✓	✓	
Utah		✓		✓		✗	✓	✓	
Vermont		✓		✓		✓	✓	✓	
Virginia		✓		✗		✗	✗	✓	
Washington		✓		✓		✓	✓	✓	
West Virginia		✓		✓		✓	✓	✓	
Wisconsin		✓		✗		✗	✗	✓	
Wyoming		✓		✓		✓	✗	✓	

Legend and notes are on the third following page.

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Health Industry Advisor, llc

COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

State-By-State Relative "Readiness" For Relaxing Restrictions (DRAFT)
As of: 4/26/2020

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Alabama		✓		✓		!	✓	✓	
Alaska		✓		✓		✓	✓	✓	
Arizona		✓		✗		✗	✓	✓	
Arkansas		✓		✓		✗	✓	✓	
California		✓		✓		✗	✓	✓	
Colorado		✓		✓		✗	✓	✓	
Connecticut		✓		✗		✗	✗	✓	
Delaware		✓		✗		✗	✓	✓	
District Of Columbia		✓		✓		✗	✗	✓	
Florida		✓		✓		!	!	✗	
Georgia		✓		✓		!	✗	✓	
Hawaii		✓		✓		✓	✓	✓	
Idaho		✓		✓		✓	✗	✗	
Illinois		✓		✓		✗	✗	✓	
Indiana		✓		✓		✗	✓	✓	
Iowa		✓		✗		!	✓	✓	
Kansas		✓		✗		✗	✗	✓	
Kentucky		✓		✓		✗	✓	✓	
Louisiana	29,900.7	✓		✗		✓	✗	✓	
Maine		✓		✗		✓	✓	✓	
Maryland		✓		✓		✗	✗	✓	
Massachusetts	32,641.9	✓		✓		✗	✗	✓	
Michigan		✓		✓		✓	✓	✓	
Minnesota		✓		✗		✗	✓	✓	
Mississippi		✓		✗		✗	✓	✓	
Missouri		✓		✓		!	✓	✓	
Montana		✓		✓		✓	✓	✓	
Nebraska		✓		✗		!	✗	✓	
Nevada		✓		✗		!	✓	✓	
New Hampshire		✓		✓		✗	✓	✓	
New Jersey		✓		✓		✗	✗	✓	
New Mexico		✓		✓		✗	✓	✓	
New York	39,970.5	✓		✓		!	✗	✓	
North Carolina		✓		✓		✗	✓	✓	
North Dakota	25,391.6	✓		✓		✗	✓	✓	
Ohio		✓		✓		✗	✓	✓	
Oklahoma		✓		✓		!	✓	✓	
Oregon		✓		✓		!	✗	✓	
Pennsylvania		✓		✓		!	✗	✓	
Rhode Island	48,039.3	✓		✓		✗	✓	✓	
South Carolina		✓		✓		!	✗	✓	
South Dakota		✓		✓		!	✓	✓	
Tennessee		✓		✓		!	✓	✓	
Texas		✓		✓		!	✓	✓	
Utah	28,137.0	✓		✓		✗	✓	✓	
Vermont		✓		✓		✓	✗	✓	
Virginia		✓		✓		✗	✗	✓	
Washington		✓		✗		✓	✓	✓	
West Virginia		✓		✓		!	✓	✓	
Wisconsin		✓		✗		!	✗	✓	
Wyoming		✓		✗		✓	✓	✓	

Legend and notes are on the second following page.

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COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

As of: 4/15/2020

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Alaska		✓		✓		!	✓	✓	
Arizona		✓		✓		!	✗	✓	
Arkansas		✓		✓		✓	✓	✓	
California		✓		✓		!	✗	✓	
Colorado		✓		✗		!	✗	✓	
Connecticut		✓		✗		!	✗	✓	
Delaware		✓		✓		!	✓	✓	
District Of Columbia		✓		✓		!	✗	✓	
Florida		✓		✗		!	✓	✓	
Georgia		✓		✗		!	✗	✓	
Hawaii		✓		✗		✓	✓	✓	
Idaho		✓		✗		✓	✗	✓	
Illinois		✓		✗		!	✗	✓	
Indiana		✓		✗		!	✓	✓	
Iowa		✓		✓		✓	✓	✓	
Kansas		✓		✗		✓	✗	✓	
Kentucky		✓		✓		!	✓	✓	
Louisiana	26,227.9	✓		✗		✓	✗	✓	
Maine		✓		✗		!	✗	✓	
Maryland		✓		✓		!	✗	✓	
Massachusetts		✓		✓		!	✗	✓	
Michigan		✓		✓		!	✓	✓	
Minnesota		✓		✓		✓	✓	✓	
Mississippi		✓		✓		!	✗	✓	
Missouri		✓		✓		!	✓	✓	
Montana		✓		✗		✓	✓	✓	
Nebraska		✓		✓		✓	✗	✓	
Nevada		✓		✗		!	✓	✓	
New Hampshire		✓		✗		!	✓	✓	
New Jersey		✓		✓		✗	✗	✓	
New Mexico		✓		✓		!	✓	✓	
New York	27,039.4	✓		✗		✗	✗	✓	
North Carolina		✓		✗		!	✓	✓	
North Dakota		✓		✓		✓	✗	✓	
Ohio		✓		✓		✓	✓	✓	
Oklahoma		✓		✗		!	✗	✓	
Oregon		✓		✓		!	✗	✓	
Pennsylvania		✓		✓		!	✗	✓	
Rhode Island		✓		✓		!	✓	✓	
South Carolina		✓		✓		!	✗	✓	
South Dakota		✓		✓		!	✓	✓	
Tennessee		✓		✓		!	✗	✓	
Texas		✓		✗		!	✓	✓	
Utah		✓		✓		!	✓	✓	
Vermont		✓		✗		✓	✗	✓	
Virginia		✓		✓		!	✗	✓	
Washington		✓		✗		✓	✗	✓	
West Virginia		✓		✓		!	✗	✓	
Wisconsin		✓		✗		!	✗	✓	
Wyoming		✓		✗		✓	✗	✓	

Legend and notes are on the following page.

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COVID-19 Dashboard

"Strategic Guidance in an Era of Unprecedented Change"

Issue #42: May 2

Legend:

	Tests per Capita	Direction	Test-Positive Rate	Direction	New Daliy Infection Rate	Direction	Baseline	Direction	Hospital Resources
	per 1M				per 1M				
Time period	last 7 days	last 14 days v prior 2 weeks	last 7 days	last 14 days v prior 2 weeks	last 7 days	last 14 days v prior 2 weeks	CDC Baseline by region	last 14 days v prior 2 weeks	As of 4/26
	> 25,000		<=2%		<10				<45% of Peak
	18-25,000		2-10%		10-50				45-60% of Peak
	12-18,000		10-14%		50-100				60-75% of Peak
	9-12,000		14-18%		100-150				75-85% of peak
	<9,000		>18%		>150				>85% of Peak or Pre-Peak
✓		Up		Down		Down by 40%	Below Baseline	Down	
!						Down by 10%		N/A	
✗		Down		Up		Down <10% or Up	Above Baseline	Up	

Sources:

Influenza guidelines and data from Centers fo Disease Control (https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html), accessed April 30, 2020
Test data from Covid Tracking Project (https://covidtracking.com/), accessed March 21-May 2, 2020
Hospital resource Need projections from Institure for Health Metrics and Evaluation (), accessed April 30, 2020
Infection rate data from World Health Organization (worldometer.info), accessed March 21-May 2, 2020

Articles of interest:

"What does doing enough coronavirus testing look like? Here's a number to watch", Patrick Cain, msn.com, (https://www.msn.com/en-ca/news/canada/what-does-doing-enough-coronavirus-testing-look-like-heres-a-number-to-watch/ar-BB138Hf4?li=AAggXBV), accessed April 24, 2020
"A New Statistic Reveals Why America's COVID-19 Numbers Are Flat", Robinson Meyer and Alexis C. Madrigal, April 16, 2020, The Atlantic, accessed April 24, 2020

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COVID-19 Dashboard

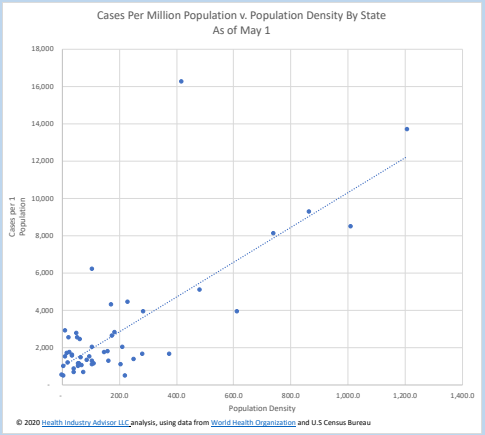
"Strategic Guidance in an Era of Unprecedented Change"

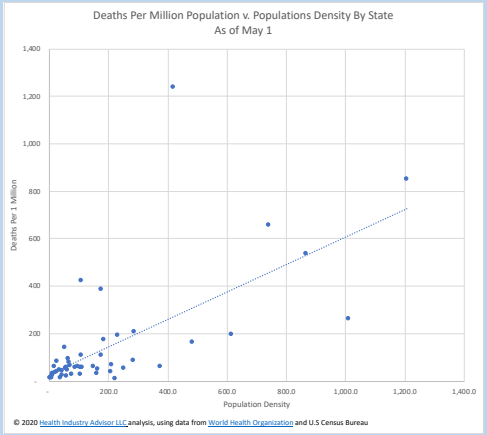
Issue #42: May 2

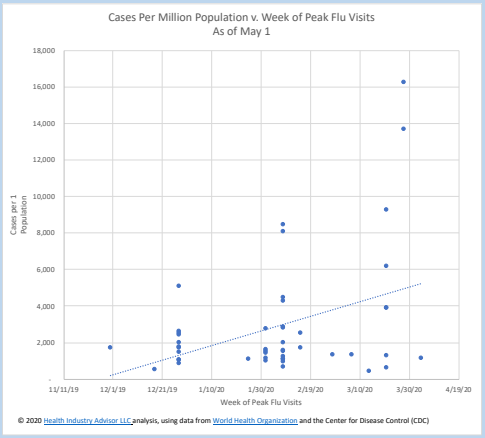
Impact of Population Density and Flu Season on Virus Spread

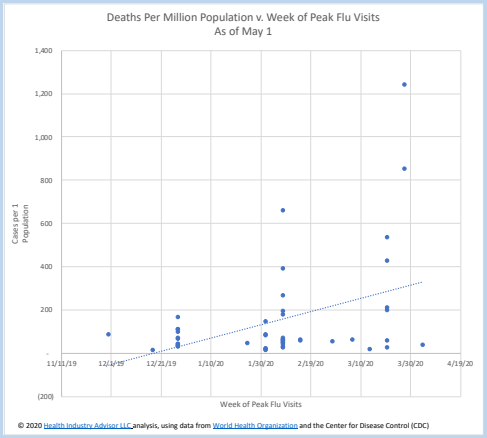
Population Density and the Timing of the Flu Season Seem to Have Impacted Both Case Intensity and Death Rates

How do you explain the vast differences between the Northeast states and the rest of the country in both cases and deaths per capita? A cursory review of age and health demographics didn't seem to provide an adequate explanation. So, we looked into population density and secondly, the timing of peak flu season by state. The results were quite interesting: We found a 77% correlation coefficient between cases per capita (as of May 1) and population density; and, a 66% correlation coefficient between deaths per capita and population density. The link wasn't as strong for the timing of flu season on its own: We found a 39% correlation coefficient between cases per capita (as of May 1) and the week of peak flu visits; and, a 41% correlation coefficient between deaths per capita and the week of peak flu visits. Observing the data further, it appears that the flu season timing had the secondary impact, following population density:









Information throughout the Dashboard is provided as a courtesy, based on data from the above-named sources. HIA has no responsibility for the accuracy and updating of any data. Sources: worldometers.info; covidtracking.com, https://covid19.healthdata.org/united-states-of-america, and nyc.gov. Graphics depict data as of the date in the header.

States in the Northeast, with relatively high population densities, have been hardest hit by the virus, particularly if their peak flu visits occurred in March, coinciding with the early days of virus spread. Other high density states that had seen peak flu visits earlier in the season seemed not to hit as hard by the virus.

State Name	Population	Land Area (sq mi)	Population Density	Cases / 1 Mil	Deaths/1 Mi	Peak Flu Visits %	Week of Peak Flu Visits
New York	19,795,791	47,214	419.3	16,204	1,237	8.0	3/28/20
New Jersey	8,958,013	7,417	1,207.8	13,644	849	16.2	3/28/20
Connecticut	3,590,886	4,845	741.2	8,068	656	10.2	2/8/20
Massachusetts	6,794,422	7,840	866.6	9,254	535	6.7	3/21/20
Louisiana	4,670,724	43,562	107.2	6,176	424	13.5	3/21/20
Michigan	9,922,576	56,804	174.7	4,241	387	4.1	2/8/20
Rhode Island	1,056,298	1,045	1,010.8	8,460	263	9.1	2/8/20
Pennsylvania	12,802,503	44,817	285.7	3,878	207	6.6	3/21/20
Maryland	6,006,401	9,774	614.5	3,882	197	8.1	3/21/20
Illinois	12,859,995	55,584	231.4	4,424	194	7.4	2/8/20
Indiana	6,619,680	35,867	184.6	2,767	175	6.5	2/8/20
Delaware	945,934	1,954	484.1	5,051	163	4.1	12/28/19
Colorado	5,456,574	103,718	52.6	2,738	142	7.9	2/1/20
Georgia	10,214,860	57,906	176.4	2,590	110	12.3	12/28/19
Washington	7,170,351	66,544	107.8	1,991	109	8.6	12/28/19
Mississippi	2,992,333	46,907	63.8	2,423	94	8.4	12/28/19
Ohio	11,613,423	40,948	283.6	1,603	86	4.6	2/1/20
Nevada	2,890,845	109,826	26.3	1,697	82	3.6	11/30/19
Vermont	626,042	9,250	67.7	1,409	80	5.4	2/1/20
Virginia	8,382,993	39,594	211.7	1,980	68	8.9	2/8/20
Minnesota	5,489,594	79,610	69.0	1,016	66	9.7	12/28/19
New Mexico	2,085,109	121,356	17.2	1,675	62	11.7	12/28/19
Florida	20,271,272	53,927	375.9	1,617	61	-	
New Hampshire	1,330,608	8,968	148.4	1,699	60	5.8	2/15/20
Alabama	4,858,979	50,744	95.8	1,488	59	9.2	2/8/20
Missouri	6,083,672	68,886	88.3	1,306	58	9.8	3/7/20
Oklahoma	3,911,338	68,667	57.0	947	58	10.2	2/8/20
Wisconsin	5,771,337	54,310	106.3	1,256	56	6.3	3/21/20
Kentucky	4,425,092	39,728	111.4	1,092	56	11.1	2/8/20
Iowa	3,123,899	55,869	55.9	2,499	54	4.8	2/15/20
California	39,144,818	155,959	251.0	1,310	53	5.2	2/28/20
South Carolina	4,896,146	30,110	162.6	1,215	50	12.6	2/8/20
Kansas	2,911,641	81,815	35.6	1,557	47	8.4	2/8/20
Arizona	6,828,065	113,635	60.1	1,094	45	5.3	1/25/20
Maine	1,329,328	30,862	43.1	835	41	6.7	12/28/19
North Carolina	10,042,802	48,711	206.2	1,056	40	6.2	2/8/20
Nebraska	1,896,190	76,872	24.7	2,501	38	10.3	12/28/19
Idaho	1,654,930	82,747	20.0	1,136	35	5.5	4/4/20
North Dakota	756,927	68,976	11.0	1,453	30	8.5	12/28/19
Tennessee	6,600,299	41,217	160.1	1,740	30	14.8	12/28/19
Texas	27,469,114	261,797	104.9	1,031	29	15.4	12/28/19
West Virginia	1,844,128	24,078	76.6	644	26	8.2	2/8/20
Oregon	4,028,977	95,997	42.0	611	25	6.8	3/21/20
South Dakota	858,469	75,885	11.3	2,854	24	4.1	2/8/20
Arkansas	2,978,204	52,068	57.2	1,100	21	10.1	2/1/20
Montana	1,032,949	145,552	7.1	424	15	4.9	3/14/20
Utah	2,995,919	82,144	36.5	1,506	14	7.5	2/1/20
Alaska	738,432	571,951	1.3	498	12	11.7	12/18/19
Wyoming	586,107	97,100	6.0	978	12	6.6	2/1/20
Hawaii	1,431,603	6,423	222.9	437	11	7.1	2/8/20

Sources: Center for Disease Control, accessed April 30; US. Census Bureau; Worldometers.info, accessed March 19 - May 2