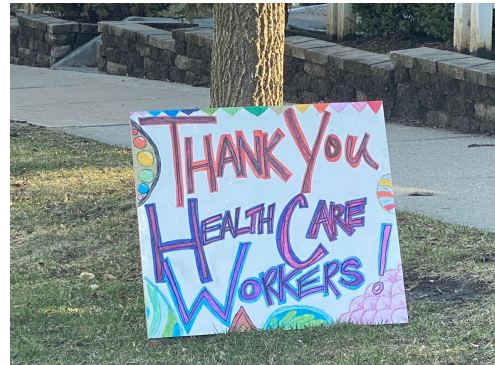
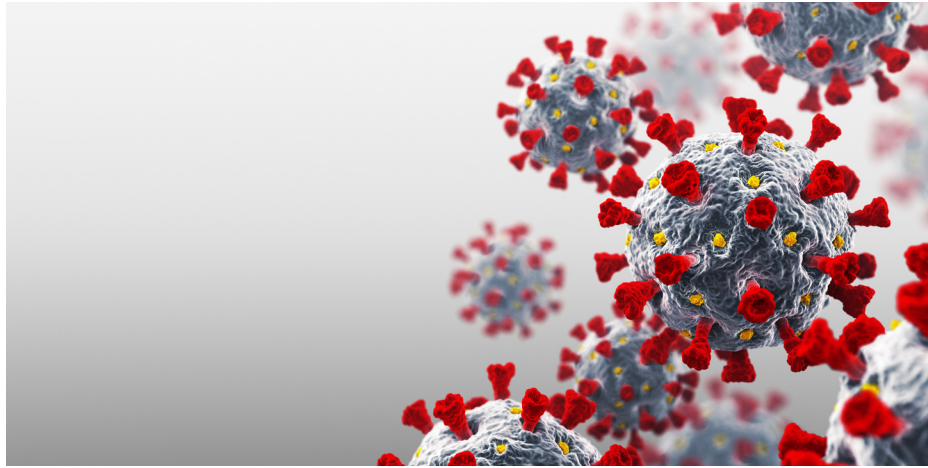
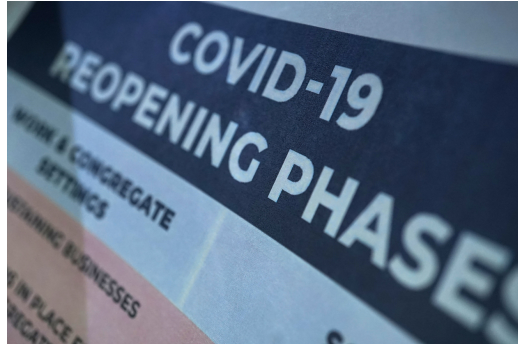




COVID-19 Report

Issue # 105

Wednesday, July 15, 2020

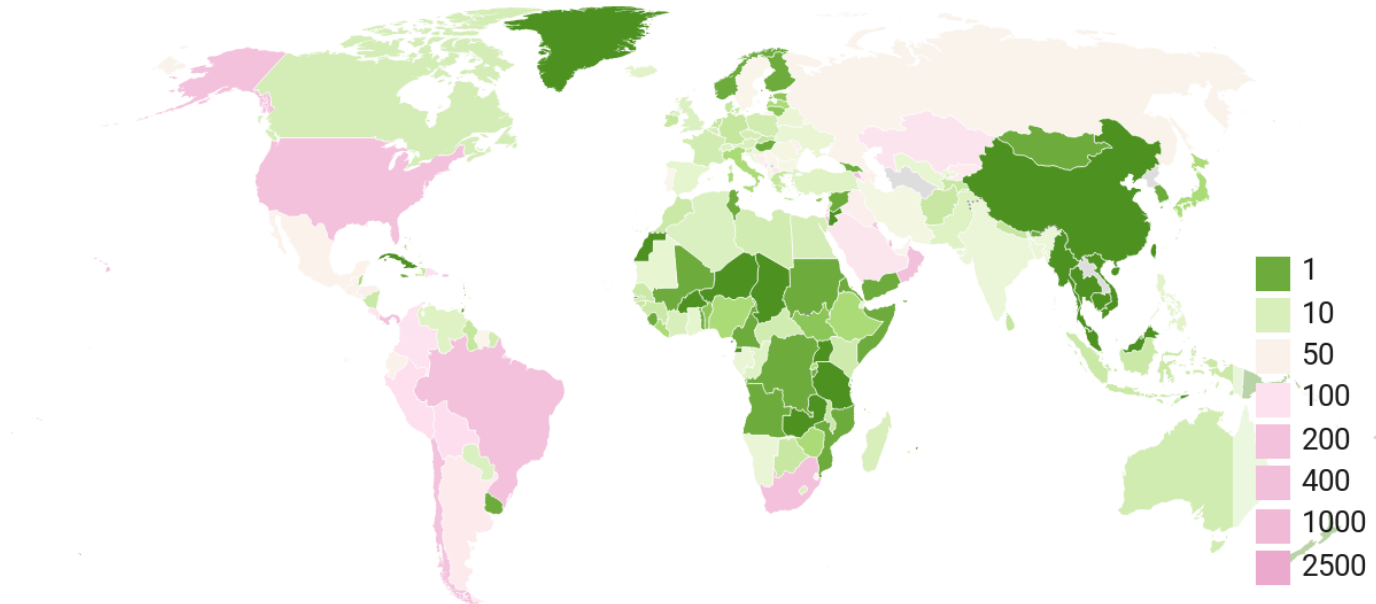
- Countries and states that have borne the brunt of the virus spread during the past month we again hit hard on Tuesday:
 - Just four countries, the United States, Brazil, India and South Africa accounted for more than 2/3 of all new cases reported worldwide
 - Mexico moved up to 7th in the world in total cases; South Africa is now 9th
 - In the United States, five states - Texas, California, Florida, Arizona and Georgia - accounted for 57% of new cases
- The United Kingdom, France, Sweden and the United States set the pace worldwide for testing per capita during the past 7 days. Each of these countries are testing well above the minimum level suggested by public health officials.
- Within the United States 3/4 of all states are testing above this minimum suggested level
- Testing in the United States is up 8.2% on a week-over-week basis. The test-positive rate remains below the upper limit suggested by World Health Organization scientists
 - Rates in 15 states remain above this level, with Arizona and Mississippi reporting the highest rates over the past 7 days. Arizona's rate, however, has begun to decline
- Increasing hospitalizations continue to be of a concern across the United States, particularly in California, Florida and Texas; Still:
 - Hospitalizations are not rising at the same rate as new cases
 - The severity of hospitalizations has declined over time, although the % of hospitalized patient in the ICU may now be leveling
- Deaths with the virus, on a trailing 7-day moving average basis, have increased recently from their lows in late June

Worldwide

New Infection Rates have intensified in the United States and throughout South America over the past 4 weeks

New Infections / 1 Million Population

Trailing 7-Day Moving Average, As of July 14



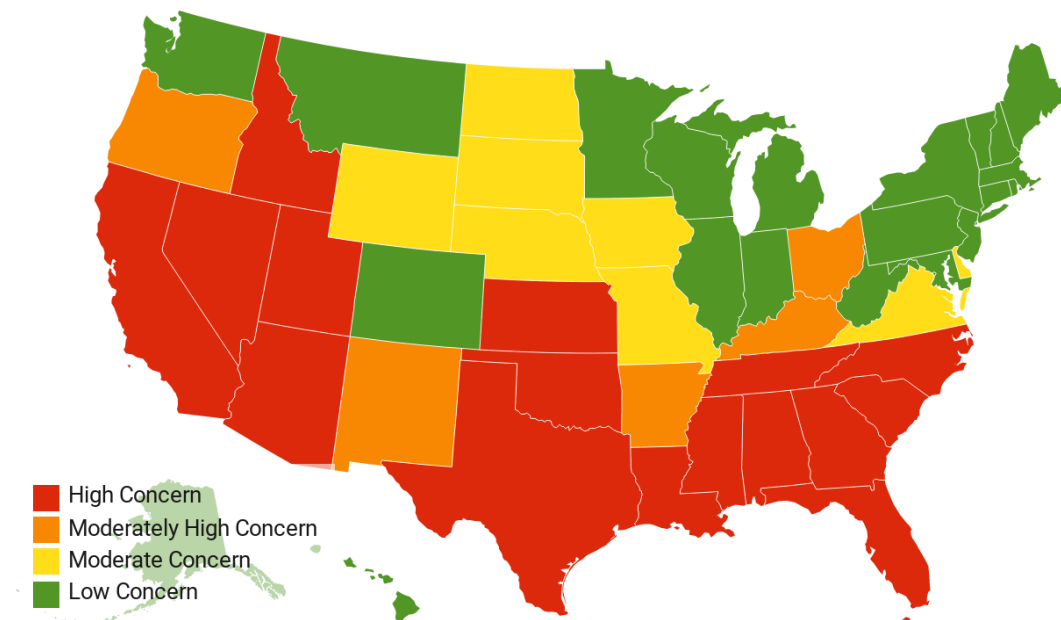
Health Industry Advisor LLC analysis

Map: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Situation worsens: Two-thirds the country's population resides in a state we consider of "High" or "Moderately High" concern; Several states are no longer considered "Low" Concern

Scorecard

As of July 7

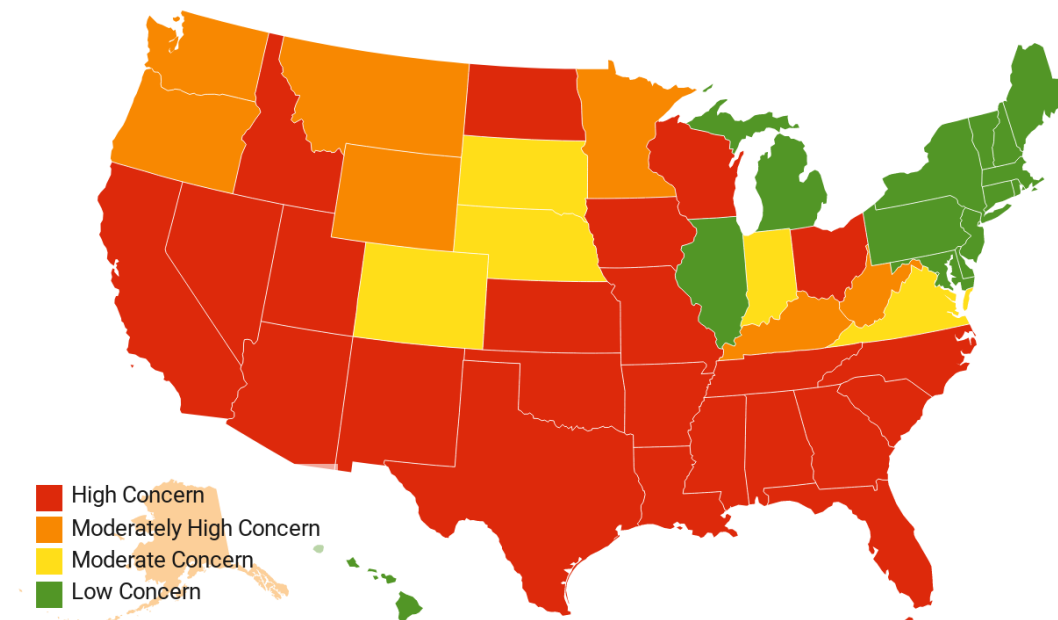


Scoring based on new infection, test-positive, hospitalization and case growth rates

Map: Health Industry Advisor LLC • Created with Datawrapper

Scorecard

As of July 14



Scoring based on new infection, test-positive, hospitalization and case growth rates

Map: Health Industry Advisor LLC • Created with Datawrapper

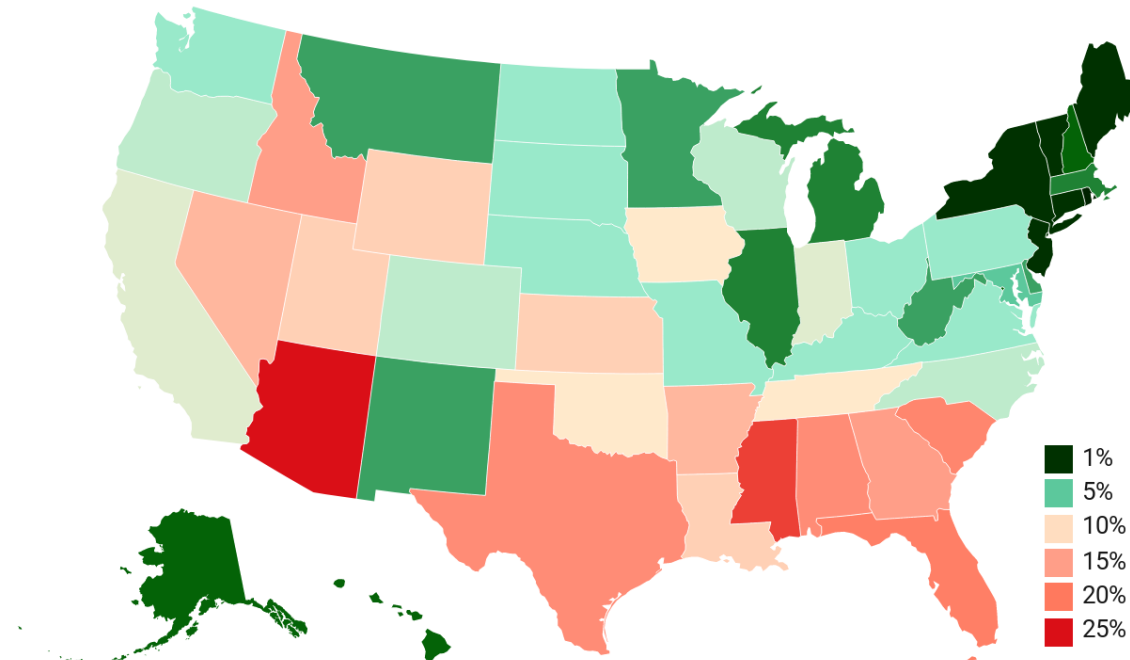
Trailing 7-Day Moving Average, As of July 14



Test-Positive Rates continue to be high in most states in the South

Test-Positive Rate

Trailing 7-Day Moving Average, As of July 14



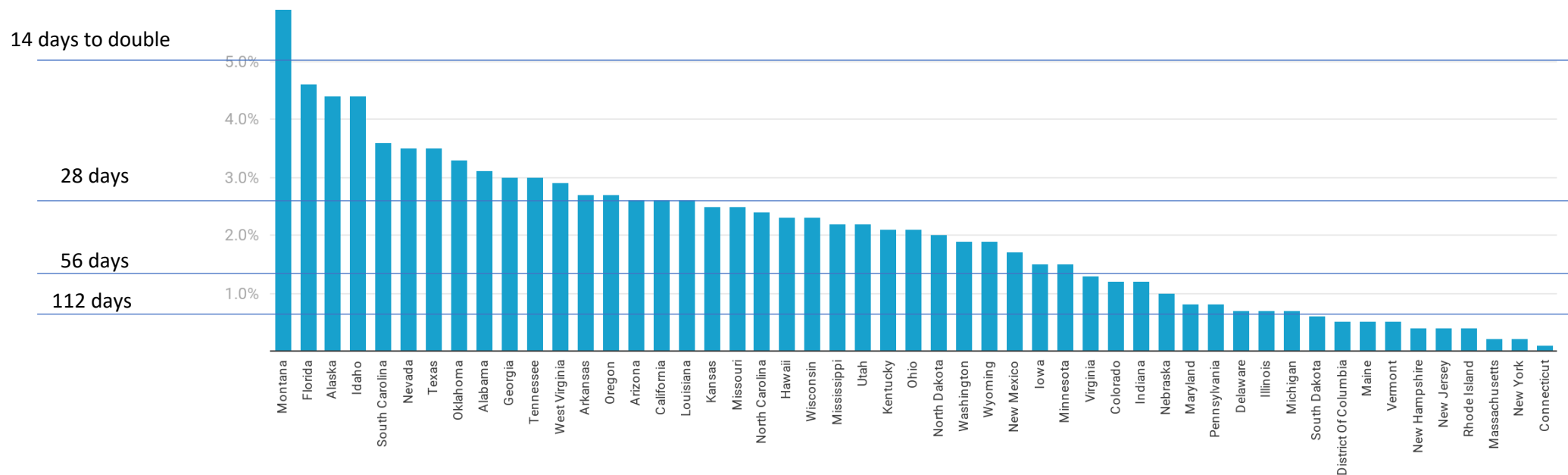
Health Industry Advisor LLC analysis

Map: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

At current rates, cases are doubling every 12 days in Montana; every 510 days in Connecticut

Growth Rate in Total Cases

Trailing 5-Day Moving Average, As of July 14



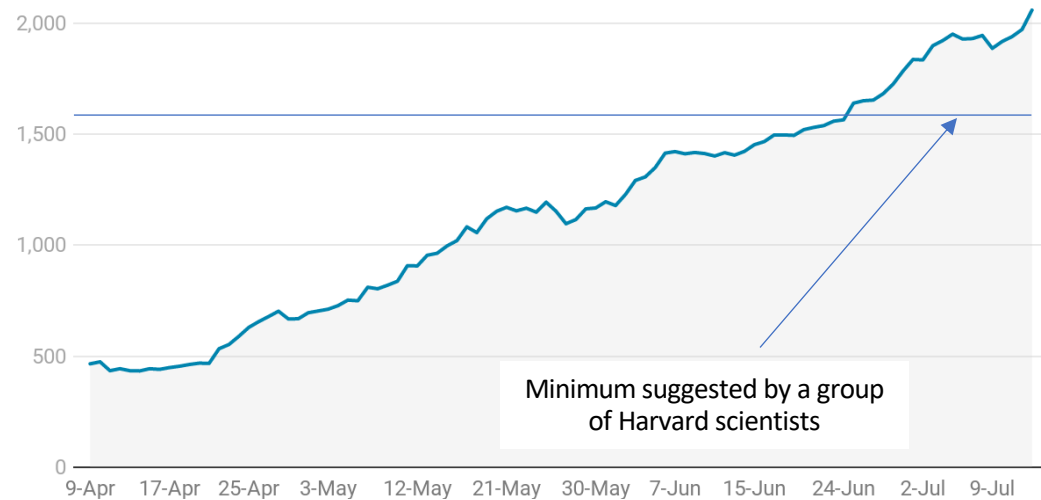
Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Testing volumes are increasing however, the test-positive rate also has been increasing recently

Daily Tests Per 1 Million - United States

Trailing 7-Day Moving Average, As of July 13

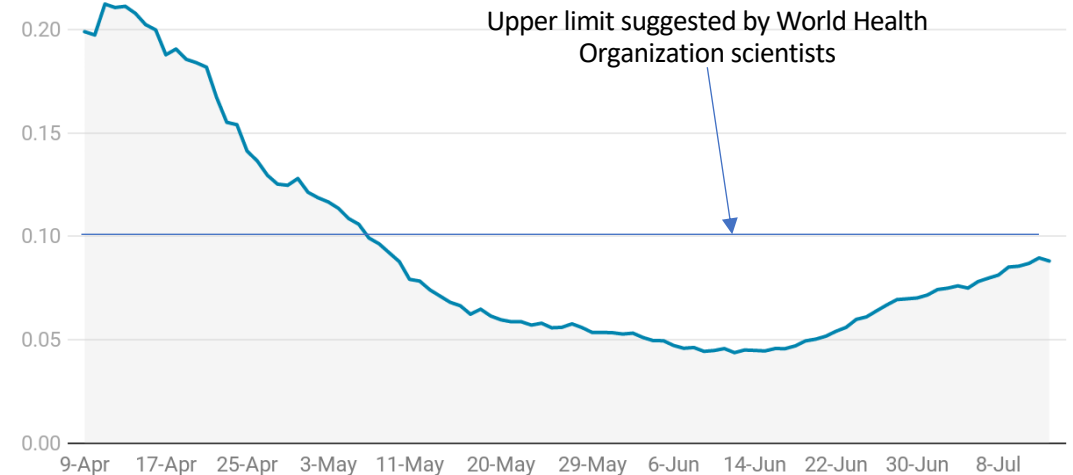


Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Test-Positive Rate - United States

Trailing 7-Day Moving Average, As of July 13



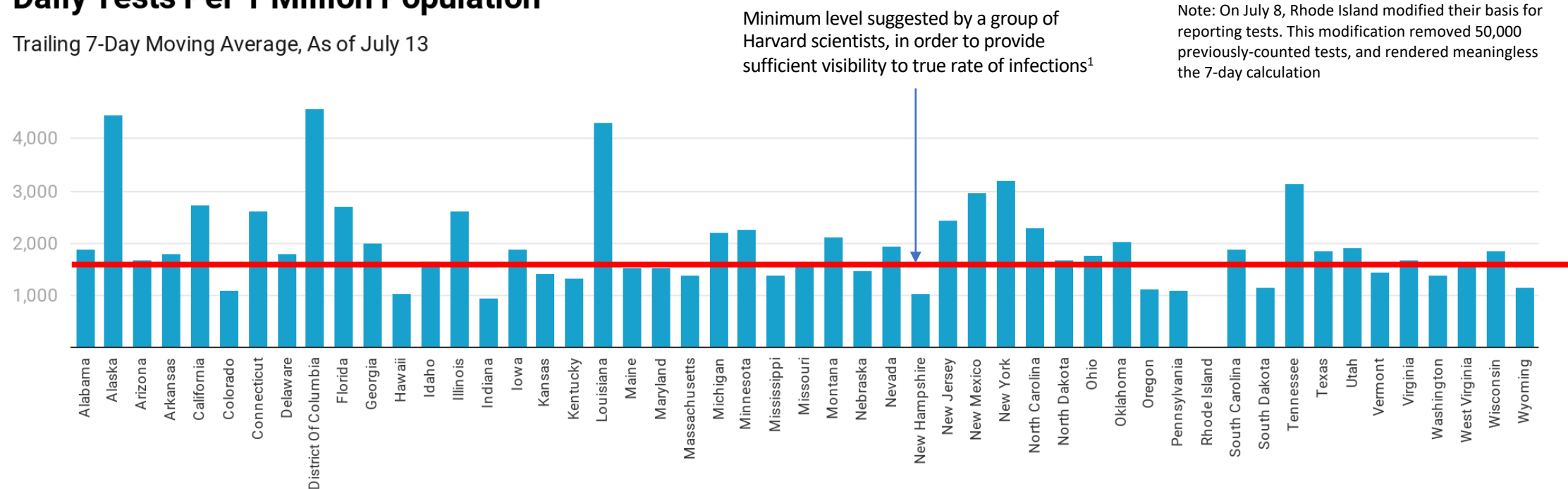
Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Not all states are testing at the minimum level suggested by a group of Harvard scientists

Daily Tests Per 1 Million Population

Trailing 7-Day Moving Average, As of July 13



Health Industry Advisor LLC analysis

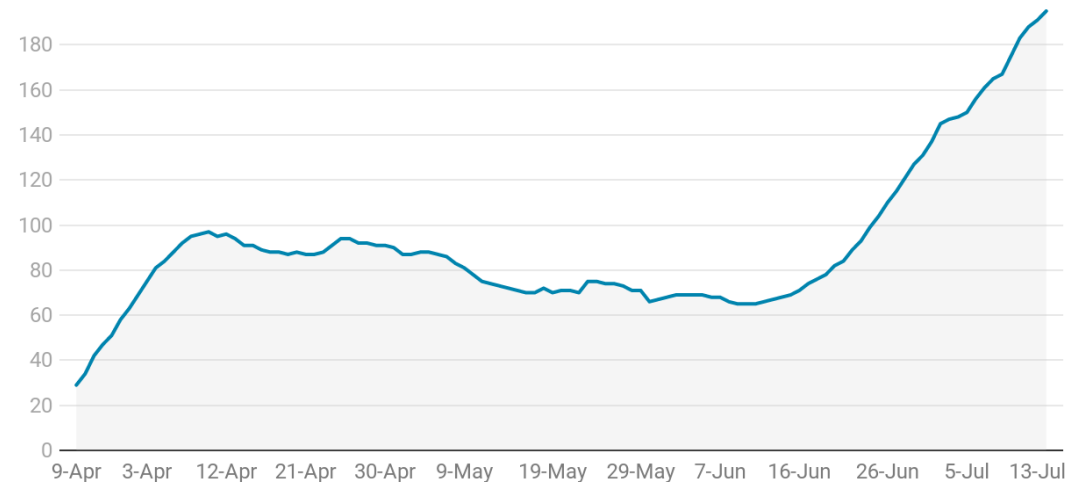
Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid tracking Project • Created with Datawrapper

1 — source: (source: <https://www.kff.org/coronavirus-policy-watch/what-testing-capacity-do-we-need/>)

The new infection rate continues to grow . . . New case growth had stabilized but is now increasing

New Infections Per 1 Million Population - United States

Trailing 7-Day Moving Average, As of July 14

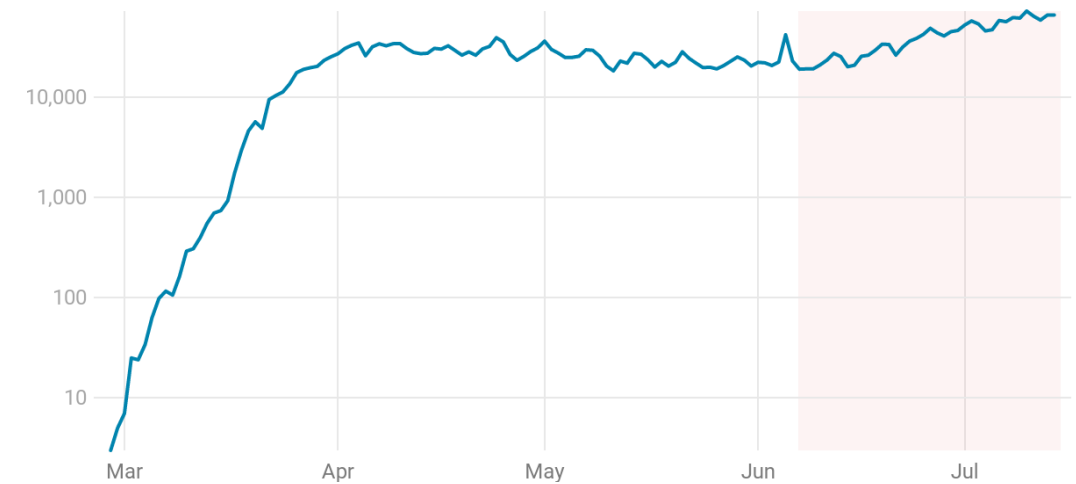


Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

New Daily Cases - United States

Log Scale, As of July 14



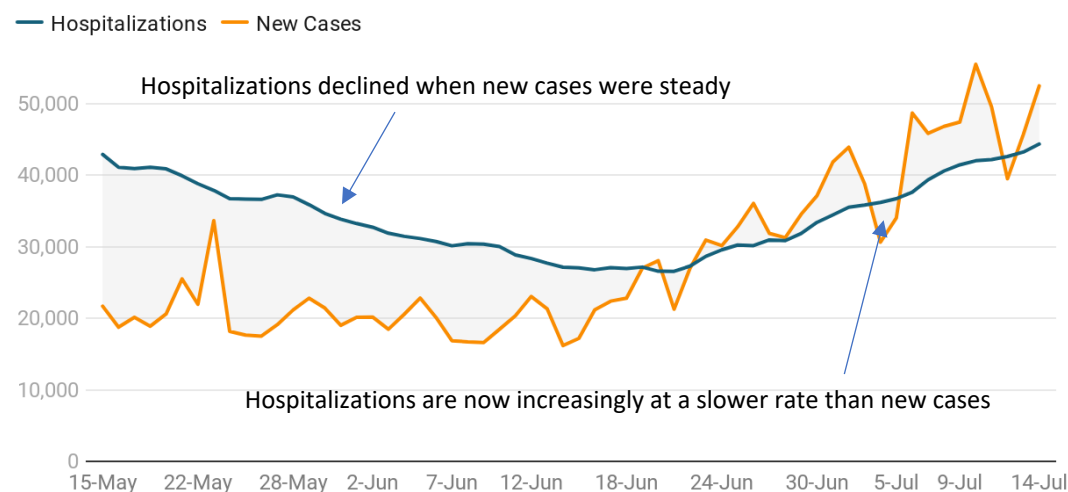
Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Cases had been trending to be less severe . . . Are they beginning to stabilize?

Hospitalizations v. New Cases

As of July 14



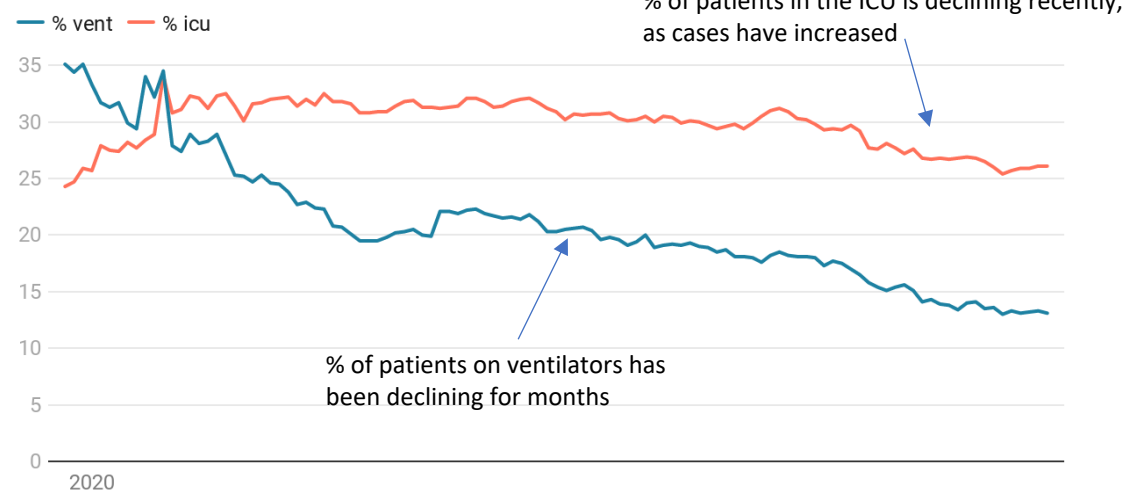
Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Data excludes: Alabama, Alaska, Florida, Hawaii, Idaho, Kansas, Nebraska and Tennessee – data either not reported or not consistently reported

Severity of Hospitalized Patients

% of patients on ventilators and in the ICU, As of July 14



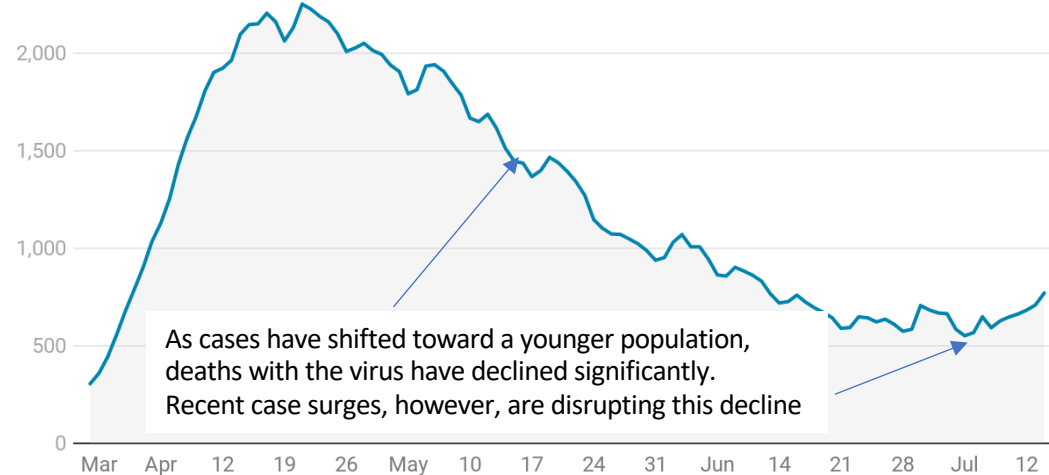
Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Deaths had been declining since mid-April but, may be leveling or increasing following the recent surge in new cases

Deaths Recorded With Coronavirus in the U.S.

Trailing 7-Day Moving Average, As of July 14

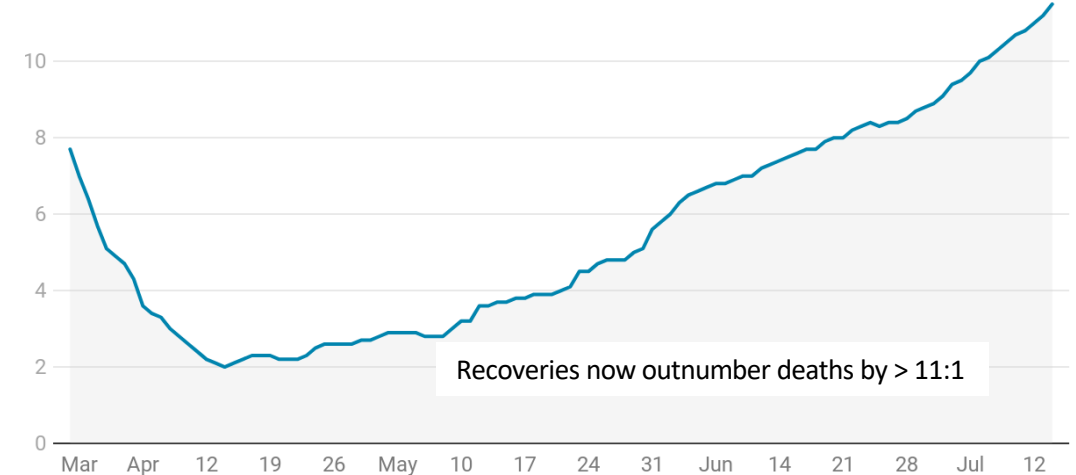


Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Recoveries: Deaths - United States

As of July 14



Health Industry Advisor LLC analysis

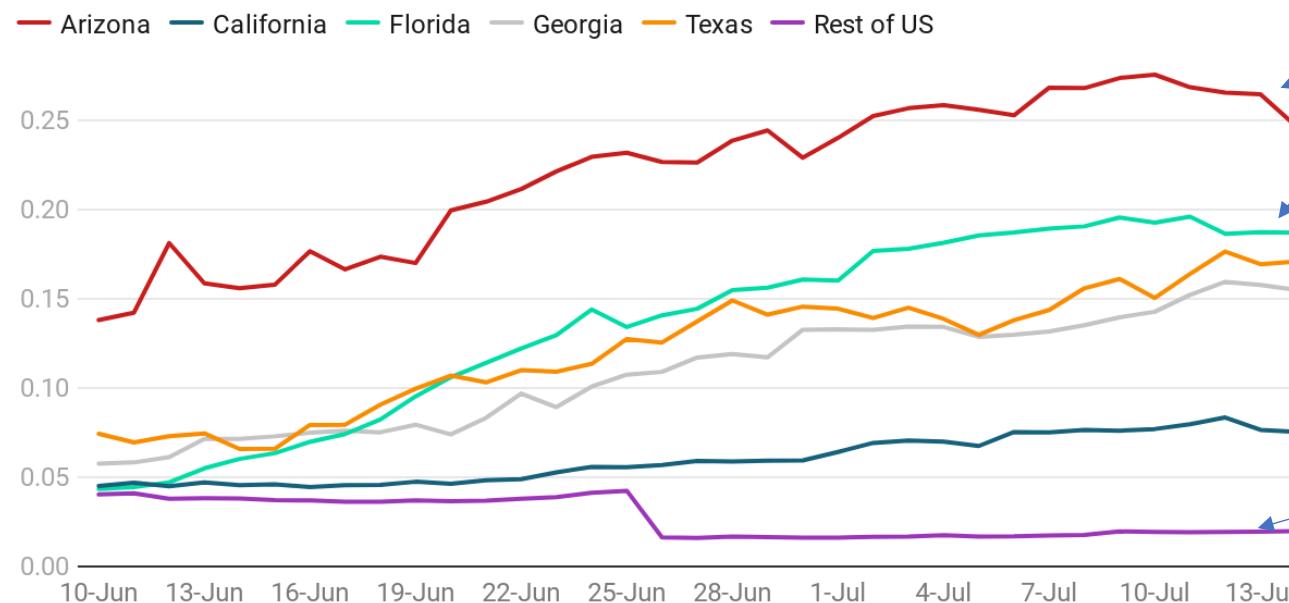
Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Arizona, California, Florida, Georgia and Texas

Are we starting to see test-positive rates stabilize in Arizona and Florida? Nonetheless, they remain too high

Test Positive Rate

Trailing 7-Day Moving Average, As of July 14



Start of a positive trend in Arizona and Florida?

The rest of the country enjoys low test-positive rates

Health Industry Advisor LLC analysis

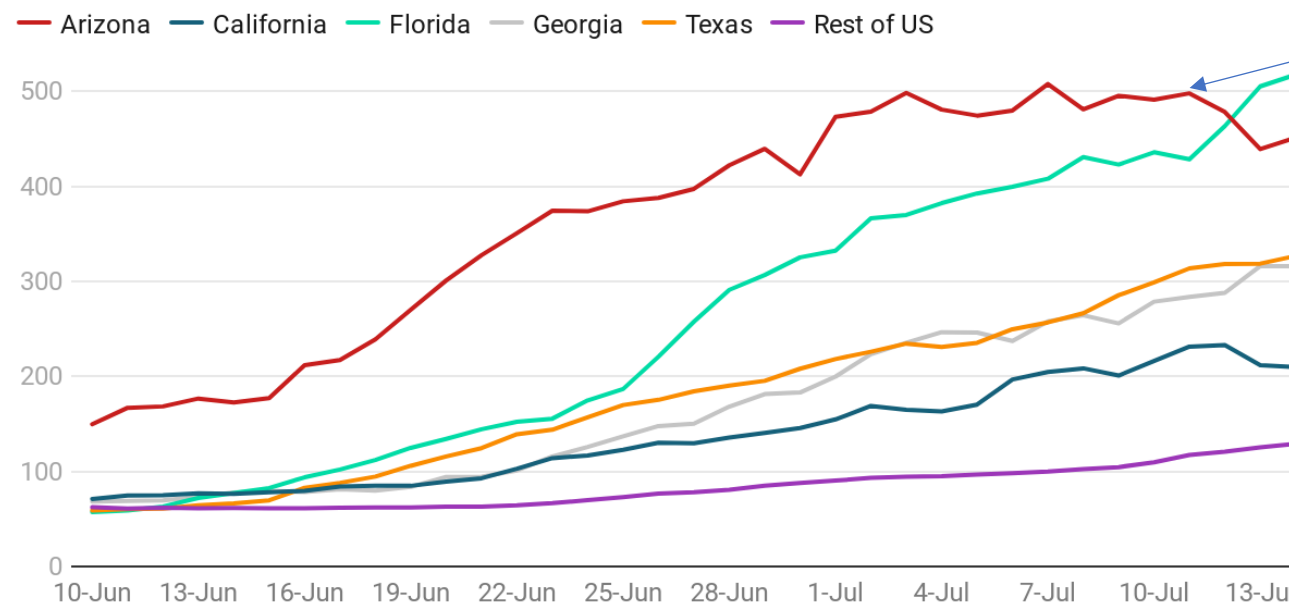
Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Arizona, California, Florida, Georgia and Texas

Infection rate has declined in Arizona since peaking on July 7; Florida and Georgia set new highs on Monday; Are California and Texas stabilizing?

New Daily Infections / 1 Million Population

Trailing 7-Day Moving Average, As of July 14



Trend seems to have leveled off and, begun to turn downward in Arizona

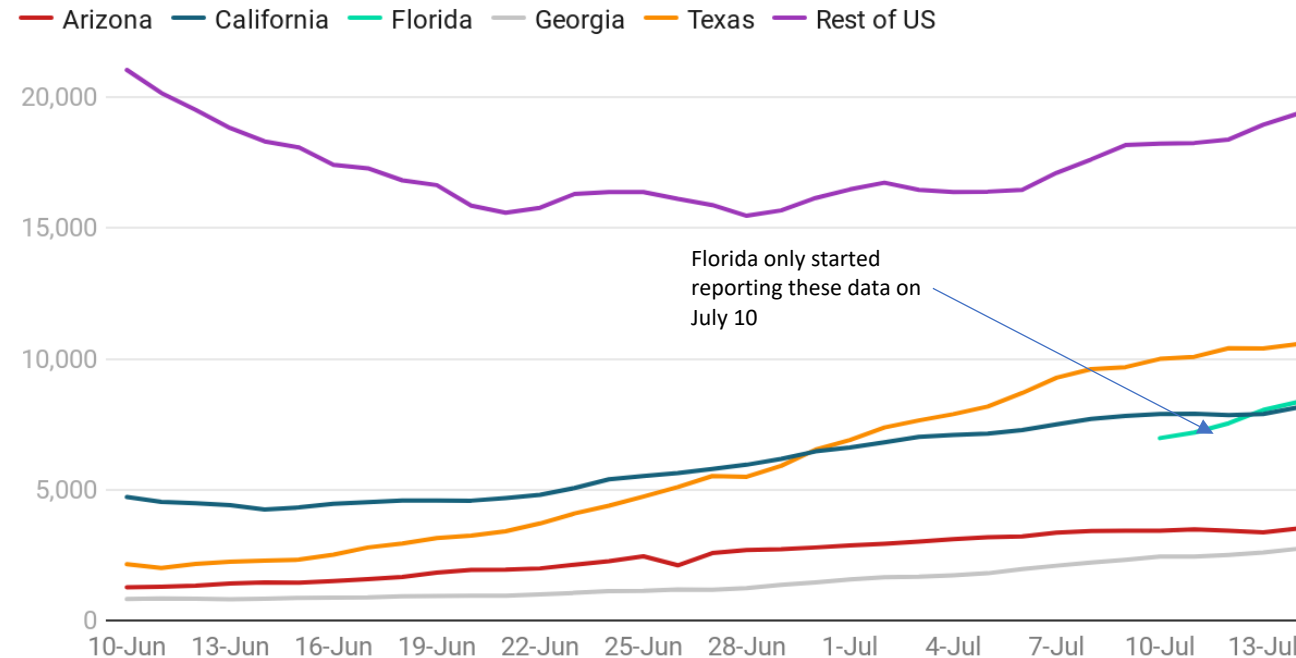
Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Arizona, California, Florida, Georgia and Texas

Hospital rates rising most in Texas and California; stabilizing in Arizona; demand growing across the country

Hospitalized COVID-19 Patients



Health Industry Advisor LLC analysis, As of July 14

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Arizona, California, Florida, Georgia and Texas

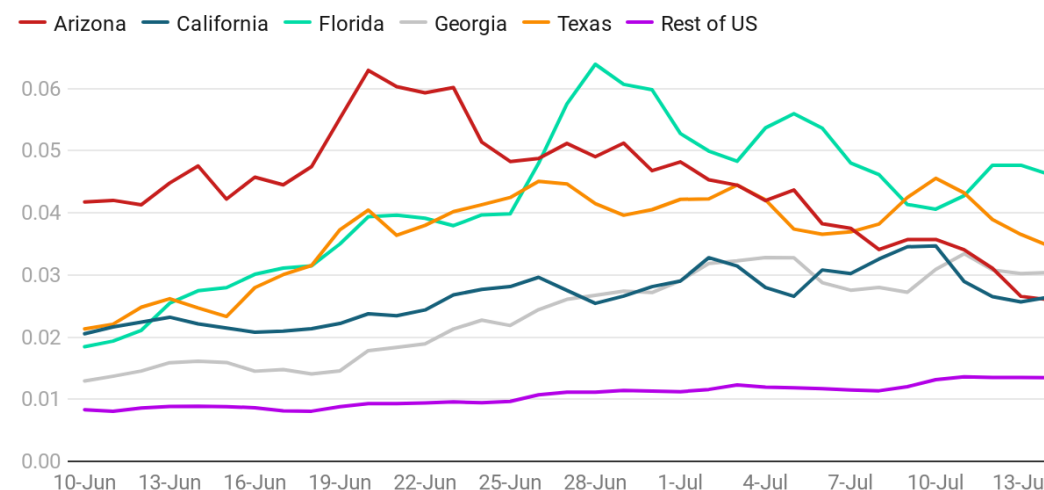
Case growth has been declining in Arizona and Florida for 3-4 weeks and, now, in California and Texas for the past few days

Comment:

- The high transmission rate of this virus results in long periods of exponential case growth
- One key to observing this is in the rate of daily case growth on a % of total cases
- A decreasing rate often occurs prior to observing a decline in new daily cases – thus, it can serve as a “leading indicator”
- “Containment” cannot occur until after this rate of daily case growth begins to slow

Daily Change % in Total Cases

Trailing 7-Day Moving Average



Health Industry Advisor LLC analysis

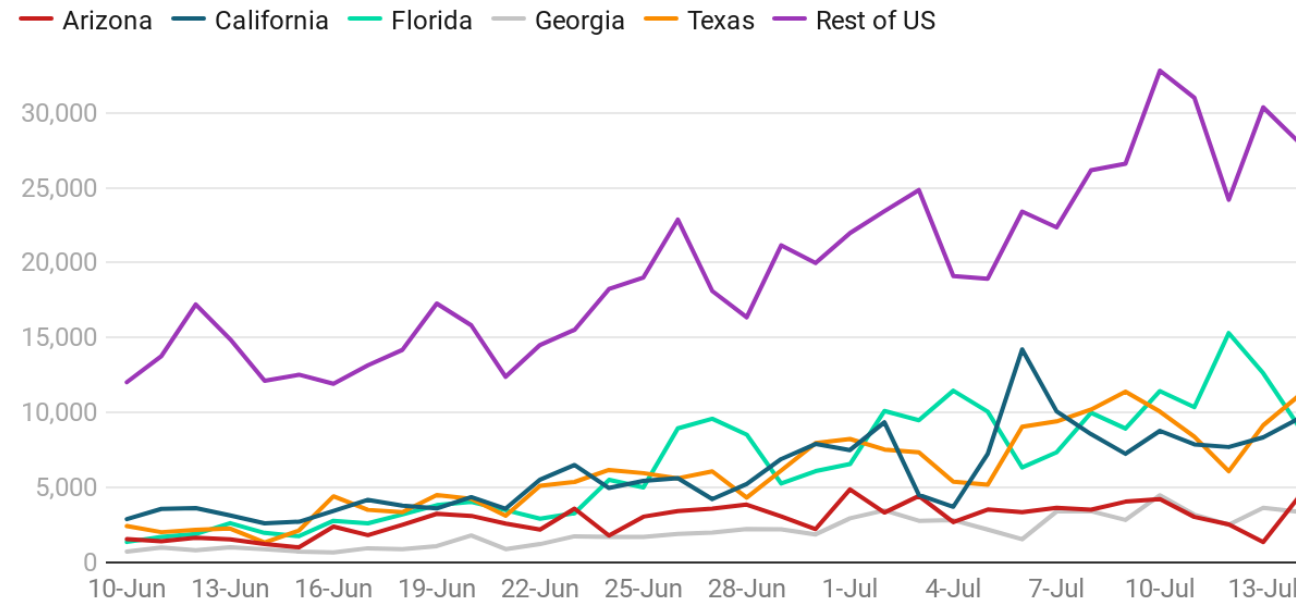
Chart: Health Industry Advisor LLC • Source: The Atlantic's Covid Tracking Project • Created with Datawrapper

Arizona, California, Florida, Georgia and Texas

A positive trend in new daily cases in Arizona, California and Texas over the past several days; stable in Georgia; in Florida and the rest of the country the trend is not encouraging

New Daily Cases

June 10 - July 14



Health Industry Advisor LLC analysis

Chart: Health Industry Advisor LLC • Source: worldometers.info • Created with Datawrapper

Worldwide Statistical Summary

Top 30 Countries By Total Cases
As of July 14

Country	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population - Past 7 Days	Rank7	New Daily Infections Per 1M Population (7-Day M.A.)	Rank8
USA	3,545,077	(1)	10,708	(3)	139,143	(1)	3.9%	(16)	420.3	(7)	1.9%	(8)	2,255	(4)	193.3	(2)
Brazil	1,931,204	(2)	9,083	(5)	74,262	(2)	3.8%	(17)	349.3	(10)	1.9%	(9)	172	(23)	172.4	(4)
India	937,487	(3)	679	(28)	24,315	(8)	2.6%	(20)	17.6	(27)	3.4%	(3)	195	(22)	20.1	(16)
Russia	739,947	(4)	5,070	(11)	11,614	(11)	1.6%	(25)	79.6	(18)	0.9%	(17)	1,916	(5)	44.8	(13)
Peru	333,867	(5)	10,121	(4)	12,229	(10)	3.7%	(18)	370.7	(8)	1.1%	(14)	615	(16)	106.5	(6)
Chile	319,493	(6)	16,708	(2)	7,069	(15)	2.2%	(22)	369.7	(9)	0.9%	(18)	837	(13)	138.0	(5)
Mexico	304,435	(7)	2,360	(23)	35,491	(4)	11.7%	(5)	275.2	(12)	2.1%	(7)	109	(25)	47.3	(12)
Spain	303,699	(8)	6,495	(9)	28,409	(7)	9.4%	(6)	607.6	(3)	0.2%	(26)	892	(11)	13.7	(19)
South Africa	298,292	(9)	5,027	(12)	4,346	(22)	1.5%	(26)	73.2	(19)	4.6%	(1)	782	(14)	198.5	(1)
UK	291,373	(10)	4,291	(13)	44,968	(3)	15.4%	(3)	662.3	(2)	0.3%	(25)	3,139	(1)	10.6	(22)
Iran	262,173	(11)	3,120	(17)	13,211	(9)	5.0%	(11)	157.2	(14)	0.9%	(16)	299	(19)	28.0	(15)
Pakistan	253,604	(12)	1,147	(26)	5,320	(19)	2.1%	(23)	24.1	(26)	1.0%	(15)	104	(26)	12.3	(20)
Italy	243,344	(13)	4,025	(14)	34,984	(5)	14.4%	(4)	578.6	(4)	0.1%	(29)	712	(15)	3.3	(29)
Saudi Arabia	237,803	(14)	6,827	(8)	2,283	(27)	1.0%	(28)	65.5	(20)	1.3%	(12)	1,303	(7)	84.9	(8)
Turkey	214,993	(15)	2,548	(20)	5,402	(18)	2.5%	(21)	64.0	(21)	0.5%	(19)	561	(17)	12.0	(21)
Germany	200,766	(16)	2,396	(21)	9,144	(13)	4.6%	(14)	109.1	(16)	0.2%	(28)	856	(12)	4.1	(28)
Bangladesh	190,057	(17)	1,154	(25)	2,424	(26)	1.3%	(27)	14.7	(28)	1.6%	(11)	78	(28)	18.6	(18)
France	172,377	(18)	2,641	(19)	30,029	(6)	17.4%	(1)	460.0	(6)	0.3%	(23)	2,417	(2)	7.8	(26)
Colombia	159,898	(19)	3,141	(16)	5,625	(16)	3.5%	(19)	110.5	(15)	3.6%	(2)	505	(18)	99.4	(7)
Canada	108,486	(20)	2,873	(18)	8,798	(14)	8.1%	(7)	233.0	(13)	0.3%	(22)	1,066	(8)	8.8	(25)
Argentina	106,910	(21)	2,365	(22)	1,968	(28)	1.8%	(24)	43.5	(24)	3.3%	(4)	218	(21)	74.2	(9)
Qatar	104,533	(22)	37,229	(1)	150	(30)	0.1%	(30)	53.4	(22)	0.5%	(20)	1,509	(6)	182.6	(3)
Egypt	83,930	(23)	820	(27)	4,008	(23)	4.8%	(12)	39.1	(25)	1.2%	(13)	(0)	(30)	9.3	(23)
China	83,605	(24)	58	(30)	4,634	(21)	5.5%	(10)	3.2	(30)	0.0%	(30)	-	(29)	0.0	(30)
Iraq	81,757	(25)	2,031	(24)	3,345	(25)	4.1%	(15)	83.1	(17)	3.3%	(5)	260	(20)	60.5	(10)
Indonesia	78,572	(26)	287	(29)	3,710	(24)	4.7%	(13)	13.6	(29)	2.1%	(6)	79	(27)	6.4	(27)
Sweden	76,001	(27)	7,524	(6)	5,545	(17)	7.3%	(9)	548.9	(5)	0.4%	(21)	2,285	(3)	37.6	(14)
Ecuador	69,570	(28)	3,941	(15)	5,130	(20)	7.4%	(8)	290.6	(11)	1.6%	(10)	150	(24)	51.2	(11)
Belarus	65,269	(29)	6,907	(7)	474	(29)	0.7%	(29)	50.2	(23)	0.3%	(24)	1,065	(9)	19.1	(17)
Belgium	62,781	(30)	5,416	(10)	9,787	(12)	15.6%	(2)	844.3	(1)	0.2%	(27)	954	(10)	8.9	(24)

State-By-State Statistical Summary (page 1 of 2)

As of July 14

State	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population Past 7 days	Rank7	New Daily Cases Per 1M Population (5-Day M.A.)	Rank8
Alabama	57,255	(19)	11,677.1	(15)	1,164	(23)	2.0%	(32)	237.4	(23)	3.1%	(9)	1,973	(20)	334.2	(5)
Alaska	1,579	(49)	2,158.4	(48)	17	(51)	1.1%	(49)	23.2	(50)	4.4%	(4)	3,525	(3)	77.1	(34)
Arizona	128,097	(7)	17,598.8	(4)	2,337	(16)	1.8%	(36)	321.1	(15)	2.6%	(17)	1,828	(29)	451.5	(2)
Arkansas	29,733	(30)	9,852.5	(20)	331	(37)	1.1%	(48)	109.7	(39)	2.7%	(14)	1,877	(25)	247.2	(12)
California	345,598	(2)	8,746.6	(24)	7,235	(5)	2.1%	(30)	183.1	(30)	2.6%	(16)	2,815	(7)	210.0	(13)
Colorado	37,686	(25)	6,544.1	(34)	1,738	(18)	4.6%	(12)	301.8	(16)	1.2%	(35)	1,099	(43)	75.0	(36)
Connecticut	47,530	(21)	13,331.3	(9)	4,372	(9)	9.2%	(1)	1,226.3	(3)	0.1%	(51)	2,470	(12)	19.9	(47)
Delaware	12,969	(38)	13,318.4	(10)	518	(34)	4.0%	(17)	532.0	(12)	0.7%	(40)	1,895	(23)	81.4	(32)
District Of Columbia	10,946	(41)	15,509.8	(7)	568	(32)	5.2%	(10)	804.8	(6)	0.5%	(44)	4,765	(1)	76.3	(35)
Florida	291,629	(3)	13,578.2	(8)	4,409	(8)	1.5%	(41)	205.3	(25)	4.6%	(2)	2,767	(8)	517.7	(1)
Georgia	123,963	(8)	11,675.4	(16)	3,054	(14)	2.5%	(26)	287.6	(18)	3.0%	(10)	2,040	(16)	316.1	(7)
Hawaii	1,264	(51)	892.7	(51)	22	(50)	1.7%	(39)	15.5	(51)	2.3%	(21)	1,049	(47)	19.5	(48)
Idaho	11,718	(40)	6,538.8	(35)	103	(44)	0.9%	(50)	57.5	(46)	4.4%	(3)	1,733	(31)	253.4	(11)
Illinois	156,638	(6)	12,361.1	(12)	7,419	(4)	4.7%	(11)	585.5	(9)	0.7%	(41)	2,611	(9)	79.6	(33)
Indiana	52,685	(20)	7,825.8	(29)	2,775	(15)	5.3%	(9)	412.2	(14)	1.2%	(34)	1,026	(48)	86.1	(30)
Iowa	35,859	(27)	11,365.5	(17)	757	(29)	2.1%	(29)	239.9	(22)	1.5%	(31)	1,861	(26)	172.8	(16)
Kansas	20,241	(34)	6,947.8	(33)	298	(38)	1.5%	(42)	102.3	(41)	2.5%	(18)	1,420	(41)	155.5	(18)
Kentucky	20,223	(35)	4,526.5	(42)	635	(30)	3.1%	(24)	142.1	(33)	2.1%	(26)	1,461	(40)	86.5	(29)
Louisiana	82,051	(12)	17,650.0	(3)	3,448	(11)	4.2%	(16)	741.7	(7)	2.6%	(15)	3,960	(2)	423.7	(3)
Maine	3,566	(46)	2,652.9	(46)	114	(42)	3.2%	(23)	84.8	(43)	0.5%	(45)	1,548	(36)	13.4	(50)
Maryland	74,260	(14)	12,283.2	(13)	3,334	(12)	4.5%	(14)	551.5	(10)	0.8%	(37)	1,694	(34)	91.3	(28)
Massachusetts	112,130	(9)	16,135.0	(6)	8,340	(3)	7.4%	(5)	1,200.1	(4)	0.2%	(49)	1,469	(39)	36.8	(46)
Michigan	77,864	(13)	7,796.6	(30)	6,326	(7)	8.1%	(3)	633.4	(8)	0.7%	(39)	2,250	(14)	56.7	(44)
Minnesota	43,170	(23)	7,654.8	(31)	1,548	(20)	3.6%	(19)	274.5	(19)	1.5%	(32)	2,340	(13)	102.3	(25)
Mississippi	37,542	(26)	12,614.3	(11)	1,272	(22)	3.4%	(21)	427.4	(13)	2.2%	(23)	1,098	(44)	255.7	(10)

State-By-State Statistical Summary (page 2 of 2)

As of July 14

State	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population Past 7 days	Rank7	New Daily Cases Per 1M Population (5-Day M.A.)	Rank8
Missouri	30,684	(28)	4,999.5	(41)	1,137	(24)	3.7%	(18)	185.3	(28)	2.5%	(19)	1,624	(35)	118.8	(21)
Montana	1,952	(47)	1,826.4	(50)	34	(48)	1.7%	(38)	31.8	(49)	5.9%	(1)	2,148	(15)	83.5	(31)
Nebraska	21,717	(33)	11,226.7	(18)	286	(39)	1.3%	(44)	147.8	(32)	1.0%	(36)	1,711	(33)	112.0	(22)
Nevada	29,619	(31)	9,616.1	(22)	612	(31)	2.1%	(31)	198.7	(26)	3.5%	(6)	2,024	(17)	270.6	(9)
New Hampshire	6,091	(43)	4,479.6	(43)	392	(36)	6.4%	(7)	288.3	(17)	0.4%	(48)	856	(49)	16.7	(49)
New Jersey	181,773	(5)	20,464.9	(2)	15,662	(2)	8.6%	(2)	1,763.3	(1)	0.4%	(46)	2,591	(10)	73.3	(38)
New Mexico	15,514	(37)	7,398.8	(32)	551	(33)	3.6%	(20)	262.8	(21)	1.7%	(30)	3,006	(6)	121.7	(20)
New York	429,278	(1)	22,066.8	(1)	32,462	(1)	7.6%	(4)	1,668.7	(2)	0.2%	(50)	3,232	(4)	42.5	(45)
North Carolina	89,643	(11)	8,547.1	(26)	1,586	(19)	1.8%	(37)	151.2	(31)	2.4%	(20)	2,500	(11)	177.9	(15)
North Dakota	4,493	(44)	5,895.8	(37)	88	(46)	2.0%	(34)	115.5	(37)	2.0%	(27)	2,001	(19)	111.5	(23)
Ohio	68,059	(16)	5,822.4	(38)	3,076	(13)	4.5%	(13)	263.2	(20)	2.1%	(25)	1,800	(30)	111.1	(24)
Oklahoma	21,738	(32)	5,493.6	(40)	428	(35)	2.0%	(33)	108.2	(40)	3.3%	(8)	1,887	(24)	163.1	(17)
Oregon	12,805	(39)	3,036.0	(45)	244	(40)	1.9%	(35)	57.9	(45)	2.7%	(13)	1,136	(42)	74.5	(37)
Pennsylvania	101,360	(10)	7,917.5	(28)	6,981	(6)	6.9%	(6)	545.3	(11)	0.8%	(38)	1,084	(46)	60.0	(41)
Rhode Island	17,588	(36)	16,602.5	(5)	985	(26)	5.6%	(8)	929.8	(5)	0.4%	(47)	(11,602)	(51)	58.5	(43)
South Carolina	60,389	(18)	11,728.9	(14)	993	(25)	1.6%	(40)	192.9	(27)	3.6%	(5)	2,003	(18)	361.7	(4)
South Dakota	7,572	(42)	8,559.2	(25)	109	(43)	1.4%	(43)	123.2	(35)	0.6%	(42)	1,098	(45)	66.0	(40)
Tennessee	66,788	(17)	9,774.1	(21)	767	(28)	1.1%	(46)	112.2	(38)	3.0%	(11)	3,150	(5)	277.5	(8)
Texas	285,772	(4)	9,855.6	(19)	3,471	(10)	1.2%	(45)	119.7	(36)	3.5%	(7)	1,859	(27)	326.9	(6)
Utah	30,478	(29)	9,506.7	(23)	226	(41)	0.7%	(51)	70.5	(44)	2.2%	(24)	1,857	(28)	198.1	(14)
Vermont	1,305	(50)	2,091.4	(49)	56	(47)	4.3%	(15)	89.7	(42)	0.5%	(43)	1,491	(37)	11.7	(51)
Virginia	72,443	(15)	8,487.2	(27)	1,977	(17)	2.7%	(25)	231.6	(24)	1.3%	(33)	1,719	(32)	95.4	(27)
Washington	43,577	(22)	5,722.6	(39)	1,404	(21)	3.2%	(22)	184.4	(29)	1.9%	(29)	1,482	(38)	97.8	(26)
West Virginia	4,407	(45)	2,465.9	(47)	97	(45)	2.2%	(27)	54.3	(47)	2.9%	(12)	1,932	(21)	72.1	(39)
Wisconsin	37,906	(24)	6,510.3	(36)	826	(27)	2.2%	(28)	141.9	(34)	2.3%	(22)	1,908	(22)	131.3	(19)
Wyoming	1,951	(48)	3,371.0	(44)	22	(50)	1.1%	(47)	38.0	(48)	1.9%	(28)	553	(50)	59.2	(42)
United States	3,545,077		10,710.1		139,143		3.9%		420.3		1.9%		2,106		193.3	

The following data sources are accessed on a daily or weekly basis:

- The Atlantic's Covid Tracking Project: <https://covidtracking.com>
- Worldometers.info: <https://www.worldometers.info/coronavirus/>
- Centers for Disease Control, National, Regional, and State Level Outpatient Illness and Viral Surveillance
<https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html>
- Centers for Disease Control, COVID-19 Laboratory-Confirmed Hospitalizations
https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html
- Centers for Disease Control, COVID Data Tracker <https://www.cdc.gov/covid-data-tracker/index.html#mobility>
- Institute for Health Metrics and Evaluation, COVID-19 estimate downloads <http://www.healthdata.org/covid/data-downloads>
- New York Times, Covid-19 data <https://github.com/nytimes/covid-19-data>
- COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University
<https://github.com/CSSEGISandData/COVID-19>