

COVID-19 Dashboard

Issue # 79
Thursday, June 18, 2020

Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	~490,000
Test-Positivity Rate	Decline	4.9% test-positive on Tuesday; 4.6% for past 7 days
Number of Cases	Plateau	Cases increased 2.4% day-over-day and 1.7% week-over-week
Deaths % of Total Cases	Decline	5.4%
Number of Deaths / 1M Population	Plateau	35362.4
Recoveries : Death	Increase	7.66

- Overall, cases in the United States appear on the rise, as we have seen new cases >23,000 on 5 of the past 7 days. Seven states account for more than 1/2 the increased cases during this week (listed in descending order of new cases): California, Texas, Florida, Arkansas, North Carolina, Alabama and Georgia
- With the increase in cases, the new daily infection rate per million is now generally 2-7 infections per million per day higher than it had been for the past month; It remains more than 20 infections per million per day lower, however, than it was in mid-May
- In the United States, we seem to have a tale of divergent experiences:
 - 1/3 of the states (primarily in the South and West) are experiencing increases in both infections per million and test-positive rates: Alabama, Arizona, Arkansas, California, Florida, Hawaii (with very low infections), Kansas, Missouri, North Carolina, Nevada, Oklahoma, Oregon, South Carolina, South Dakota, Texas and Wyoming
 - 1/4 of the states have increasing infections per million but, lower test-positive rates (suggesting that increased testing likely accounts for some-to-all of the increase in infections): Alaska, Delaware, Georgia, Idaho, Indiana, Louisiana, Montana, Nebraska, Ohio, Tennessee, Washington, West Virginia and Utah
 - The remaining 21 states have declining infections per million
- Taking into account current infections per million, daily case growth, test-positive% and hospitalized COVID-19 patients:
 - 8 states are now in our "High" concern category: Alabama, Arkansas, Arizona, Florida, Mississippi, North Carolina, South Carolina and Utah. Florida, Mississippi and Utah are new additions to this category.
 - California, Georgia, South Dakota, Tennessee and Texas are in our "Moderately High" concern category
 - Indiana, Louisiana, Minnesota, Nebraska, New Mexico and Virginia are in our "Moderate" concern category
 - The remaining 31 states are in our "Low" concern category
- The shift in the virus progression away from Europe to the Southern Hemisphere is again on evidence, as Peru (now 7th) surpassed Italy yesterday in total cases (now 7th) and Chile (now 11th) surpassed Turkey

COUNTRY-BY-COUNTRY INFORMATION

Countries Included

"Strategic Guidance in an Era of Unprecedented Change"

- In Mid-March, we began tracking the twenty countries with the most coronavirus cases; in mid-April, we expanded it to the thirty countries with the most cases
- We now have visibility to all 213 countries and 2 conveyances that have at least 1 coronavirus case
- Case and death information is sourced from the [worldometers.info](https://www.worldometers.info), the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University and the New York Times, each of which are accessed daily; analysis by Health Industry Advisor LLC

Country-by-Country Comparative Statistics

"Strategic Guidance in an Era of Unprecedented Change"

Top 30 Countries By Total Cases
As of June 17

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 (5-Day M.A.)	Rank8
USA	2,234,471	(1)	6,752	(4)	119,941	(1)	5.4%	(13)	362.4	(7)	1.1%	(19)	1,561	(6)	71.0	(8)
Brazil	960,309	(2)	4,519	(9)	46,665	(2)	4.9%	(14)	219.6	(11)	3.0%	(8)	354	(18)	122.7	(3)
Russia	553,301	(3)	3,791	(14)	7,478	(13)	1.4%	(25)	51.2	(18)	1.6%	(15)	2,089	(3)	57.4	(10)
India	367,264	(4)	266	(28)	12,262	(8)	3.3%	(18)	8.9	(27)	3.5%	(6)	106	(22)	8.4	(23)
UK	299,251	(5)	4,409	(10)	42,153	(3)	14.1%	(4)	621.1	(2)	0.4%	(22)	2,270	(2)	18.6	(18)
Spain	291,763	(6)	6,240	(5)	27,136	(6)	9.3%	(7)	580.4	(3)	0.1%	(29)	1,104	(7)	6.3	(26)
Peru	240,908	(7)	7,311	(3)	7,257	(14)	3.0%	(20)	220.2	(10)	1.8%	(13)	702	(12)	122.3	(5)
Italy	237,828	(8)	3,933	(13)	34,448	(4)	14.5%	(3)	569.7	(4)	0.1%	(28)	927	(11)	5.0	(28)
Iran	195,051	(9)	2,323	(19)	9,185	(10)	4.7%	(15)	109.4	(15)	1.3%	(16)	325	(19)	29.8	(15)
Germany	190,179	(10)	2,270	(20)	8,927	(11)	4.7%	(16)	106.6	(16)	0.3%	(24)	572	(14)	7.0	(25)
Chile	184,449	(11)	9,652	(2)	3,615	(20)	2.0%	(23)	189.2	(13)	2.8%	(10)	934	(10)	247.0	(2)
Turkey	182,727	(12)	2,167	(21)	4,861	(17)	2.7%	(21)	57.7	(17)	0.8%	(21)	545	(15)	17.8	(19)
France	158,174	(13)	2,423	(18)	29,575	(5)	18.7%	(1)	453.1	(6)	0.2%	(26)	0	(28)	5.8	(27)
Mexico	154,863	(14)	1,202	(23)	18,310	(7)	11.8%	(6)	142.1	(14)	2.9%	(9)	79	(24)	32.4	(13)
Pakistan	154,760	(15)	701	(25)	2,975	(21)	1.9%	(24)	13.5	(26)	4.2%	(2)	127	(21)	26.1	(16)
Saudi Arabia	141,234	(16)	4,059	(12)	1,091	(27)	0.8%	(27)	31.4	(21)	3.3%	(7)	606	(13)	122.4	(4)
Canada	99,853	(17)	2,647	(17)	8,254	(12)	8.3%	(9)	218.8	(12)	0.4%	(23)	1,003	(9)	10.1	(21)
Bangladesh	98,489	(18)	598	(26)	1,305	(26)	1.3%	(26)	7.9	(29)	3.9%	(4)	95	(23)	20.6	(17)
China	83,265	(19)	58	(30)	4,634	(18)	5.6%	(11)	3.2	(30)	0.0%	(30)	0	(27)	0.0	(30)
Qatar	83,174	(20)	29,622	(1)	82	(30)	0.1%	(30)	29.2	(23)	1.7%	(14)	1,772	(5)	469.1	(1)
South Africa	80,412	(21)	1,356	(22)	1,674	(25)	2.1%	(22)	28.2	(24)	5.4%	(1)	487	(16)	62.4	(9)
Belgium	60,244	(22)	5,199	(8)	9,675	(9)	16.1%	(2)	834.9	(1)	0.1%	(27)	1,065	(8)	7.3	(24)
Colombia	57,046	(23)	1,122	(24)	1,864	(23)	3.3%	(19)	36.6	(19)	4.0%	(3)	253	(20)	40.1	(11)
Belarus	56,032	(24)	5,930	(6)	324	(28)	0.6%	(29)	34.3	(20)	1.3%	(17)	1,805	(4)	74.3	(7)
Sweden	54,562	(25)	5,404	(7)	5,041	(16)	9.2%	(8)	499.3	(5)	1.9%	(12)	-1	(30)	96.6	(6)
Egypt	49,219	(26)	481	(27)	1,850	(24)	3.8%	(17)	18.1	(25)	3.6%	(5)	0	(28)	15.5	(20)
Netherlands	49,204	(27)	2,872	(15)	6,074	(15)	12.3%	(5)	354.5	(8)	0.3%	(25)	407	(17)	8.7	(22)
Ecuador	48,490	(28)	2,750	(16)	4,007	(19)	8.3%	(10)	227.3	(9)	1.2%	(18)	62	(25)	30.8	(14)
UAE	43,364	(29)	4,387	(11)	295	(29)	0.7%	(28)	29.8	(22)	0.9%	(20)	6,682	(1)	37.7	(12)
Indonesia	41,431	(30)	152	(29)	2,276	(22)	5.5%	(12)	8.3	(28)	2.6%	(11)	59	(26)	3.7	(29)

Note: China does not report test volumes

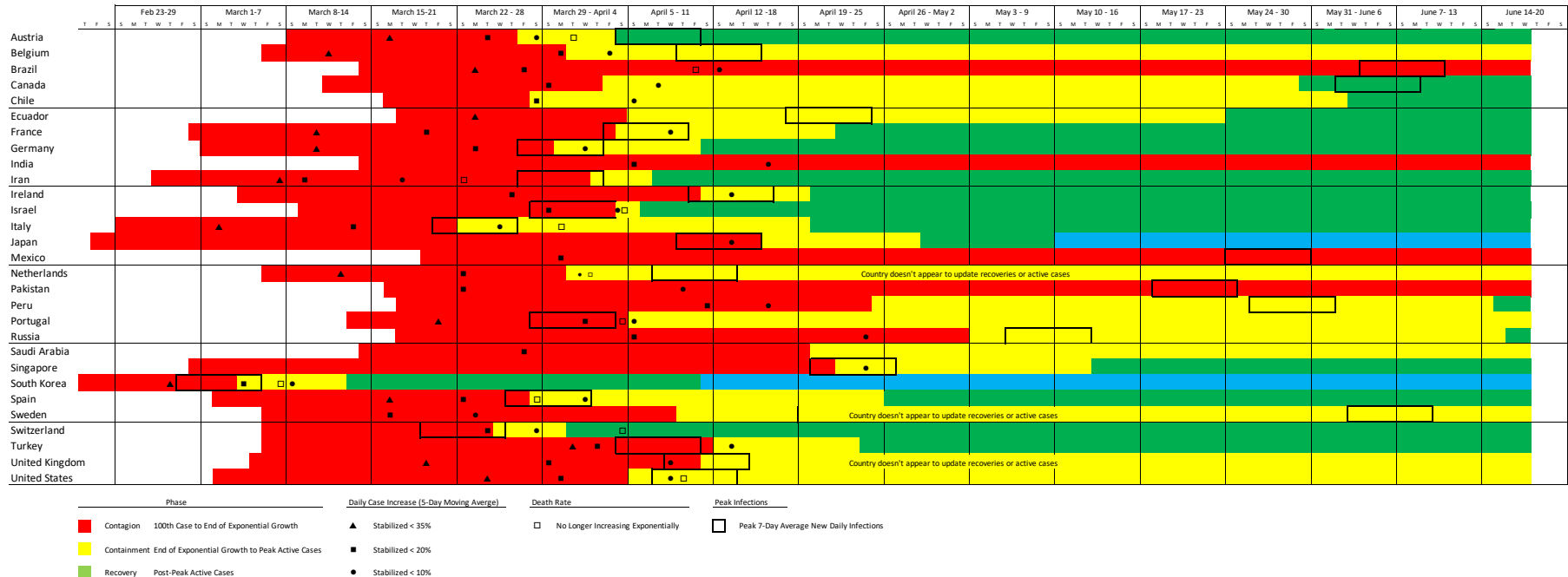
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VIRUS PROGRESSION BY COUNTRY

Country-by-Country Virus Progression – Original 30 Hardest-Hit Countries

“Strategic Guidance in an Era of Unprecedented Change”

This graphic illustrates 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.



UNITED STATES & STATE-BY-STATE INFORMATION

Country-By-Country Listing of Countries By Total Cases

"Strategic Guidance in an Era of Unprecedented Change"

Countries making large upward movements are highlighted

When we first expanded our tracking to 30 countries in mid-April, they represented the most countries with cases in the world. Since that time, Austria, Israel, Japan and South Korea have dropped in the rankings. Among the countries that have moved up:

- Afghanistan
- Argentina
- Bangladesh
- Belarus
- Columbia
- Denmark
- Dominican Republic
- Indonesia
- Kuwait
- Poland
- Qatar
- Panama
- Philippines
- Romania
- South Africa
- UAE
- Ukraine

The original 30 still account for 85.1% of all cases worldwide.

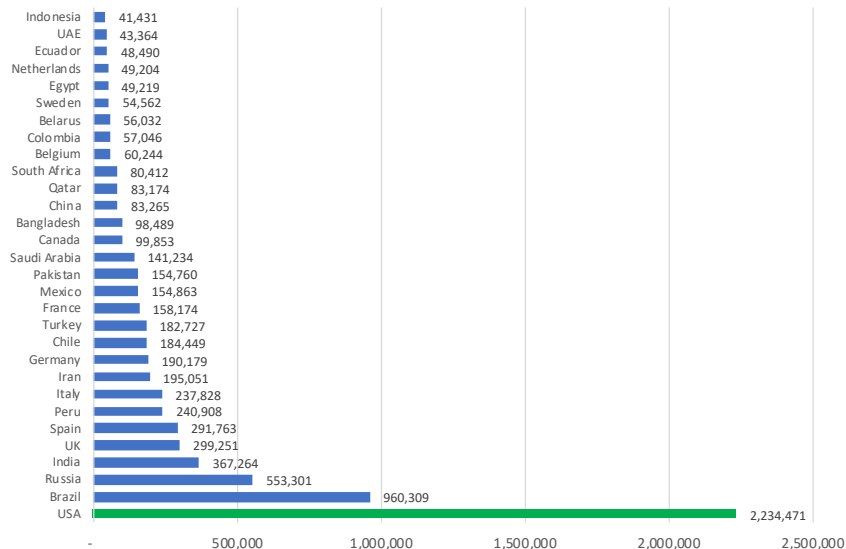
Total Cases								
Rank	Country	17-Jun	Rank	Country	6-May	Rank	Country	27-Apr
1	USA	2,234,471	1	USA	1,263,092	1	USA	1,010,356
2	Brazil	960,309	2	Spain	253,682	2	Spain	229,422
3	Russia	553,301	3	Italy	214,457	3	Italy	199,414
4	India	367,264	4	UK	201,101	4	France	128,339
5	UK	299,251	5	France	174,191	5	Germany	158,758
6	Spain	291,763	6	Germany	168,162	6	UK	157,149
7	Peru	240,908	7	Russia	165,929	7	Turkey	112,261
8	Italy	237,828	8	Turkey	131,744	8	Iran	91,472
9	Iran	195,051	9	Brazil	126,611	9	Russia	87,147
10	Germany	190,179	10	Iran	101,650	10	China	82,830
11	Chile	184,449	11	China	82,883	11	Brazil	66,501
12	Turkey	182,727	12	Canada	63,496	12	Canada	48,500
13	France	158,174	13	Peru	54,817	13	Belgium	46,687
14	Mexico	154,863	14	India	52,987	14	Netherlands	38,245
15	Pakistan	154,760	15	Belgium	50,781	15	India	29,451
16	Saudi Arabia	141,234	16	Netherlands	41,319	16	Switzerland	29,164
17	Canada	99,853	17	Saudi Arabia	31,938	17	Peru	28,669
19	China	83,265	18	Switzerland	30,060	18	Portugal	24,070
22	Belgium	60,244	19	Ecuador	29,420	19	Ecuador	23,240
25	Sweden	54,562	20	Portugal	26,182	20	Ireland	19,648
27	Netherlands	49,204	21	Mexico	26,025	21	Sweden	18,926
28	Ecuador	48,490	22	Sweden	23,918	22	Saudi Arabia	18,811
31	Singapore	41,216	23	Pakistan	23,214	23	Israel	15,555
32	Portugal	37,672	24	Chile	23,048	24	Austria	15,274
36	Switzerland	31,187	25	Ireland	22,248	25	Mexico	14,677
41	Ireland	25,341	26	Singapore	20,198	26	Singapore	14,423
48	Israel	19,783	29	Israel	16,310	27	Pakistan	13,915
51	Japan	17,628	31	Austria	15,684	28	Chile	13,813
52	Austria	17,203	32	Japan	15,253	29	Japan	13,614
58	S. Korea	12,198	38	S. Korea	10,806	35	South Korea	10,738
	Others	1,248,718		Others	356,176		Others	301,446
	World	8,393,096			3,817,382		World	3,062,515
30 countries' share		85.1%			90.7%			90.2%

Country-by-Country Cases & Cases Per Capita

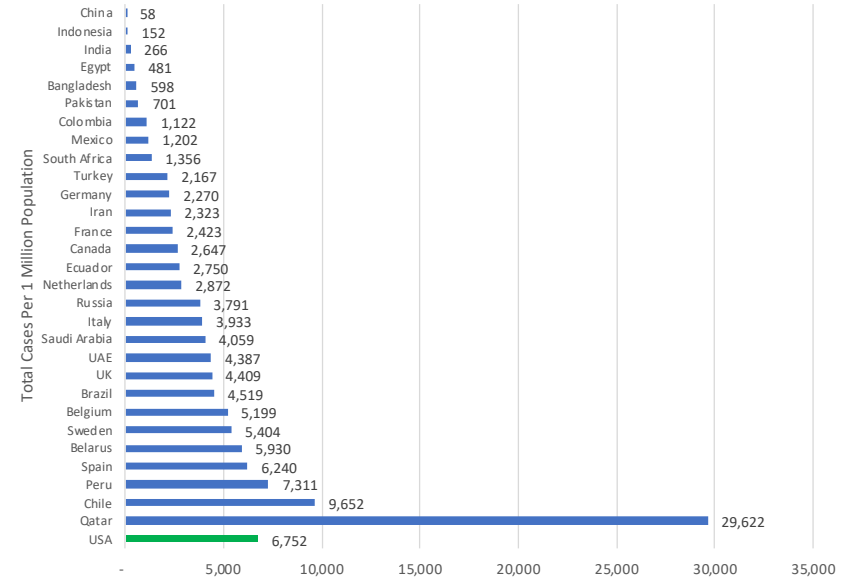
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Countries Ranked 1-30 In Total Cases

Total Cases By Country
June 17

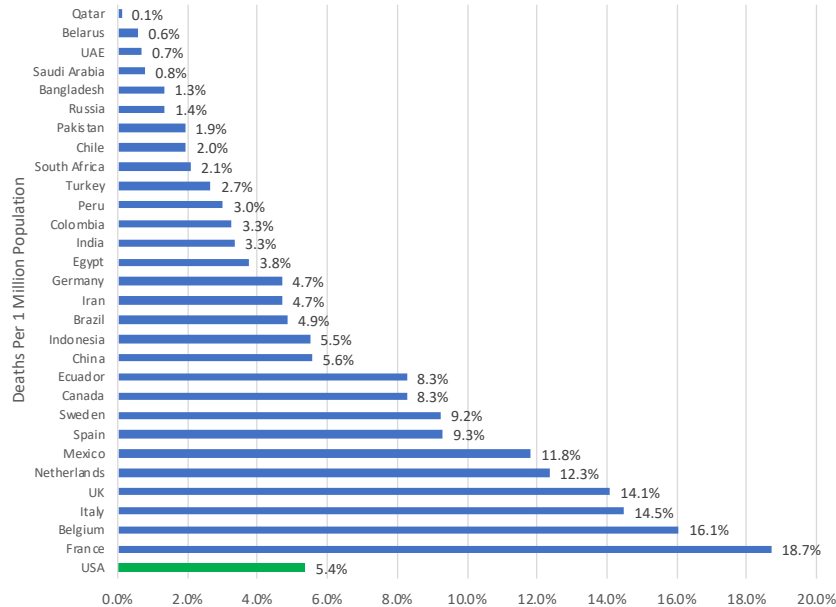


Cases Per Capita By Country
June 17

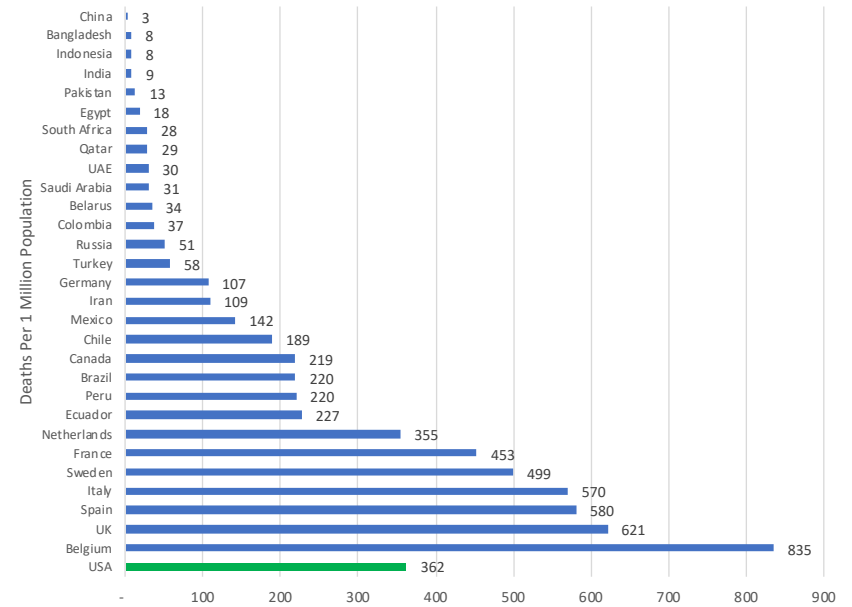


Countries Ranked 1-30 In Total Cases

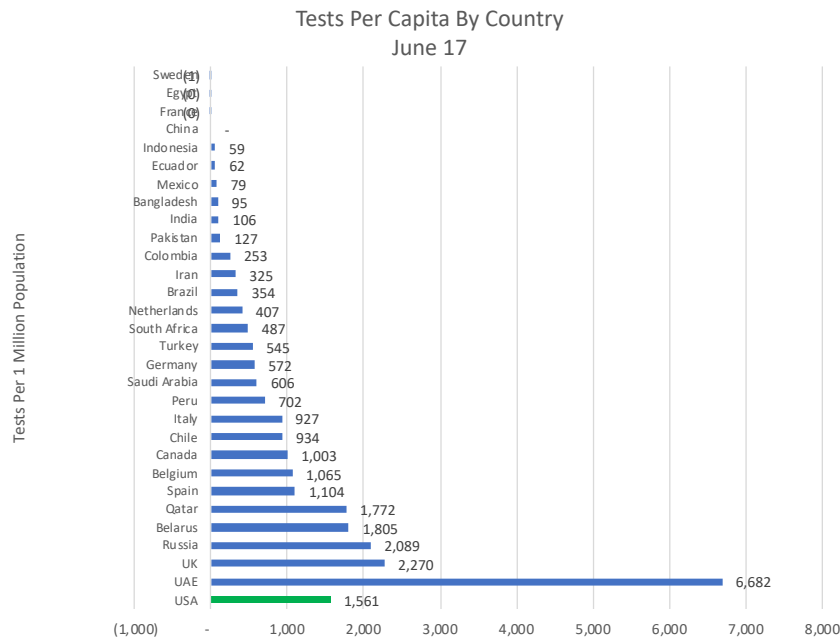
Death Rate By Country
June 17



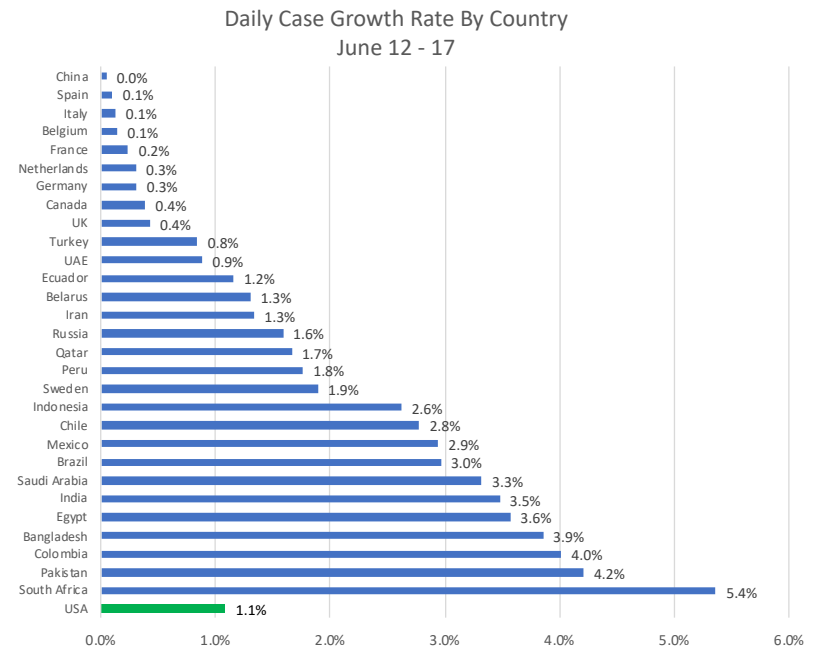
Deaths Per Capita By Country
June 17



Countries Ranked 1-30 In Total Cases



Daily Tests Per Capita For Past Week

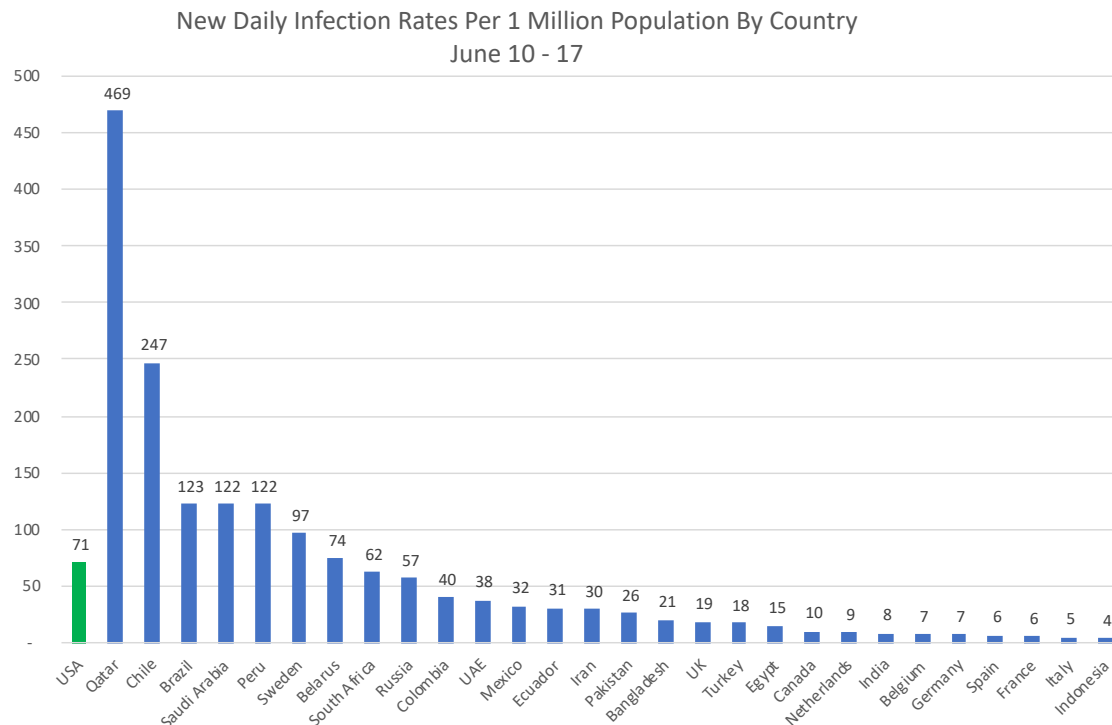


Daily Case Growth – 5-Day Moving Average

Country-by-Country New Daily Infection Rates

"Strategic Guidance in an Era of Unprecedented Change"

Countries Ranked 1-30 In Total Cases



STATE-BY-STATE OVERALL ASSESSMENT SCORECARD

State-By-State Overall Assessment Scorecard

"Strategic Guidance in an Era of Unprecedented Change"

Status, as of June 17

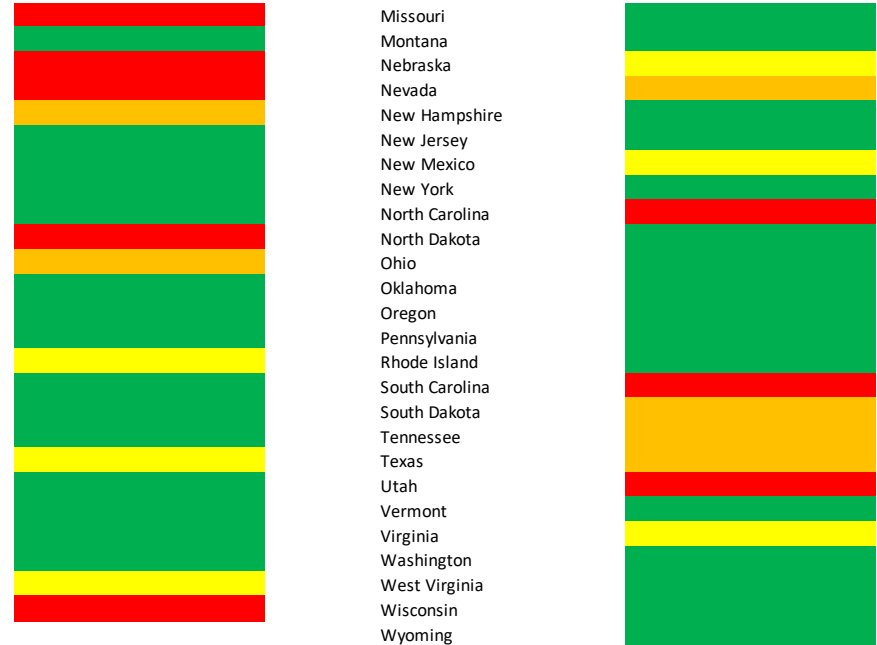
Several factors should be considered when assessing where a state stands with its virus progression status:

- Current rate of new infections
 - relative to its peak (is it declining or near its peak?)
- Test-positive rate
- Rate of change in cases
- Hospitalized patients v. its peak

We combined these criteria into a single score, reflective of our relative degree of concern of each state's current status (High, Moderately High, Moderate, Low)

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



Key

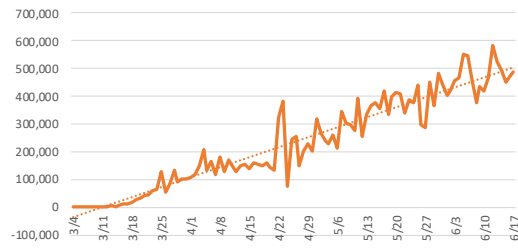
High
Moderately High
Moderate
Low



"Strategic Guidance in an Era of Unprecedented Change"

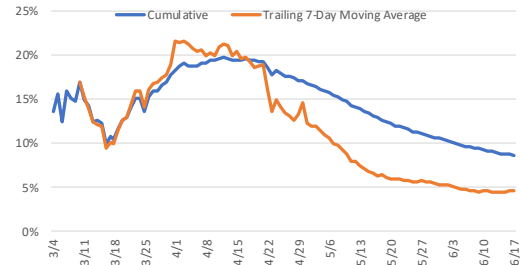
With significantly increased testing, the US is now meeting the WHO standard of <10% test-positives. This suggests that asymptomatic cases are being captured and that we have a better view of true infection rates. Further, new daily infections continue to decline; the death rate seems to have stabilized.

New Daily Tests - US



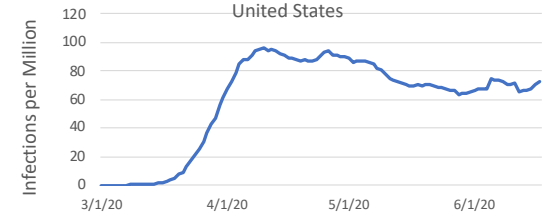
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Test-Positive Rate



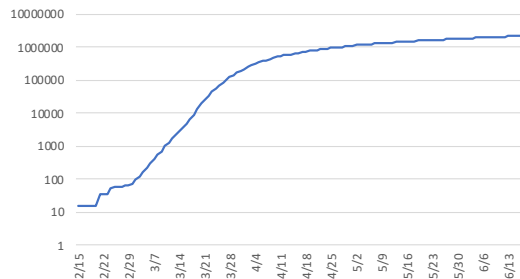
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New Daily Infections Per 1M
Trailing 7-Day Moving Average
United States



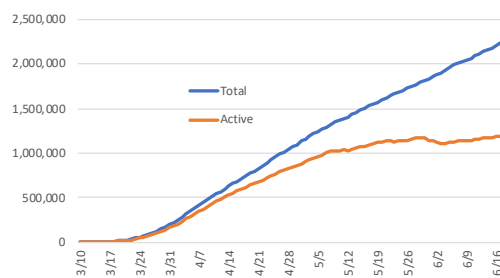
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Total Cases Log Scale - US



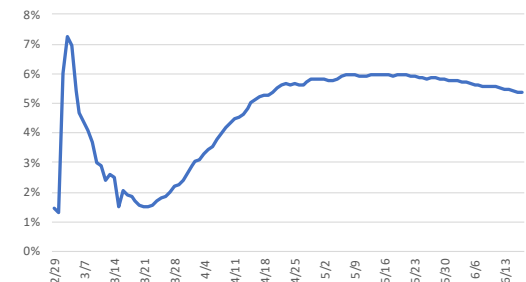
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Cases - US



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Deaths Per Case - US

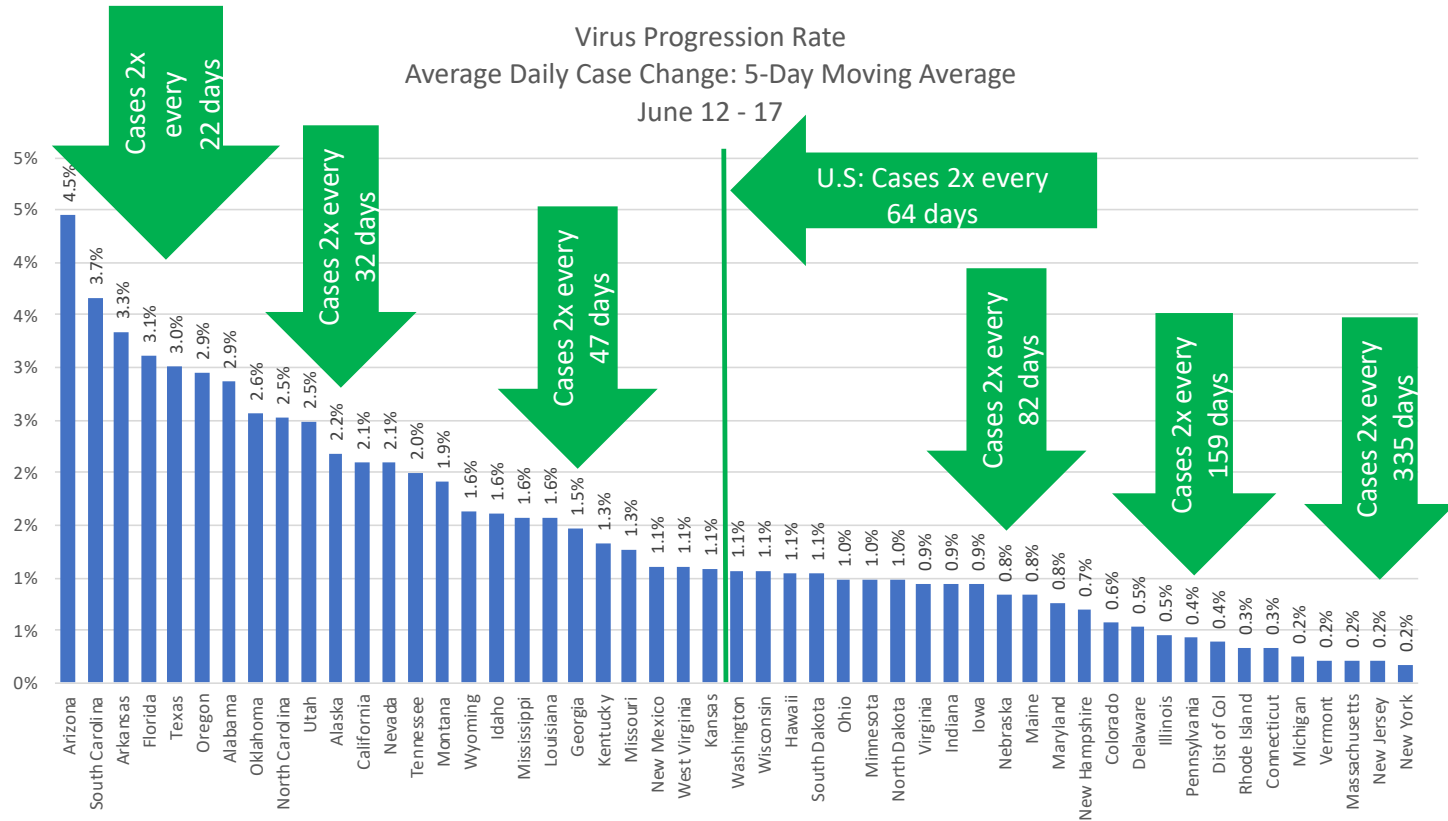


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Average Daily Case Growth

"Strategic Guidance in an Era of Unprecedented Change"

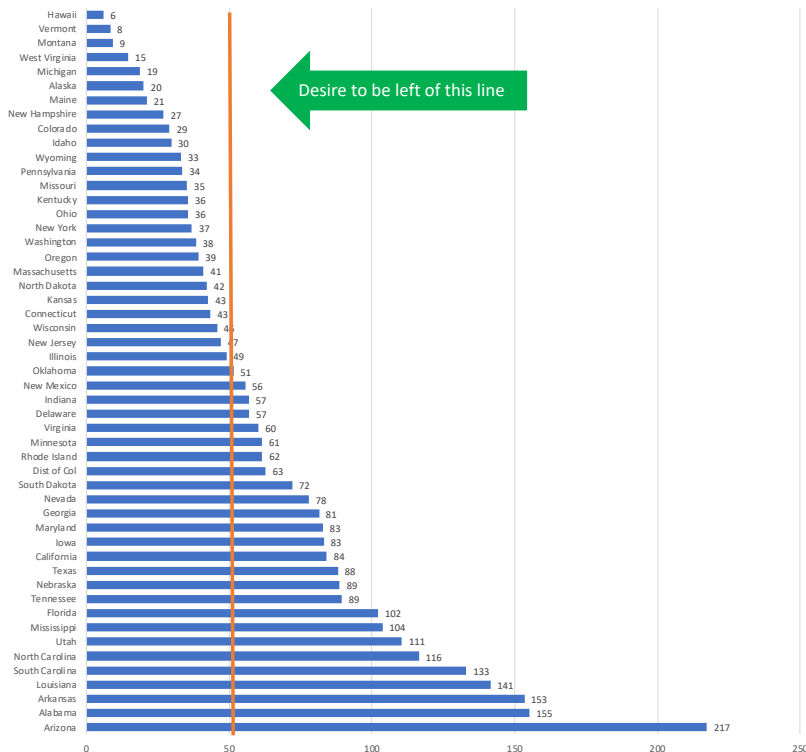
At the height of the epidemic, cases in some states were doubling every few days. Now, they would take from 16 – 405 days to double



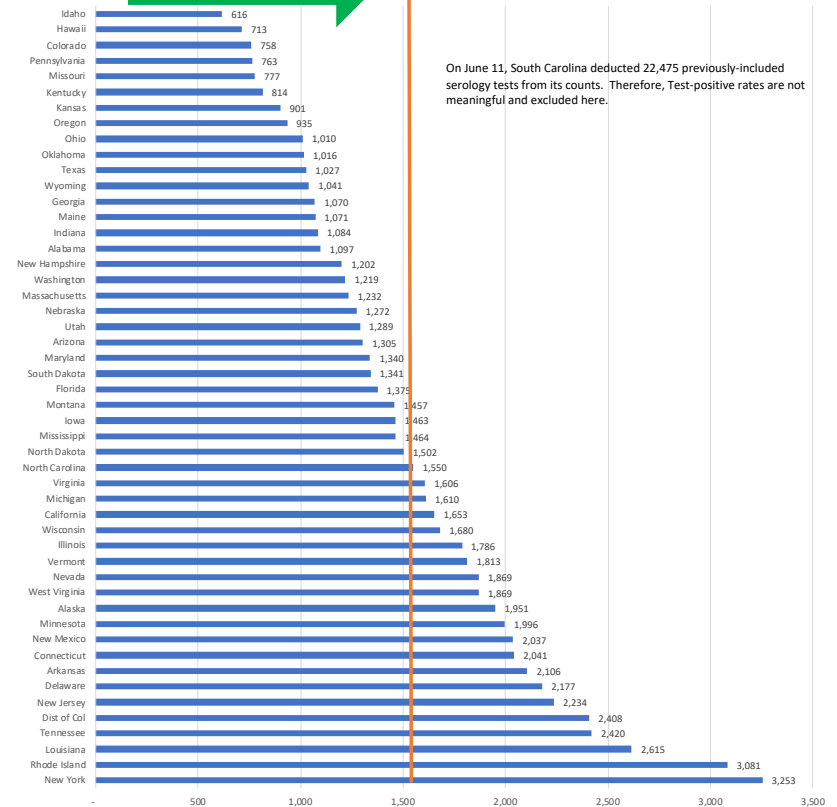
State-by-State New Daily Infections & Tests Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

New Daily Infections Per 1 Million Population
By State
June 10 - 17



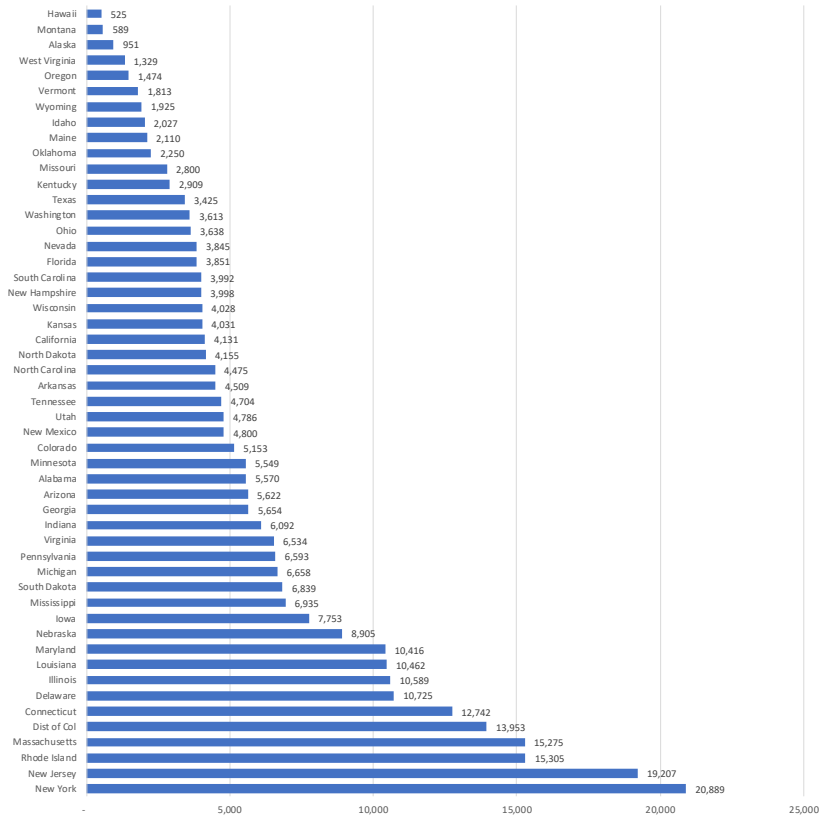
Daily Tests Per 1 Million Population
By State
June 10-17



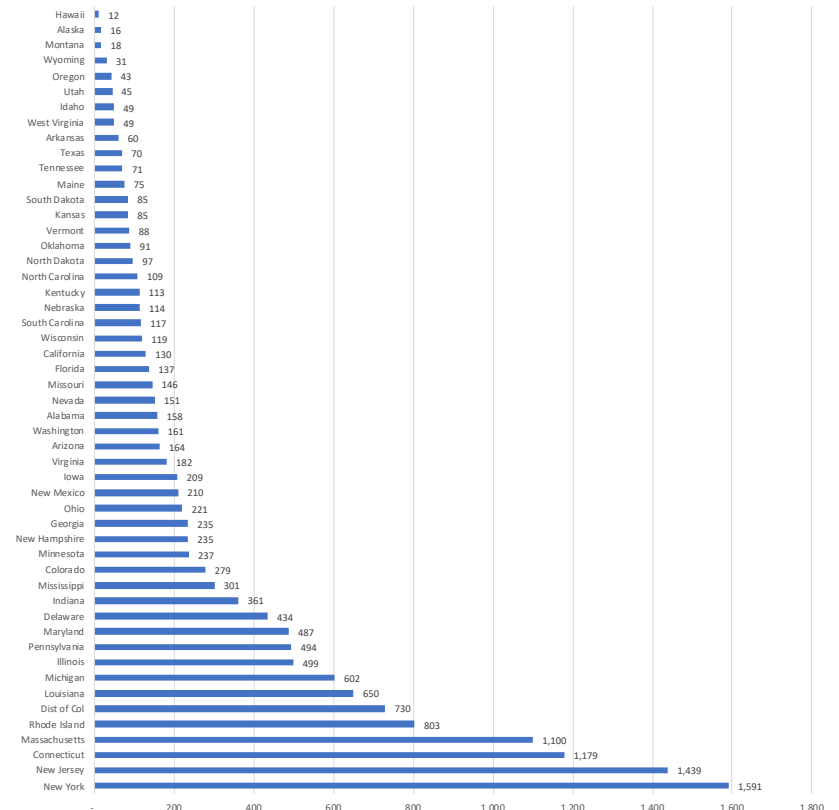
State-by-State Cases & Deaths Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

Total Cases Per 1 Million Population
By State
As of June 17



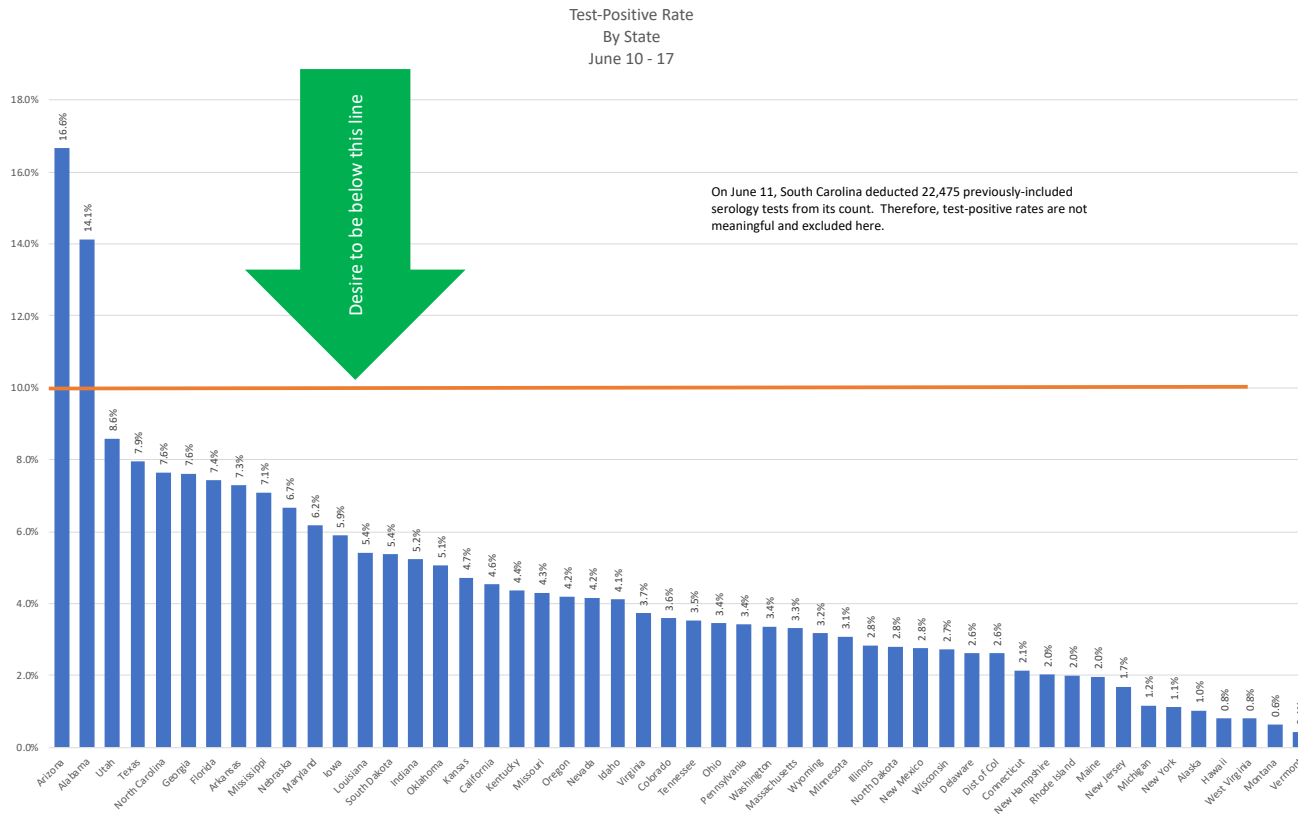
Deaths Per 1 Million Population
By State
As of June 17



Which States Are Performing Sufficient Tests?

"Strategic Guidance in an Era of Unprecedented Change"

The [World Health Organization](#) suggested that the test-positive rate should be 10% or lower, for testing to be sufficient to assess the true prevalence of the virus. Only Alabama and Arizona failed to meet this guideline for the past week.



As of June 17

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	27,312	(23)	5,570.3	(21)	790	(25)	2.9%	(36)	161.1	(25)	2.9%	(7)	1,097	(35)	160.0	(2)
Alaska	696	(50)	951.4	(49)	12	(51)	1.7%	(45)	16.4	(50)	2.2%	(11)	1,951	(12)	20.1	(46)
Arizona	40,924	(18)	5,622.4	(20)	1,239	(19)	3.0%	(33)	170.2	(23)	4.5%	(1)	1,305	(29)	212.0	(1)
Arkansas	13,606	(32)	4,508.5	(27)	197	(39)	1.4%	(48)	65.3	(43)	3.3%	(3)	2,106	(8)	147.3	(3)
California	163,220	(3)	4,130.9	(30)	5,286	(7)	3.2%	(30)	133.8	(29)	2.1%	(12)	1,653	(18)	79.6	(15)
Colorado	29,673	(21)	5,152.7	(23)	1,631	(16)	5.5%	(11)	283.2	(15)	0.6%	(40)	758	(48)	27.2	(42)
Connecticut	45,429	(15)	12,742.0	(6)	4,219	(8)	9.3%	(1)	1,183.4	(3)	0.3%	(46)	2,041	(9)	46.9	(28)
Delaware	10,444	(36)	10,725.4	(7)	426	(34)	4.1%	(24)	437.5	(12)	0.5%	(41)	2,177	(7)	56.2	(25)
District Of Columbia	9,847	(38)	13,952.6	(5)	523	(29)	5.3%	(14)	741.1	(6)	0.4%	(44)	2,408	(5)	69.6	(19)
Florida	82,719	(8)	3,851.4	(35)	3,021	(10)	3.7%	(28)	140.7	(28)	3.1%	(4)	1,375	(26)	93.8	(9)
Georgia	60,030	(11)	5,653.9	(19)	2,575	(13)	4.3%	(22)	242.5	(17)	1.5%	(20)	1,070	(38)	78.4	(16)
Hawaii	744	(49)	525.5	(51)	17	(50)	2.3%	(42)	12.0	(51)	1.1%	(28)	713	(49)	5.9	(51)
Idaho	3,632	(43)	2,026.7	(44)	88	(44)	2.4%	(40)	49.1	(45)	1.6%	(17)	616	(50)	25.5	(43)
Illinois	134,185	(4)	10,589.2	(8)	6,485	(4)	4.8%	(16)	511.8	(9)	0.5%	(42)	1,786	(16)	49.9	(26)
Indiana	41,013	(17)	6,092.0	(18)	2,475	(14)	6.0%	(10)	367.6	(13)	0.9%	(34)	1,084	(36)	58.4	(23)
Iowa	24,462	(24)	7,753.2	(12)	675	(27)	2.8%	(38)	213.9	(21)	0.9%	(35)	1,463	(24)	87.9	(11)
Kansas	11,743	(35)	4,030.8	(31)	249	(37)	2.1%	(43)	85.5	(39)	1.1%	(25)	901	(44)	38.6	(33)
Kentucky	12,995	(33)	2,908.7	(40)	518	(30)	4.0%	(26)	115.9	(33)	1.3%	(21)	814	(45)	35.8	(36)
Louisiana	48,634	(13)	10,461.6	(9)	3,068	(9)	6.3%	(7)	660.0	(7)	1.6%	(19)	2,615	(3)	125.8	(5)
Maine	2,836	(45)	2,109.8	(43)	102	(42)	3.6%	(29)	75.9	(40)	0.8%	(37)	1,071	(37)	22.6	(45)
Maryland	62,969	(10)	10,415.5	(10)	2,996	(11)	4.8%	(17)	495.6	(11)	0.8%	(38)	1,340	(28)	82.8	(13)
Massachusetts	106,151	(5)	15,274.6	(4)	7,734	(3)	7.3%	(6)	1,112.9	(4)	0.2%	(49)	1,232	(32)	41.0	(32)
Michigan	66,497	(9)	6,658.5	(15)	6,036	(6)	9.1%	(2)	604.4	(8)	0.2%	(47)	1,610	(19)	18.2	(47)
Minnesota	31,296	(20)	5,549.3	(22)	1,357	(18)	4.3%	(21)	240.6	(18)	1.0%	(31)	1,996	(11)	59.8	(22)
Mississippi	20,641	(26)	6,935.5	(13)	938	(22)	4.5%	(18)	315.2	(14)	1.6%	(18)	1,464	(23)	98.1	(8)

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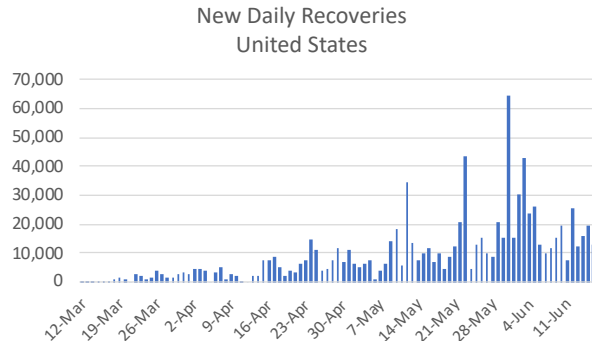
As of June 17

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	17,185	(29)	2,800.0	(41)	926	(23)	5.4%	(13)	150.9	(27)	1.3%	(22)	777	(46)	35.1	(37)
Montana	630	(51)	589.5	(50)	20	(48)	3.2%	(31)	18.7	(49)	1.9%	(15)	1,457	(25)	8.0	(50)
Nebraska	17,226	(28)	8,905.1	(11)	234	(38)	1.4%	(49)	121.0	(31)	0.8%	(36)	1,272	(31)	84.8	(12)
Nevada	11,842	(34)	3,844.6	(36)	473	(32)	4.0%	(25)	153.6	(26)	2.1%	(13)	1,869	(14)	75.5	(17)
New Hampshire	5,436	(42)	3,997.9	(33)	330	(36)	6.1%	(9)	242.7	(16)	0.7%	(39)	1,202	(34)	24.4	(44)
New Jersey	170,599	(2)	19,206.9	(2)	12,891	(2)	7.6%	(5)	1,451.3	(2)	0.2%	(50)	2,234	(6)	49.2	(27)
New Mexico	10,065	(37)	4,800.1	(24)	452	(33)	4.5%	(20)	215.6	(20)	1.1%	(23)	2,037	(10)	56.4	(24)
New York	406,367	(1)	20,889.1	(1)	31,046	(1)	7.6%	(3)	1,595.9	(1)	0.2%	(51)	3,253	(1)	37.6	(34)
North Carolina	46,933	(14)	4,474.9	(28)	1,181	(21)	2.5%	(39)	112.6	(34)	2.5%	(9)	1,550	(21)	118.2	(6)
North Dakota	3,166	(44)	4,154.5	(29)	74	(46)	2.3%	(41)	97.1	(35)	1.0%	(32)	1,502	(22)	41.8	(31)
Ohio	42,530	(16)	3,638.4	(37)	2,617	(12)	6.2%	(8)	223.9	(19)	1.0%	(30)	1,010	(42)	35.1	(38)
Oklahoma	8,904	(39)	2,250.2	(42)	364	(35)	4.1%	(23)	92.0	(36)	2.6%	(8)	1,016	(41)	46.3	(30)
Oregon	6,218	(40)	1,474.3	(47)	183	(40)	2.9%	(35)	43.4	(47)	2.9%	(6)	935	(43)	37.6	(35)
Pennsylvania	84,399	(7)	6,592.6	(16)	6,388	(5)	7.6%	(4)	499.0	(10)	0.4%	(43)	763	(47)	34.8	(40)
Rhode Island	16,213	(30)	15,304.5	(3)	876	(24)	5.4%	(12)	826.9	(5)	0.3%	(45)	3,081	(2)	63.8	(20)
South Carolina	20,556	(27)	3,992.5	(34)	617	(28)	3.0%	(34)	119.8	(32)	3.7%	(2)	561	(51)	132.1	(4)
South Dakota	6,050	(41)	6,838.8	(14)	78	(45)	1.3%	(50)	88.2	(37)	1.1%	(29)	1,341	(27)	71.5	(18)
Tennessee	32,143	(19)	4,704.0	(26)	497	(31)	1.5%	(47)	72.7	(41)	2.0%	(14)	2,420	(4)	89.0	(10)
Texas	99,304	(6)	3,424.8	(39)	2,105	(15)	2.1%	(44)	72.6	(42)	3.0%	(5)	1,027	(40)	82.8	(14)
Utah	15,344	(31)	4,786.1	(25)	149	(41)	1.0%	(51)	46.5	(46)	2.5%	(10)	1,289	(30)	106.0	(7)
Vermont	1,131	(47)	1,812.5	(46)	55	(47)	4.9%	(15)	88.1	(38)	0.2%	(48)	1,813	(15)	10.8	(49)
Virginia	55,775	(12)	6,534.5	(17)	1,583	(17)	2.8%	(37)	185.5	(22)	0.9%	(33)	1,606	(20)	60.1	(21)
Washington	27,514	(22)	3,613.2	(38)	1,236	(20)	4.5%	(19)	162.3	(24)	1.1%	(26)	1,219	(33)	35.0	(39)
West Virginia	2,376	(46)	1,329.5	(48)	88	(44)	3.7%	(27)	49.2	(44)	1.1%	(24)	1,869	(13)	12.9	(48)
Wisconsin	23,454	(25)	4,028.2	(32)	712	(26)	3.0%	(32)	122.3	(30)	1.1%	(27)	1,680	(17)	46.4	(29)
Wyoming	1,114	(48)	1,924.8	(45)	18	(49)	1.6%	(46)	31.1	(48)	1.6%	(16)	1,041	(39)	29.4	(41)
United States	2,234,471		6,750.6		119,941		5.4%		362.4		1.1%		1,497		71.0	

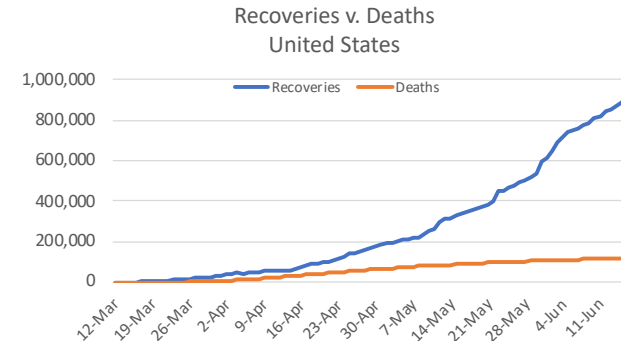
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UNDER-REPORTED RECOVERIES? POSSIBLE LAG IN STATE REPORTING

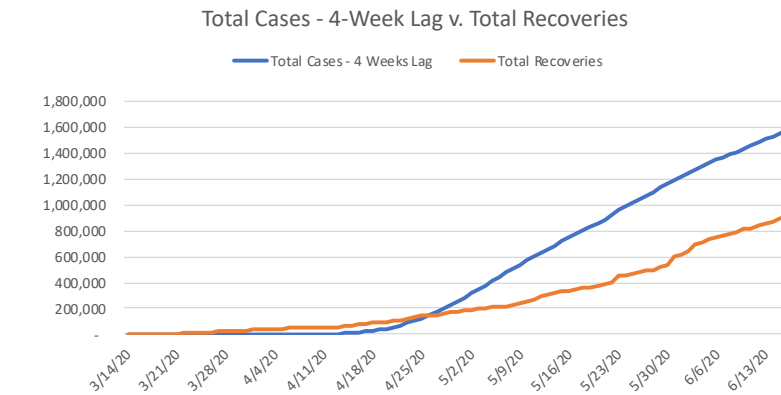
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Which states seem to be lagging in reporting?

At this point, we should be expecting far more recoveries in the U.S.

Comparing the reported recoveries to Total Cases 4 weeks ago*, this shortfall is ~355-515k

* - 4 weeks is the presumed time from infection-onset to recovery referenced by many states

State	Recoveries	Expected Recoveries	
		Low	High
Alabama	15,974	10,195	11,470
Alaska	438	322	362
Arizona	6,715	11,918	13,407
Arkansas	8,996	4,002	4,503
California	44,593	68,708	77,297
Colorado	4,284	18,238	20,517
Connecticut	8,794	31,214	35,115
Delaware	6,256	6,555	7,375
District Of Columbia	1,155	6,041	6,796
Florida	15,985	37,977	42,724
Georgia	3,633	31,841	35,821
Hawaii	639	514	579
Idaho	3,013	2,005	2,255
Illinois	86,157	80,334	90,376
Indiana	29,357	23,419	26,347
Iowa	15,372	12,496	14,058
Kansas	6,832	6,803	7,654
Kentucky	3,444	6,534	7,350
Louisiana	37,017	28,253	31,784
Maine	2,275	1,455	1,637
Maryland	4,596	33,858	38,091
Massachusetts	88,725	71,176	80,073
Michigan	45,089	42,407	47,708
Minnesota	27,404	14,136	15,903
Mississippi	15,323	9,574	10,770
Missouri	3,793	9,210	10,362

State	Recoveries	Expected Recoveries	
		Low	High
Montana	538	382	430
Nebraska	10,761	8,898	10,010
Nevada	8,409	5,733	6,449
New Hampshire	4,104	3,094	3,481
New Jersey	34,031	121,677	136,886
New Mexico	4,351	5,054	5,685
New York	86,367	291,399	327,824
North Carolina	29,219	16,209	18,235
North Dakota	2,756	1,676	1,886
Ohio	9,126	23,549	26,492
Oklahoma	6,898	4,426	4,979
Oregon	2,457	3,041	3,421
Pennsylvania	57,603	54,521	61,336
Rhode Island	1,479	10,685	12,020
South Carolina	9,734	7,340	8,258
South Dakota	5,069	3,342	3,759
Tennessee	20,710	14,826	16,679
Texas	62,368	41,321	46,486
Utah	8,552	6,168	6,939
Vermont	915	755	850
Virginia	7,341	26,326	29,617
Washington	8,912	15,858	17,840
West Virginia	1,654	1,254	1,410
Wisconsin	17,122	10,730	12,072
Wyoming	862	630	708
United States	918,796	1,274,178	1,433,451

Low = 80% of Total Cases 4 week ago
High = 90% of Total Cases 4 week ago

States seemingly up-to-date with reporting recoveries
States only reporting ~ 1/2 expected recoveries
States well-behind in reporting recoveries

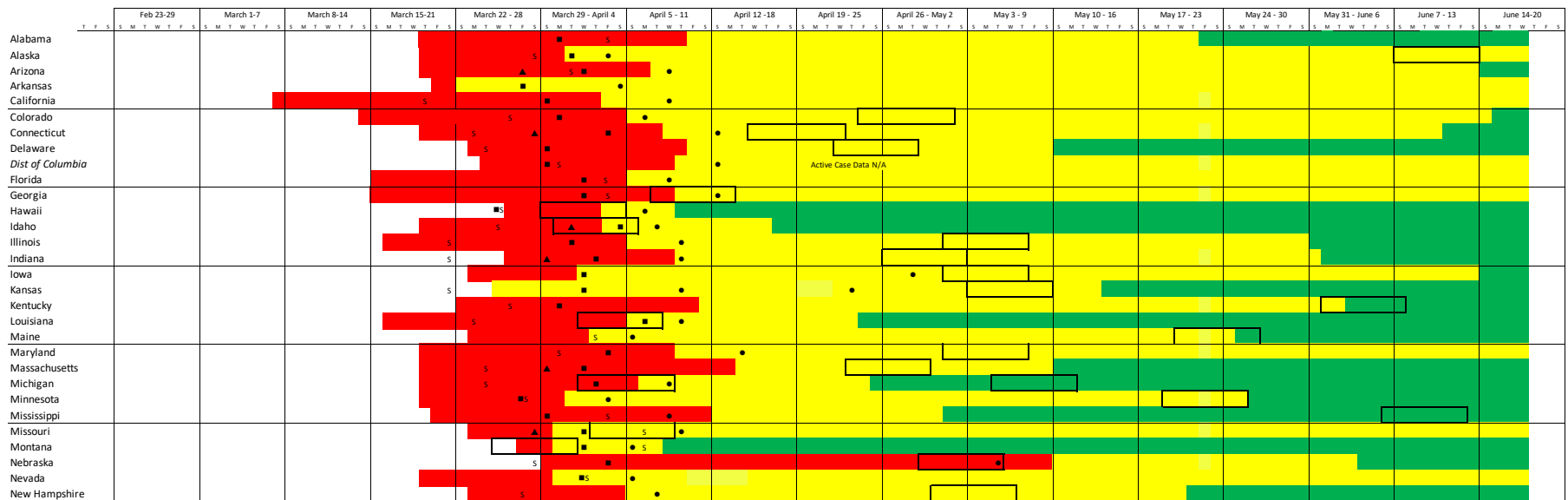
VIRUS PROGRESSION: ROADMAP TO RECOVERY

The graphic on the following two pages illustrates when the state 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.

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

State-by-State Virus Progression – 1 of 2

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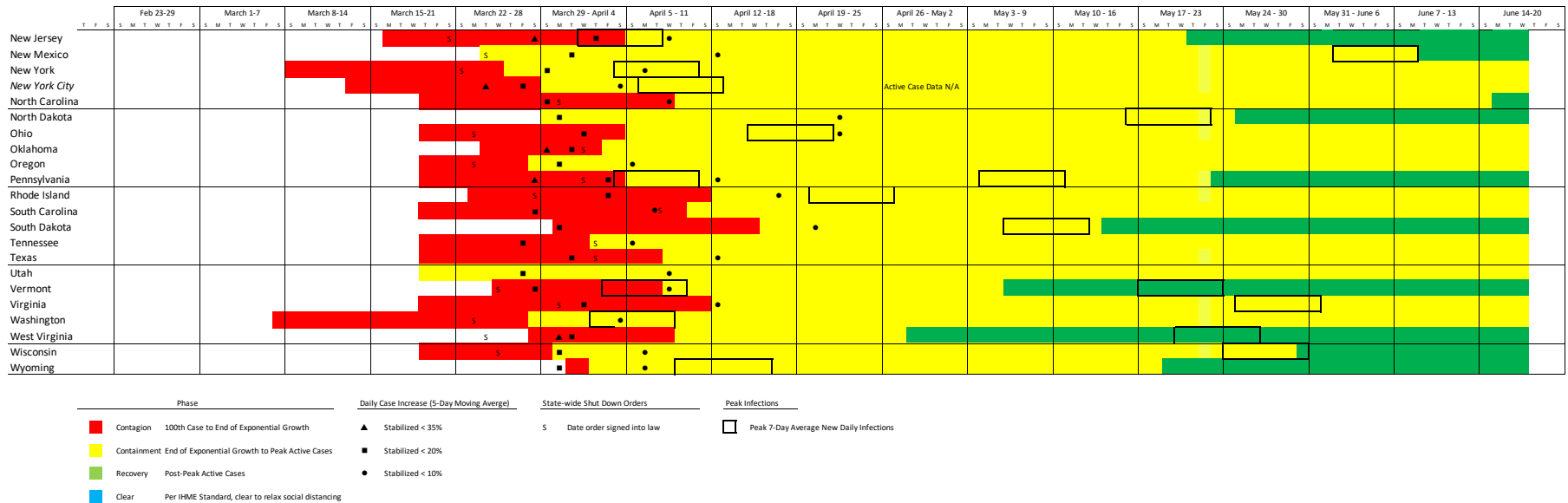


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State-by-State Virus Progression – 2 of 2

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